

Msgr. McClancy Memorial H.S. - (11) Controlled
Insp. Rpts/Quality Assurance - Aircraft Noise
Abatement Prog. School - Stage II Soundproofing



**CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM**

Period Ending
10/31/07

U. S. Department
of Transportation
**Federal Aviation
Administration**

Project Number
**McClancy HS
LGA 841-099**

Airport Name
LaGuardia Airport

Project Description
Soundproofing (Window replacement & AC)

Contractor's Name
Nagan Conair JV

1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
92%

2. Work Completed or in Progress this period
Little or no work completed since last report dated 10/18/07

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 6 days throughout the last 13 days, Temperatures range from lowest 43 degrees to highest 81 degrees (F).

4. Summary of Laboratory and Field Testing This Period *(Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.)*
None

5. Describe Anticipated Work by Contractor for Next Period
NONE- See item 6

6. Problem Areas/Other Comments *(Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)*
**This report covers 13 day period from 10/19/07 to 10/31/07.
No work has been performed other than minor adjustments to the BMS and checking on a reported minor pipe leak in the mechanical room**

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
11/1/07

Typed of Printed Name and Title
Nelson Parra

Signature



U. S. Department
of Transportation
**Federal Aviation
Administration**

CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
10/18/07

Project Number
**McClancy HS
LGA 841-099**

Airport Name
LaGuardia Airport

Project Description Soundproofing (Window replacement & AC)	Contractor's Name Nagan Conair JV
---	---

1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
92%

2. Work Completed or in Progress this period
Paving of Parking lot
Gas booster controls wiring
Minor architectural work, patching, painting, replacing damaged ceiling tiles
Completed 90% of louver installation in period between 8/24 and 9/24.

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 7 days throughout the last 30 days, Temperatures rage from lowest 48 degrees to highest 89 degrees (F).

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.)
None

5. Describe Anticipated Work by Contractor for Next Period
Complete granite sills
complete louver installation
complete field restoration, repair poor paving
chiller fence

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
This report covers a two month period, since no report was submitted in September.
With the exception of louver installation, work performed is minor and has progressed slowly, very little man power.
A meeting was held with the PA RE to resolve outstanding change orders and credits. An agreement was reached on most items, JCA will package and submit to PA RE for review and approval.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
10/18/07

Typed of Printed Name and Title
Nelson Parra

Signature



U. S. Department of Transportation
Federal Aviation Administration

CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
04/30/07

Project Number
McClancy HS
LGA 841-099

Airport Name
LaGuardia Airport

Project Description
Soundproofing (Window replacement & AC) Contractor's Name
Nagan Conair JV

1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
85%

2. Work Completed or In Progress this period
Power wiring and connections for fans
Trane Controls for Unit Ventilators and fans
Ductwork insulation
Minor electrical work
Minor Mechanical Pipe Work
Mechanical Piping insulation
Repair of poor workmanship on interior brick masonry
Some interior brickwork.

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 11 days throughout the month, Temperatures range from lowest 32 degrees to highest 85 degrees (F).

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.)
None

5. Describe Anticipated Work by Contractor for Next Period
Continue Trane controls adjusting, balancing and wiring
Replace ductwork on the main roof (failed to perform last period)
install firestopping at duct and pipe penetrations (failed to perform last Period)

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
notice of possible default sent to contractor for failure to provide acceptable work, failure to protect school property from damage, failure to accept 5% mark-up on change orders as required by the contract, and failure to satisfactorily rectify NCR's.
On 5/30/07 meeting, the contractor verbally agreed to the 5% markup on CO's. Issues of NCR's and quality of work remain open.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
5/1/07

Typed of Printed Name and Title
Nelson Parra

Signature



U. S. Department of Transportation Federal Aviation Administration

CONSTRUCTION PROGRESS AND INSPECTION REPORT AIRPORT GRANT PROGRAM

Period Ending 03/30/07

Project Number McClancy HS LGA 841-099

Airport Name LaGuardia Airport

Project Description Soundproofing (Window replacement & AC) Contractor's Name Nagan Conair JV

1. Rough Estimate of Percent Completion to Date of Construction Phases (Include items such as clearing, grading, drainage, base, surface, lighting, etc.) 83%

2. Work Completed or In Progress this period Power wiring and connections for fans Trane Controls for Unit Ventilators Minor Ductwork Minor electrical work Minor Mechanical Pipe Work

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature (On earthwork jobs include soil conditions) Precipitation on 14 days throughout the month, Temperatures range from lowest 13 degrees to highest 74 degrees (F).

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.) None

5. Describe Anticipated Work by Contractor for Next Period Trane controls adjusting and balancing Replace ductwork on the main roof install firestopping at duct and pipe penetrations

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.) Work completed during March was more of the same work that was performed during February.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date 4/4/07

Typed of Printed Name and Title Nelson Parra

Signature [Handwritten Signature]



U. S. Department
of Transportation
Federal Aviation
Administration

CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
2/28/07

Project Number
McClancy HS
LGA 841-099

Airport Name
LaGuardia Airport

Project Description Soundproofing (Window replacement & AC)	Contractor's Name Nagan Conair JV
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1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
82%

2. Work Completed or in Progress this period
Trane Controls for Unit Ventilators
Minor Ductwork
Minor electrical work
Minor Mechanical Pipe Work

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 8 days throughout the month, Temperatures range from lowest 11 degrees to highest 48 degrees.

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.)
None

5. Describe Anticipated Work by Contractor for Next Period
Trane controls adjusting and balancing
Replace ductwork on the main roof
Install firestopping at duct and pipe penetrations

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
G.C. has stated their subcontractors are on the job, however not much work has been done.
Payment #7 which was delayed has been processed and check will be issued for payment #7 and #8.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
3/6/07

Typed of Printed Name and Title
Nelson Parra

Signature



CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
1/23/07

U. S. Department
of Transportation
**Federal Aviation
Administration**

Project Number
**McClancy HS
LGA 841-099**

Airport Name
LaGuardia Airport

Project Description Soundproofing (Window replacement & AC)	Contractor's Name Nagan Conair JV
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1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
80%

2. Work Completed or in Progress this period
Trane Controls for Unit Ventilators
Minor Ductwork
Minor electrical work

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 12 days throughout the month, Temperatures range from lowest 20 degrees to highest 72 degrees.

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material subject to pay reduction.)
None

5. Describe Anticipated Work by Contractor for Next Period
Trane controls adjusting and balancing

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
Subcontractors' forces have walked off the job due to financial disputes with GC. GC claim they have paid their subcontractors all payments received from the school and claim they long time it takes to complete the payment application process has caused them to run out of funds.
Their payment app #7 (+/- \$366,000) for the month of September 2006 has has been delayed due to necessary corrections to the paperwork requested by PA and additional delays to payment #7 were caused by a rejection of two line items. These two line items are being rejected for nonconformance. Application #7 will be processed and put through to PA this week.
G.C.'s payment application #8 (+/- \$300,000) for October & November 2006 was rejected by JCA because it did not match the quantities verified by PA/JCA at the pencil copy stage.
G.C. submitted pencil copy for payment #9 for December 2006 on 1/22/07

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
1/24/07

Typed of Printed Name and Title
Nelson Parra

Signature



U. S. Department
of Transportation
Federal Aviation
Administration

CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
11/25/06

Project Number
McClancy HS
LGA 841-099

Airport Name
LaGuardia Airport

Project Description Soundproofing (Window replacement & AC)	Contractor's Name Nagan Conair JV
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1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
76%

2. Work Completed or in Progress this period
Exterior Ductwork at AC 1 & 2
Roofing at MER
Mechanical piping in boiler room and MER
Electrical connections at new panels & equipment in MER

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil condition.)
Precipitation on 9 days throughout the month, Temperatures range from lowest 35 degrees to highest 70 degrees.

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material subject to pay reduction.)
None

5. Describe Anticipated Work by Contractor for Next Period
Complete exterior Ductwork
Complete piping and electrical work in boiler room and MER
Start final connections of controls for new mechanical systems

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
Improperly installed duct liner in exterior ductwork - JCA rejected.
Improper support for gas pipe on mall roof - GC to provide shop drawing.
GC installed non galvanized steel supports for exterior ductwork - JCA rejected - GC shall provide shop drawings.
Windows in rooms 201 and 202 wrong size GC modified sill to fit windows without consulting JCA. - JCA rejected - GC shall remove & reinstall windows at these two locations
Improperly installed roof flashing at MER- JCA rejected - GC shall remove and reinstall

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date 11/28/06	Typed of Printed Name and Title NICHOLAS RUSSO	Signature
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U. S. Department
of Transportation
**Federal Aviation
Administration**

CONSTRUCTION PROGRESS AND INSPECTION REPORT
AIRPORT GRANT PROGRAM

Period Ending
10/31/06

Project Number
**McClancy HS
LGA 841-099**

Airport Name
LaGuardia Airport

Project Description Soundproofing (Window replacement & AC)	Contractor's Name Nagan Conair JV
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1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
70%

2. Work Completed or In Progress this period
Ductwork in the stage area
Connections to Unit Ventilators (electrical and piping)
Exterior brickwork at Mechanical-Electrical Room Addition (MER)
Mechanical piping in boiler room and MER

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Rain on 9 days throughout the month, Temperatures range from lowest 42 degrees to highest 84 degrees average 64 degrees.

4. Summary of Laboratory and Field Testing This Period *(Note failing tests and any retests. Summarize out-of-tolerance material subject to pay reduction.)*
None

5. Describe Anticipated Work by Contractor for Next Period
Install exterior Ductwork
Complete piping in boiler room and MER
Test and start heat systems

6. Problem Areas/Other Comments *(Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)*
Louvers at unit ventilators not installed due to improperly installed lintels at wall openings.
Roofing not completed at locker rooms causing leaks.
Poor workmanship in interior brickwork.
Contractor failed to protect school property causing damages.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
11/1/06

Typed of Printed Name and Title
Nelson Parra

Signature



100 Keyland Court
Bohemia, New York 11716
Phone (631) 589-6001
Fax (631) 589-8957

"We Build With Pride"

February 15, 2010

Trane New York
45-18 Court Square
Long Island City, NY 11101

Attn: Mr. George Elia
Re: McClancy High School - **THREE DAY NOTICE TO CURE**

Your lack of response to the ratification agreement is now interfering with the completion of our work. Your work is priority on the project and therefore we require your cooperation to perform your contract work immediately.

Not returning to the project to perform your work will result in Kenstar having others perform the work. The execution of your ratification agreement is binding for you to return to the jobsite and finish your contract work. Equally please provide a written list of any issue currently prohibiting Trane from completing its work. Provide a sufficient level of detail so as to efficiently direct work.

Please immediately provide your written confirmation of your intentions.

Respectfully,

Scott Durham
Project Manager
Kenstar Construction

Cc: Ken Swany - Kenstar Construction
Steve Bongiovi - Kenstar Construction
John Mallon - U.A.P. Inc.



100 Keyland Court
Bohemia, New York 11716
Phone (631) 589-6001
Fax (631) 589-8957

"We Build With Pride"

February 15, 2010

Trane New York
45-18 Court Square
Long Island City, NY 11101

Attn: Mr. George Elia
Re: McClancy High School - **THREE DAY NOTICE TO CURE**

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Not returning to the project to perform your work will result in Kenstar having others perform the work. The execution of your ratification agreement is binding for you to return to the jobsite and finish your contract work. Equally please provide a written list of any issue currently prohibiting Trane from completing its work. Provide a sufficient level of detail so as to efficiently direct work.

Please immediately provide your written confirmation of your intentions.

Respectfully,

Scott Durham
Project Manager
Kenstar Construction

Cc: Ken Swany - Kenstar Construction
Steve Bongiovi - Kenstar Construction
John Mallon - U.A.P. Inc.

U. A. P., INC.

Thursday, November 05, 2009

MSGR McClancy Memorial High School
71-06 31st Avenue
East Elmhurst, NY 11370

Certification:

Regarding the following deficiencies

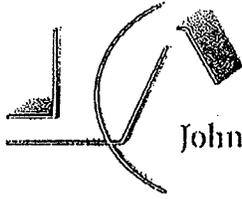
Item 857: "Straighten funnel drains and align with condensate drain pipes"
Item 889: "Remove Existing Insulation before repair of identifying leaks"

These deficiencies have been completed and I certify that they have passed our Q/A inspection.

Sincerely,



Philip M. Van Guilder
Project Manager
U.A.P., Inc.
MSGR McClancy Memorial High School
#31
71-06 31st Avenue
East Elmhurst, NY 11370



John Ciardullo Associates, P.C.

221 West 57th St #
New York
New York
T. (212) 245-0010
www.jca-nb.com

PROJECT FIELD REPORT # 003

Project(s): SoundProofing of Monsignor McClancy Memorial High School, 71-06 31st Avenue, East Elmhurst, New York 11370.

Date: August 18, 2009

Weather: Sunny, Hot & Humid 80/ 95

Start Time: 11:00am

Finish Time: 12:30pm

Location: Various location throughout building

During the Field Visit John Ciardullo Associates P.C. (JCA) observed the following:

1. JCA noticed during the site visit that the Electrician has not been in site recently. JCA has requested several items listed below from the GC. During the job progress meeting held on 8/12/09 the GC stated that his electrician would return to the site to continue his work on Monday 8/17/09
2. The fire stopping work at the UV's has unchanged since 7/30/09.
3. All UV covers were off throughout the building.
4. JCA inspected the stage area to create a scope of work and sketch

Safety: n/a

By: Vincent Gulotta (John Ciardullo Associates - 212-245-0010)

Recommendations: None

Requests:

During the Field Visit John Ciardullo Associates P.C. (JCA) requested several proposals, schedules submittals ect. items from Kenstar Construction (GC). The list of requested items is as follows:

1. **Stage Area:** JCA will provide a sketch for corrective work in the stage area JCA request the following items to be included from the GC's proposal:
 - GC to provide a schedule for completion.
 - GC to provide a complete cost breakdown.
2. **Roof Proposal:** JCA requested a proposal from the GC to perform the corrective work on the boiler room roof. JCA requested the following items to be included in the proposal:
 - GC to provide a complete scope of work.
 - GC to provide a schedule for completion.
 - GC to provide a complete cost breakdown

3. **Fire Stopping:** JCA notice during the site visit that there is no fire stopping work being preformed. This is holding up the HVAC work. JCA has requested the following items from the GC:
 - GC to provide a fire stopping detail to be review and approved by JCA.
 - GC to provide a Hilti's Certifications to be review and approved by JCA.
 - GC to provide a schedule for completion.

4. **Electrician:** JCA requested the following items regarding the Electrician:
 - GC to provide an explanation as to why the Electrician has not returned to the site to continue his work and provides a date when the electrician will return top work.
 - GC to provide a schedule for completion of the Electricians UV work.
 - GC to provide a schedule for inspections.
 - GC to provide an explanation as to how the Electrician is going to make up for the work he lost.
 - GC to Provide a punch list for the Electrical work.

5. **Shop drawings:** The GC was to submit shop drawings for the Hood Exhaust Duct Work. JCA has requested the following items from the GC:
 - GC to confirm if it Firestopping is required
 - GC to review the S.D.'s
 - As per the NYC building code it is required to Butt Weld the 20"x20" doors.
 - Please refer to the attached sketch for the revised location for the installation of exterior duct insulation.

13

START OF INSULATION SHOULD BE OUTSIDE OF
DUCT FROM SOMEONE STANDING ON ROOF

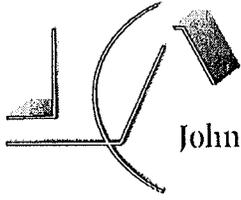
KITCHEN EXHAUST
DUCT

LIMESTONE COPING, ETR.

EXISTING FACE
BRICK TO REMAIN

 - AREA OF DUCT TO BE PAINTED

 - AREA OF DUCT TO BE INSULATED



John Ciardullo Associates, P.C.

221 West 57th St
New York, NY 10019
New York
T. (212) 245-0010
www.jca-architect.com

PROJECT FIELD REPORT # 005

Project(s): SoundProofing of Monsignor McClancy Memorial High School, 71-06 31st Avenue, East Elmhurst, New York 11370.

Date: September 15, 2009

Weather: Sunny, 71/ 80

Start Time: 3:00pm

Finish Time: 5:00pm

Location: Various soffits throughout building

Attendees Richard Piacentini (JCA) Vincent Gulotta (JCA)

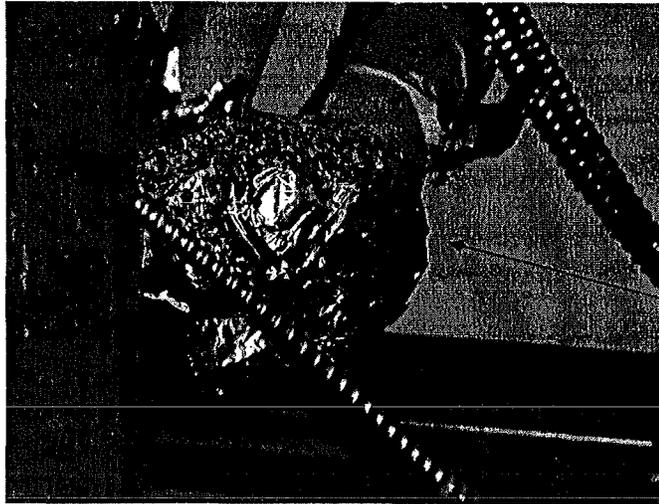
Summary: Kenstar has started to close the soffits in the class room on the second floor. JCA and the PA walked the school to inspect the pipe insulation. During the routine check JCA observed the following:

Findings:

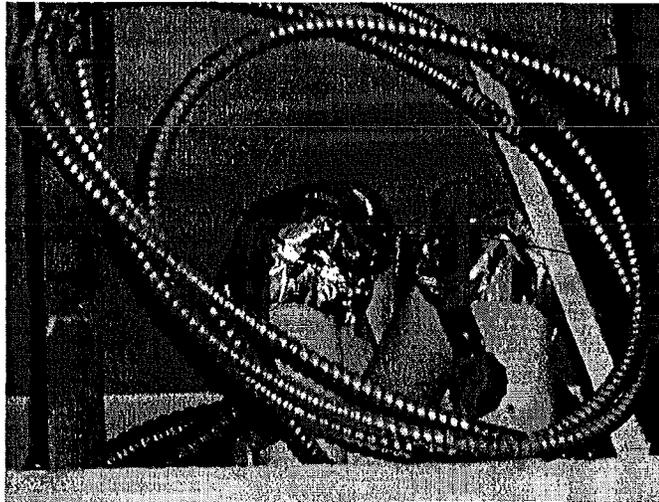
- There are many areas that the foil wrap that is installed on the elbows is not installed properly and is hanging off.
- There are deep cuts in the insulation that were made when the sheet rock was removed.
- There are areas that the insulation either was not installed or has fallen off.
- There are areas that the pipe penetrates through the soffit and the contractor stuffed foil wrap in the penetration.
- There are joints in the insulation that are not properly sealed

JCA Response:

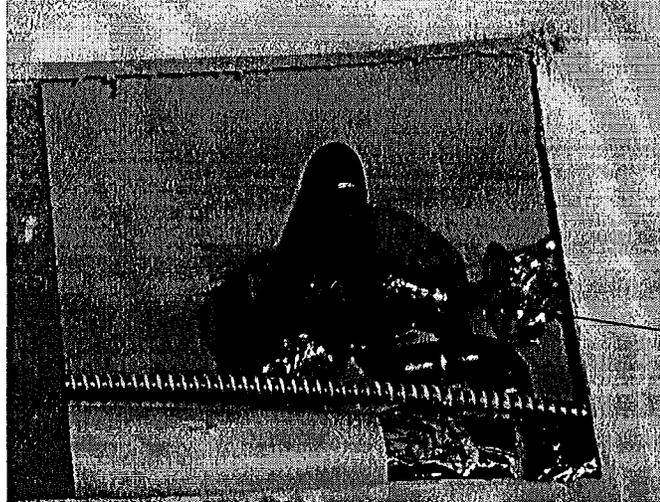
- The insulation must be continuous as not to allow any condensation from the pipe to escape. The pipe insulation that was observed in the soffits was not continuous in most places. As listed above there were many defects found in the pipe insulation. JCA is in agreement with the PA that the pipe insulation is not properly sealed and must be repaired prior to closing any soffits. UAP/ Kenstar shall perform the following corrective work:
 1. Inspect all elbows and rewrap the area as necessary.
 2. Inspect all insulated pipes and Patch all or replace the insulation in the areas that are cut.
 3. Inspect all insulated pipes and install the insulation in the areas that were missed or have fallen off.
 4. Properly seal around pipes that penetrate through the soffit.
 5. Inspect all insulated pipes and properly seal joints.
- AS discussed during the field visit Kenstar is not to spackle any of the soffit opening until the following actions have occurred:
 1. UAP inspects all insulated pipe and repairs all deficiencies.
 2. Kenstar submits a QA/QC report certifying that the pipe insulation is installed continuously and meets all code and spec requirement.
 3. JCA and PA perform another random inspection of the soffits.



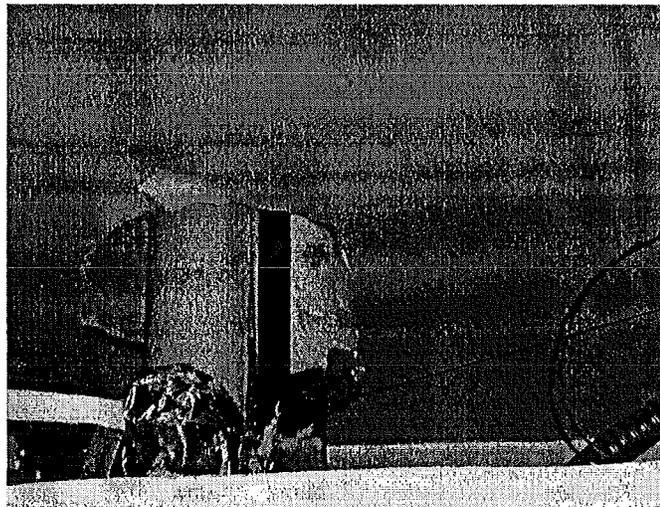
Foil Wrap
Installed
Loose and
Hanging Off



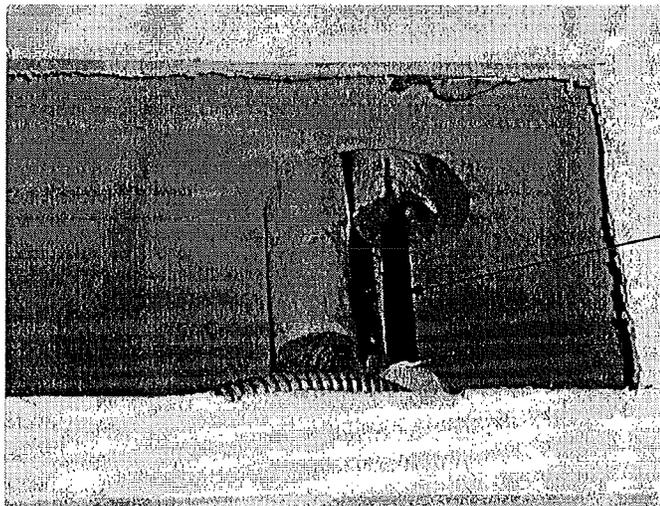
Foil Wrap
Installed
Loose and
Hanging Off



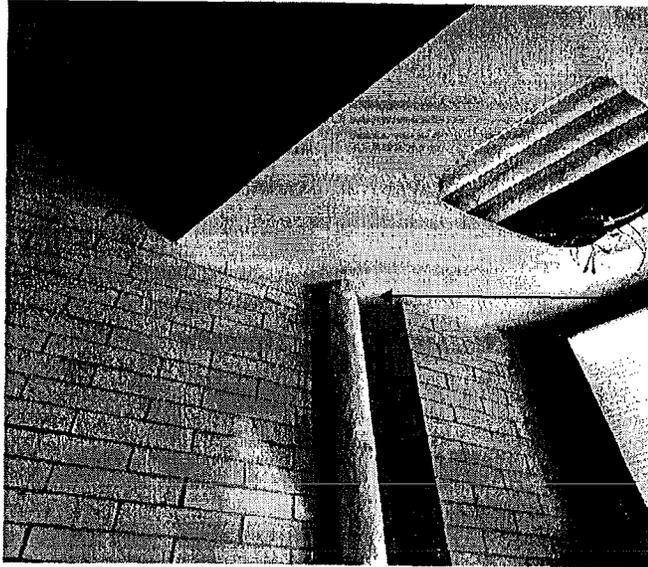
Foil Wrap
Installed
Loose and
Hanging Off



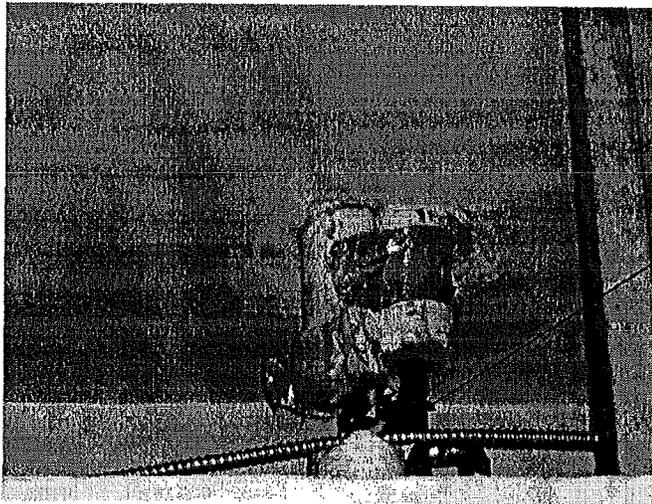
Missing
Insulation



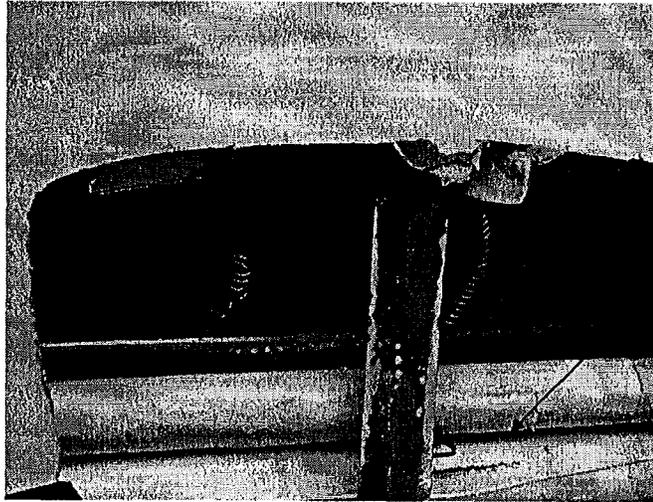
Missing
Insulation



Foil Wrap
Stuffed into
the Soffit



Missing
Insulation



Deep Cuts in the Insulation



Missing Insulation

Insulation Lap not properly Sealed

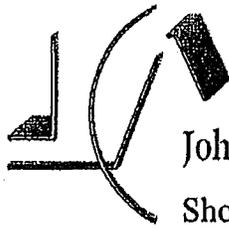
Schedule: No Schedule Submitted

Safety: n/a

By: Richard Piacentini + Vincent Gulotta (John Ciardullo Associates – (212-245-0010))

Recommendations: Kenstar/ UAP to re-inspect all pipe insulation to ensure proper and code and spec compliant installation.

Requests: Kenstar/ UAP to Submit of a QA/QC report for pipe insulation.



John Ciardullo Associates, P.C.

Shop Drawing Submittal

575 8th Avenue
New York, NY 10018
New York, NY 10018
T. (212) 245-0010
www.jca-architecture.com

date: March 13, 2008

to: Harshad Lakhani
Lakhani & Jordan Engineers, P.C.
50 E. 42nd Street
Suite 1001
New York, NY 10017-5405

tel: 212 338 9020

fax: 212 338 9030

from: Nelson Parra

cc:

re: Monsignor McClancy Memorial High School - Soundproofing

comments: Shop drawings as received from Nagan-Conair by JCA

Enclosed please find the following:

Copies	Spec #	Description	Status
4		Balancing Report	L&J: Open JCA: Resubmit

Enclosed for your review is the air balancing report for McClancy HS.

Please note we are requiring the contractor resubmit the report.

The HVAC system in the Multipurpose Room(Gym) (AC-1 & AC-2) is unacceptably loud. Air noise at the three high return air registers is above acceptable levels.

According to the contractor's report the system is balanced within the design requirements. However based on the noise levels observed in the field, some return air registers sound much louder than others. This has been discussed with the contractor, but they claim it is a design issue.

We have also observed excessive noise from exhaust air registers in rooms 302, 305, and 307. Additionally air registers were never installed in rooms 222, 300, 302, and others, and are not noted in the report.

We believe that the contractor should be required to perform air flow/volume tests in the presence of a L&J engineer to confirm their reported reading are actual. Please Advise.

The performance of this air balancing would have been very conspicuous and somewhat disruptive, specially since it took place during the school year on or about 5/17/07 according to the date on the report. However the owner does not recall the contractor performing air balancing, nor do we have any notice from the contractor that air balancing would be performed on those dates.

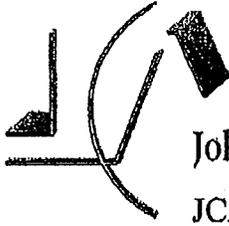
We have attached our comments. Please provide any additional comments L&J may have.

Thank you.

Nelson Parra

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FILE 11



John Ciardullo Associates, P.C.

JCA Review Comments

221 West 57th St
New York, NY 10019
T. (212) 245-0010
www.jca-architecture.com

date: March 13, 2008

to: Nadir Uygan
Nagan Construction
226 Wanser Ave
Inwood NY 11096

tel: 516 374 6286

fax: 516 374 6290

from: Nelson Parra

1. Identify return air registers in Multipurpose room.
2. Indicate rooms where air registers are not installed.

John Ciardullo Associates Architects/Planners		
Project: <i>McCLANCY</i>		Submittal No:
Approved	Approved As Noted	Disapproved
<i>Resubmit</i> Copies	Date: <i>3/13/08</i>	Checked by: <i>NP</i>
Drawing checked for design and general arrangement only and is subject to all conditions included in the Contract Documents. Approval still requires the Contractor to co-ordinate this work with all trades and to verify all quantities and all indicated dimensions against contract documents and field conditions.		



LOVETT SILVERMAN
Construction Consultants

Offices Nationwide
www.lovett-silverman.com

898 Veterans Memorial Hwy, Ste. 240
Hauppauge, NY 11788

P: 631.979.7600
F: 631.979.7602

LETTER OF TRANSMITTAL

Attn: Mr. Nelson Parra
Company: John Ciardullo Associates
575 8th Aveune, 20th Floor
New York, N.Y. 10018

Date: Friday, February 29, 2008

LS File No: 2495

RE:

Included: Herewith Under separate cover

Via: US Postal Service Hand Delivery FedEx

Quantity	Date	Description
3		Dwg. M2.01 – HVAC Basement and First Part Floor Plans
3		Dwg. M2.02 – HVAC Part First Floor Plan
3		Dwg. M2.03 – HVAC Second and Third Floor Plans
3		S.M. – 1A – Sheet Metal Drawing
3		S.M. – 1B – Sheet Metal Drawing
6		Air Balancing Report by BSI Balancing Service, Inc.

Items are transmitted as checked below:

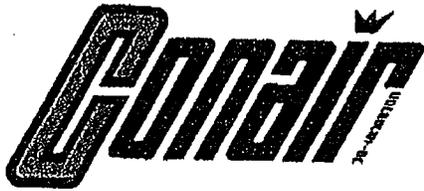
- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> As requested | <input type="checkbox"/> For approval | <input type="checkbox"/> Approved as noted |
| <input type="checkbox"/> For your use | <input checked="" type="checkbox"/> For review/comment | <input type="checkbox"/> Reply requested |
| <input type="checkbox"/> Please return | <input type="checkbox"/> For signature | <input type="checkbox"/> |

COMMENTS: Upon completion of your review please return one (1) full set of drawings and one (1) air balancing report to this office.

cc: Nagan Constr., Conair, K. Tibbitts, File

Signed: _____

IF ENCLOSURES ARE NOT AS NOTED, PLEASE NOTIFY THE SENDER IMMEDIATELY.



246 Broadway • Garden City Park, N. Y. 11040 • (516) 294-8860

Fax (516) 294-8869
(718) 470-1160

To: Lovett Silverman

DATE: 2-27-08

898 Veterans Memorial Hwy.
Suite 240
Hauppauge, N.Y. 11788

JOB: McClancy High School

Attn: Pedro Rosario 631-979-7600

Received
FEB 28 2008
Lovett Silverman

Subject: Air Balancing

We are sending you herewith

~~Under Separate Cover~~

Blueprints

Specifications

Shop Drawings

Submittals

No. of Copies	Drawing No.	Date	Description	Remarks
1		5-17-07	Air Balancing Report	For Your Use

If enclosure received is not as listed above, kindly notify us at once

By Hand

Sincerely,

Messenger

Bruce Spear

By FedEx

By Mail



Ventilation Test Report

**Monsignor Mc Clancy Memorial HS
71-06 31st Avenue
East Elmhurst, NY**

Engineer:

**Lekhani & Jordan Engineers, P.C
50 East 42nd Street
Suite 1001
New York, NY**

Prepared For:

**Conair Corp.
246 Broadway
Garden City Park, NY 11040**

233 East Shore Road • #202 • Great Neck • NY • 11023

**LI Phone 516-609-2663
Fax 516-671-6422**

**NYC Phone 718-786-6818
Fax 718-786-3813**



INSTRUMENTATION

1. TSI Balometer 8370 (Measures C.F.M. directly)
Application: Supply and Return Outlets Readings
2. Alnor Balometer AV -18 (Measures C.F.M. directly)
Application: Supply and Return Outlet Readings
3. Alnor Balometer 6000P
Application: Supply and Return Outlets Readings
4. Mannix Thermo Digital Anemometer DCFM8901
Application: Low Velocity Testing
5. TSI Digital Air Velocity Meter 475-1AV #8340
Application: Velocity Testing
6. Dwyer Incline Manometer and Pitot Tube
Application: Suction and Discharge Static Pressures and Duct
Total Air Pressure Readings
7. Dwyer Digital Manometer and Pitot Tube
Application: Suction and Discharge Static Pressure Readings
8. Amprobe RS-3
Application: Amperage and Voltage Readings on Fan Motors
9. Digital Photo Tachometer
Application: RPM Readings
10. SW Tachometer
Application: Measure Fan RPM
11. Bell & Gossett flow Meter
Application: Water Flow GPM
12. Panametrics PT 878 Ultrasonic Flow Meter
13. McGill Air Flow Duct Leakage test rig
14. Shortridge Air Data Multimeter Adm-870

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Fax 718-786-3813



SYMBOLS



Supply



Return



Exhaust

NI Device not installed

DEL Deleted, device removed from contract but shown on drawing

RAW Diffuser or register is not installed

NA Device is not accessible

FO Damper set for 100% open position

FC Damper in full closed position

WMS Wire mesh screen installed at opening

TP Test point for traverse or static pressure

CD Ceiling diffuser

CR Ceiling register

LD Linear diffuser

LT Light troffer

VAV Variable air volume box

CAV Constant air volume box

NW Device not working

No TStat Thermostat not installed

Exist Existing CD, CR, Fan, etc.

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LI Phone 516-609-2663
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NYC Phone 718-786-6818
Fax 718-786-3813

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-17-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

SYSTEM: AC-1

PAGE: 1 OF 2

UNIT DATA

SYSTEM	AC-1
LOCATION	Roof
MANUFACTURER	Trane
MODEL #	VCH600AE
FAN TYPE	Packaged
FAN SHEAVE	14"
MOTOR SHEAVE	5.5"
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	A.O Smith
HP	20
RPM	1745
RATED VOLTS	208
RATED AMPS	57
POWER FACTOR	1.15
PHASE	3
FRAME	256 T

DATA

	L1	L2	L3
ACTUAL AMPS	50.5	47	51
ACTUAL VOLTS	208		
RATED RPM	675		
ACTUAL RPM	621		

AIR FLOW CFM

RATED	15,550
ACTUAL	14,535
STATIC PRESSURE	+ 1.1 DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	2412		500		515
		2	2412		500		520
		3	2412		500		520
		4	2412		500		520
		5	2412		500		520
		6	72 x 12		3600		3040
		7	20" Rnd		1450		1420
		8	20" Rnd		1450		1450
		9	20" Rnd		1450		1430
		10	72 x 12		3600		3050
		11	36 x 12		1500		1550

BSI

Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
516-484-3903 FAX: 516-671-6422PROJECT: Monsignor Mc Clancy Memorial HSDATE: 05-17-07ADDRESS: 71-06 31st AvenueTEST BY: MSSYSTEM: AC-2PAGE: 1 OF 2**UNIT DATA**

SYSTEM	AC-2
LOCATION	Trane
MANUFACTURER	Trane
MODEL #	YCH600A1
FAN TYPE	Packaged
FAN SHEAVE	14"
MOTOR SHEAVE	5.5"
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	A.O Smith
HP	15
RPM	1745
RATED VOLTS	208
RATED AMPS	57
POWER FACTOR	1.15
PHASE	3
FRAME	256 T

DATA

	L1	L2	L3
ACTUAL AMPS	51	50	48.5
ACTUAL VOLTS	208		
RATED RPM	675		
ACTUAL RPM	641		

AIR FLOW CFM

RATED	16,700
ACTUAL	17,135
STATIC PRESSURE	+ 1.15 DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	36 x 12		1500		1560
		2	72 x 12		3000		3100
		3	20" Rnd		1450		1480
		4	20" Rnd		1450		1470
		5	72 x 12		3000		3085
		6	20" Rnd		1450		1480
		7	20" Rnd		1450		1470
		8	20" Rnd		1450		1480
		9	20" Rnd		1450		1490
		10	2412		500		520

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-18-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

SYSTEM: GX-1

PAGE: 1 OF 2

UNIT DATA

SYSTEM	GX-1
LOCATION	Roof
MANUFACTURER	Cook
MODEL #	365CPV
FAN TYPE	Utility
FAN SHEAVE	14"
MOTOR SHEAVE	6"
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	Baldor
HP	10
RPM	1725/1140
RATED VOLTS	208
RATED AMPS	30
SER FACTOR	1.15
PHASE	3
FRAME	256 T

DATA

	L1	L2	L3
ACTUAL AMPS	28.1	28.7	29.1
ACTUAL VOLTS	208		
RATED RPM	712		
ACTUAL RPM	691		

AIR FLOW CFM

RATED	8720/13760	
ACTUAL	8940/13675	
STATIC PRESSURE	N/A	DISCHARGE
STATIC PRESSURE	N/A	SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	18 x 6		250/400		260/420
		2	18 x 6		250/400		255/420
		3	18 x 6		250/400		260/415
		4	24 x 8		500/800		510/830
		5	18 x 6		250/400		255/420
		6	18 x 6		250/400		260/420
		7	18 x 6		250/400		265/430
		8	18 x 6		250/350		260/370
		9	18 x 6		250/350		255/365
		10	18 x 6		250/400		260/420

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Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
516-484-3903 FAX: 516-671-6422PROJECT: Monsignor Mc Clancy Memorial HSDATE: 05-17-07ADDRESS: 71-06 31st AvenueTEST BY: MSSYSTEM: GX-2PAGE: 1 OF 1

UNIT DATA

SYSTEM	GX-2
LOCATION	Roof
MANUFACTURER	Cook
MODEL #	365CPV
FAN TYPE	Utility
FAN SHEAVE	6 1/4"
MOTOR SHEAVE	4'
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	Marathon
HP	5
RPM	1770
RATED VOLTS	200/230
RATED AMPS	14.5/13
SER FACTOR	1.15
PHASE	3
FRAME	215 T

DATA

	L1	L2	L3
ACTUAL AMPS	12.7	12.1	12.5
ACTUAL VOLTS	208		
RATED RPM	712		
ACTUAL RPM	681		

AIR FLOW CFM

RATED	3780/6080
ACTUAL	4065/6055
STATIC PRESSURE	N/A DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	16 x 6		250/350		260/370
		2	16 x 6		100/200		110/205
		3	18 x 6		250/350		260/320
		4	18 x 6		250/400		260/390
		5	18 x 6		250/400		260/410
		6	12 x 6		50/100		55/110
		7	24 x 8		500/800		520/830
		8	18 x 6		215/410		225/420
		9	18 x 6		215/410		230/430
		10	24 x 8		500/800		510/820

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Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
516-484-3903 FAX: 516-671-6422PROJECT: Monsignor Mc Clancy Memorial HSDATE: 05-17-07ADDRESS: 71-06 31st AvenueTEST BY: MSSYSTEM: GX-3PAGE: 1 OF 1

UNIT DATA

SYSTEM	GX-3
LOCATION	Roof
MANUFACTURER	Cook
MODEL #	180C6B
FAN TYPE	Centrifugal
FAN SHEAVE	6"
MOTOR SHEAVE	4"
VARIABLE / FIXED	Variable
DIRECT DRIVE	1-Belt

MOTOR DATA

MAKE	Marathon
HP	3/4
RPM	1725
RATED VOLTS	200
RATED AMPS	3.2
SER FACTOR	1.25
PHASE	3
FRAME	56

DATA

	L1	L2	L3
ACTUAL AMPS	3.0	3.0	2.9
ACTUAL VOLTS	208		
RATED RPM	1021		
ACTUAL RPM	991		

AIR FLOW CFM

RATED	3,000
ACTUAL	3,350
STATIC PRESSURE	N/A DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	12 x 12		Not Shown		200
		2	24 x 8		Not Shown		1200
		3	12 x 12		Not Shown		210
		4	24 x 8		Not Shown		220
		5	24 x 8		Not Shown		660
		6	24 x 8		Not Shown		650
		7	12 x 12		Not Shown		210

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Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
Long Island 516-484-3903 FAX: 516-671-6422
Queens 718-786-6818 FAX: 718-786-3813

SYSTEM TRAVERSE READINGS

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-18-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

TEST POINT: 1

SYSTEM AC-1
SIZE 78 x 64
AREA 34.66
VELOCITY 470
ACTUAL CFM 16293
REQUIRED CFM 16000
STATIC PRESSURE + 1.1

Velgrid filter section

270	466	495	759	666
245	411	648	579	891
347	213	482	445	402
414	453	495	351	370

TEST POINT: 2

SYSTEM AC-2
SIZE 78 x 64
AREA 34.66
VELOCITY 494
ACTUAL CFM 17122
REQUIRED CFM 16000
STATIC PRESSURE + 1.15

Velgrid filter section

440	243	545	648	733
322	366	492	672	656
256	485	506	541	588
331	426	466	665	621



246 Broadway • Garden City Park, N. Y. 11040 • (516) 294-8860

Fax (516) 294-8869
(718) 470-1160

To: Lovett Silverman

DATE: 2-27-08

898 Veterans Memorial Hwy.
Suite 240
Hauppauge, N.Y. 11788

JOB: McClancy High School

Attn: Pedro Rosario 631-979-7600

Received
FEB 28 2008
Lovett Silverman

Subject: Air Balancing

We are sending you herewith

Under Separate Cover

Blueprints

Specifications

Shop Drawings

Submittals

No. of Copies	Drawing No.	Date	Description	Remarks
1		5-17-07	Air Balancing Report	For Your Use

If enclosure received is not as listed above, kindly notify us at once

By Hand

Sincerely,

Messenger

Bruce Spear

By FedEx

By Mail



Ventilation Test Report

Monsignor Mc Clancy Memorial HS
71-06 31st Avenue
East Elmhurst, NY

Engineer:

Lekhani & Jordan Enigneers, P.C
50 East 42nd Street
Suite 1001
New York, NY

Prepared For:

Conair Corp.
246 Broadway
Garden City Park, NY 11040

233 East Shore Road • #202 • Great Neck • NY • 11023

LI Phone 516-609-2663
Fax 516-671-6422

NYC Phone 718-786-5818
Fax 718-786-3813



INSTRUMENTATION

1. TSI Balometer 8370 (Measures C.F.M. directly)
Application: Supply and Return Outlets Readings
2. Alnor Balometer AV -18 (Measures C.F.M. directly)
Application: Supply and Return Outlet Readings
3. Alnor Balometer 6000P
Application: Supply and Return Outlets Readings
4. Mannix Thermo Digital Anemometer DCFM8901
Application: Low Velocity Testing
5. TSI Digital Air Velocity Meter 475-1AV #8340
Application: Velocity Testing
6. Dwyer Inoline Manometer and Pitot Tube
Application: Suction and Discharge Static Pressures and Duct.
Total Air Pressure Readings
7. Dwyer Digital Manometer and Pitot Tube
Application: Suction and Discharge Static Pressure Readings
8. Amprobe RS-3
Application: Amperage and Voltage Readings on Fan Motors
9. Digital Photo Tachometer
Application: RPM Readings
10. SW Tachometer
Application: Measure Fan RPM
11. Bell & Gossett flow Meter
Application: Water Flow GPM
12. Panametrics PT 878 Ultrasonic Flow Meter
13. McGill Air Flow Duct Leakage test rig
14. Shortridge Air Data Multimeter Adm-870

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LI Phone 516-609-2663
Fax 516-671-6422

NYC Phone 718-786-6818
Fax 718-786-3813



SYMBOLS



Supply



Return



Exhaust

NI	Device not installed
DEL	Deleted, device removed from contract but shown on drawing
RAW	Diffuser or register is not installed
NA	Device is not accessible
FO	Damper set for 100% open position
FC	Damper in full closed position
WMS	Wire mesh screen installed at opening
TP	Test point for traverse or static pressure
CD	Ceiling diffuser
CR	Ceiling register
LD	Linear diffuser
LT	Light troffer
VAV	Variable air volume box
CAV	Constant air volume box
NW	Device not working
No TStat	Thermostat not installed
Exist	Existing CD, CR, Fan, etc.

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LI Phone 516-609-2563
Fax 516-671-6422

NYC Phone 718-786-6818
Fax 718-786-3813

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-17-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

SYSTEM: AC-1

PAGE: 1 OF 2

UNIT DATA

SYSTEM	AC-1
LOCATION	Roof
MANUFACTURER	Trane
MODEL #	VCH600AE
FAN TYPE	Packaged
FAN SHEAVE	14"
MOTOR SHEAVE	5.5"
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	A.O Smith
HP	20
RPM	1745
RATED VOLTS	208
RATED AMPS	57
SER FACTOR	1.15
PHASE	3
FRAME	256 T

DATA

	L1	L2	L3
ACTUAL AMPS	50.5	47	51
ACTUAL VOLTS	208		
RATED RPM	675		
ACTUAL RPM	621		

AIR FLOW CFM

RATED	15,550
ACTUAL	14,535
STATIC PRESSURE	+ 1.1 DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	2412		500		515
		2	2412		500		520
		3	2412		500		520
		4	2412		500		520
		5	2412		500		520
		6	72 x 12		3600		3040
		7	20" Rnd		1450		1420
		8	20" Rnd		1450		1450
		9	20" Rnd		1450		1430
		10	72 x 12		3600		3050
		11	36 x 12		1500		1550

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Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
516-484-3903 FAX: 516-671-6422PROJECT: Monsignor Mc Clancy Memorial HSDATE: 05-17-07ADDRESS: 71-06 31st AvenueTEST BY: MSSYSTEM: AC-2PAGE: 1 OF 2

UNIT DATA

SYSTEM	AC-2
LOCATION	Trane
MANUFACTURER	Trane
MODEL #	YCH600A1
FAN TYPE	Packaged
FAN SHEAVE	14"
MOTOR SHEAVE	5.5"
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	A.O Smith
HP	15
RPM	1745
RATED VOLTS	208
RATED AMPS	57
SER FACTOR	1.15
PHASE	3
FRAME	256 T

DATA

	L1	L2	L3
ACTUAL AMPS	51	50	48.5
ACTUAL VOLTS	208		
RATED RPM	675		
ACTUAL RPM	641		

AIR FLOW CFM

RATED	16,700
ACTUAL	17,135
STATIC PRESSURE	+1.15 DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	36 x 12		1500		1560
		2	72 x 12		3000		3100
		3	20" Rnd		1450		1480
		4	20" Rnd		1450		1470
		5	72 x 12		3000		3085
		6	20" Rnd		1450		1480
		7	20" Rnd		1450		1470
		8	20" Rnd		1450		1480
		9	20" Rnd		1450		1490
		10	2412		500		520

BSI

Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023

516-484-3903

FAX: 516-671-6422

PROJECT: Monsignor Mc Clancy Memorial HSDATE: 05-18-07ADDRESS: 71-06 31st AvenueTEST BY: MSSYSTEM: GX-1PAGE: 1 OF 2

UNIT DATA

SYSTEM	<u>GX-1</u>
LOCATION	<u>Roof</u>
MANUFACTURER	<u>Cook</u>
MODEL #	<u>365CPV</u>
FAN TYPE	<u>Utility</u>
FAN SHEAVE	<u>14"</u>
MOTOR SHEAVE	<u>6"</u>
VARIABLE / FIXED	<u>Fixed</u>
DIRECT DRIVE	<u>2-Belts</u>

MOTOR DATA

MAKE	<u>Baldor</u>
HP	<u>10</u>
RPM	<u>1725/1140</u>
RATED VOLTS	<u>208</u>
RATED AMPS	<u>30</u>
POWER FACTOR	<u>1.15</u>
PHASE	<u>3</u>
FRAME	<u>256 T</u>

DATA

	<u>L1</u>	<u>L2</u>	<u>L3</u>
ACTUAL AMPS	<u>28.1</u>	<u>28.7</u>	<u>29.1</u>
ACTUAL VOLTS	<u>208</u>		
RATED RPM	<u>712</u>		
ACTUAL RPM	<u>691</u>		

AIR FLOW CFM

RATED	<u>8720/13760</u>	
ACTUAL	<u>8940/13675</u>	
STATIC PRESSURE	<u>N/A</u>	<u>DISCHARGE</u>
STATIC PRESSURE	<u>N/A</u>	<u>SUCTION</u>

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	18 x 6		250/400		260/420
		2	18 x 6		250/400		255/420
		3	18 x 6		250/400		260/415
		4	24 x 8		500/800		510/830
		5	18 x 6		250/400		255/420
		6	18 x 6		250/400		260/420
		7	18 x 6		250/400		265/430
		8	18 x 6		250/350		260/370
		9	18 x 6		250/350		255/365
		10	18 x 6		250/400		260/420

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-17-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

SYSTEM: GX-2

PAGE: 1 OF 1

UNIT DATA

SYSTEM	GX-2
LOCATION	Roof
MANUFACTURER	Cook
MODEL #	365CPV
FAN TYPE	Utility
FAN SHEAVE	6 1/4"
MOTOR SHEAVE	4'
VARIABLE / FIXED	Fixed
DIRECT DRIVE	2-Belts

MOTOR DATA

MAKE	Marathon
HP	5
RPM	1770
RATED VOLTS	200/230
RATED AMPS	14.5/13
POWER FACTOR	1.15
PHASE	3
FRAME	215 T

DATA

	L1	L2	L3
ACTUAL AMPS	12.7	12.1	12.5
ACTUAL VOLTS	208		
RATED RPM	712		
ACTUAL RPM	681		

AIR FLOW CFM

RATED	3780/6080
ACTUAL	4065/6055
STATIC PRESSURE	N/A DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	16 x 6		250/350		260/370
		2	16 x 6		100/200		110/205
		3	18 x 6		250/350		260/320
		4	18 x 6		250/400		260/390
		5	18 x 6		250/400		260/410
		6	12 x 6		50/100		55/110
		7	24 x 8		500/800		520/830
		8	18 x 6		215/410		225/420
		9	18 x 6		215/410		230/430
		10	24 x 8		500/800		510/820

BSI

Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023

516-484-3903

FAX: 516-671-6422

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-17-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

SYSTEM: GX-3

PAGE: 1 OF 1

UNIT DATA

SYSTEM	GX-3
LOCATION	Roof
MANUFACTURER	Cook
MODEL #	180C6B
FAN TYPE	Centrifugal
FAN SHEAVE	6"
MOTOR SHEAVE	4"
VARIABLE / FIXED	Variable
DIRECT DRIVE	1-Belt

MOTOR DATA

MAKE	Marathon
HP	3/4
RPM	1725
RATED VOLTS	200
RATED AMPS	3.2
SER FACTOR	1.25
PHASE	3
FRAME	56

DATA

	L1	L2	L3
ACTUAL AMPS	3.0	3.0	2.9
ACTUAL VOLTS	208		
RATED RPM	1021		
ACTUAL RPM	991		

AIR FLOW CFM

RATED	3,000
ACTUAL	3,350
STATIC PRESSURE	N/A DISCHARGE
STATIC PRESSURE	N/A SUCTION

DRAWING	AREA / REMARKS	#	SIZE	REQ. VELOCITY	REQ. CFM	ACTUAL VELOCITY	ACTUAL CFM
		1	12 x 12		Not Shown		200
		2	24 x 8		Not Shown		1200
		3	12 x 12		Not Shown		210
		4	24 x 8		Not Shown		220
		5	24 x 8		Not Shown		660
		6	24 x 8		Not Shown		650
		7	12 x 12		Not Shown		210

BSI
Testing & Air Balancing

233 East Shore Road, #202, Great Neck, NY 11023
Long Island 516-484-3903 FAX: 516-671-6422
Queens 718-786-6818 FAX: 718-786-3813

SYSTEM TRAVERSE READINGS

PROJECT: Monsignor Mc Clancy Memorial HS

DATE: 05-18-07

ADDRESS: 71-06 31st Avenue

TEST BY: MS

TEST POINT: 1

SYSTEM AC-1
SIZE 78 x 64
AREA 34.66
VELOCITY 470
ACTUAL CFM 16293
REQUIRED CFM 16000
STATIC PRESSURE + 1.1

Velgrid filter section

270	466	495	759	666
245	411	648	579	891
347	213	482	445	402
414	453	495	351	370

TEST POINT: 2

SYSTEM AC-2
SIZE 78 x 64
AREA 34.66
VELOCITY 494
ACTUAL CFM 17122
REQUIRED CFM 16000
STATIC PRESSURE + 1.15

Velgrid filter section

440	243	545	648	733
322	366	492	672	656
256	485	506	541	588
331	426	466	665	621

The following Contract excerpts are relate to the unacceptable work discovered to be in place at McClancy High School.

The Architect and Owner have made every attempt to allow the contractor to perform the contract work. Payment requisitions were reviewed on site by the Architect and PA based upon statements, assertions and certifications by the contractor that the work on the requisitions conformed in every way with the contract document requirements.

Payment walk through reviews do not include exhaustive testing or inspections. In all cases the contractor asserted that all defects noted were superficial and that all work would be made good before project completion as required by the contract.

A full list of required certified inspections is provided for the contract on Contract Drawing T1.02. These notes and Spec Section 01400 require the contractor to hire and pay for licensed Architects or PE's to certify conformance with NYC Building code and inspect all work in place.

CONTROLLED INSPECTIONS:

CONTROLLED INSPECTIONS REQUIRED IN ACCORDANCE WITH SECTION 27-132 AND THE APPLICABLE SECTIONS OF THE BUILDING CODE ARE LISTED IN THE FOLLOWING TABLES:

THE CONTRACTOR SHALL INCLUDE IN THE BO PROPOSAL THE COST OF PROVIDING A REGISTERED ARCHITECT OR LICENSED ENGINEER IN THE STATE OF NEW YORK TO PROVIDE THE FOLLOWING CONTROLLED INSPECTION REQUIRED FOR THIS PROJECT. ALL MATERIAL TESTING SHALL ALSO BE PROVIDED AS REQUIRED WITH ALL RESULTS CERTIFIED AS NYC'S COMPLIANT AND BEARING SEAL OF A N.Y. LICENSED ENGINEER WHO SHALL BE PRESENT ON SITE WHEN THE SPECIFIC WORK COMMENCES.

THE CONTRACTOR'S ENGINEER/MATERIALS TESTING LABORATORY SHALL BE RESPONSIBLE FOR THE FOLLOWING CONTROLLED INSPECTIONS:

FIRESTOPPING	27-345 (b)
EMERGENCY LIGHTING (24/78, 16/84)	27-381, 382, 542
HIGH STRENGTH BOLT TENSIONING	27-586 TABLE 10-2
ALL CONCRETE	27-603
CONCRETE MATERIALS	27-586 TABLE 10-1
ADDITIONAL TESTS	27-607 (a)(2)
FORMS AND REINFORCEMENT	27-607 (a)(3)
CONCRETE DESIGN MIX	27-608
CONCRETE TEST CYLINDERS	27-607 (a)(1)
FOUNDATION BORINGS	27-720
SUBGRADE FOR FGS, PIERS & WALLS	27-723
CONTROLLED FILL	27-679 (a) (1)
PLUMB	27-721
ENGINEER/INSTALLER VENTILATION CERT	27-729
REFRIGERATION SYSTEM	27-781

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING CONTROLLED INSPECTIONS, WHICH ARE RELATED TO METHODS AND MEANS OF CONSTRUCTION AND NOT RETURNED ABOVE:

STRUCTURAL STABILITY	R & REG. 6/11/83
UNDERPINNING	27-724
SHORING	27-1010

REQUIRED INSPECTIONS AND TESTS OF MATERIALS DESIGNATED FOR "CONTROLLED INSPECTION" BY THE CONTRACTOR SHALL BE MADE UNDER THE DIRECT SUPERVISION OF A LICENSED ARCHITECT OR ENGINEER RETAINED BY OR ON THE BEHALF OF THE CONTRACTOR WHO SHALL BE ACCEPTABLE TO THE ARCHITECT OR ENGINEER WHO SUPERVISED THE PREPARATION OF THE PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING INSPECTIONS AND TESTS TO BE PERFORMED IN THE PRESENCE OF THE FIRE DEPARTMENT INSPECTOR:

FIRE ALARM TEST	27-977
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January 10, 2005

Soundproofing of
Monsignor McClancy Memorial High School

SECTION 01400
QUALITY CONTROL

1.01 SERVICES AND ITEMS INCLUDED

- A. Controlled inspections shall be performed by a Professional Engineer or Registered Architect (licensed in the State of NY) retained by the Contractor on behalf of the MAMHS. All costs related to the controlled inspections shall be the responsibility of the Contractor. All forms required for this purpose by the NYC Building Department or other agency shall be prepared and filed by the Engineer or Architect retained by the Contractor.

1.02 CONTROLLED INSPECTIONS

- A. Material and service equipment designated for "Controlled Inspection" under the provisions of the New York City Building Code shall be inspected, tested and witnessed by or under the supervision of a licensed Engineer or a licensed Architect.
- B. The Engineer or Architect employed for "Controlled Inspections" shall file all initial amendments or Statements of Responsibility Form TR-1, properly executed, before work commences and all final amendments immediately upon completion of work with the Building Department. A copy of each approved amendment or Form TR-1 must be on file with the New York City Building Department before work commences and copies of final amendments or TR-1 Forms must be on file before final acceptance of the Work.
- C. Contractor shall notify in writing the Engineer or Architect responsible for controlled inspections at least 48 hours before the specific work item commences.
- D. Inspections and tests performed under controlled inspection shall in no way relieve the Contractor of the responsibility to construct the project in accordance with the Drawings and Specifications.

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Soundproofing of
Monsignor McClancy Memorial High School

1.03 MANUFACTURERS' FIELD OBSERVATIONS AND TESTS

- A. Provide observations and tests as specified in the respective technical Sections.

1.04 MOCK-UPS AND FIELD SAMPLES

- A. Provide mock-ups and field samples as specified in the respective technical Sections.

1.05 ACCEPTANCE TESTS

- A. Governmental Agencies - All equipments and appliances furnished and installations made under the Contract shall conform to the requirements of the Specifications, and shall in any event be not less than that necessary to comply with the minimum requirement of all governmental agencies having jurisdiction.
- B. Notice of Tests - Whenever the Specifications or any governmental agency having jurisdiction requires the acceptance test, Contractor shall give written notice 48 hours in advance to all parties concerned of the time when these tests will be conducted.
- C. Utilities and Instruments - Contractor shall furnish energy, fuel, oil, water, air, smoke, light and electrical instruments as required for all testing.
- D. Contractor shall furnish labor and material necessary to conduct the acceptance tests at no additional cost to the MMHS.
- E. Certificate - The final acceptance by the MMHS shall be contingent upon the Contractor delivering to the MMHS Representative all necessary certificates evidencing compliance in every respect with the requirements of the agencies having jurisdiction.

END OF SECTION

It is noted for the record that the contractor has not submitted the Registered Architect or Professional Engineer for controlled Inspection's credentials to this office or the owner's for review.

We have not been advised us in advance of the contractor's performance of any required testing or inspections. The contractor has indicated that all inspections have been performed and will be provided upon request. Recent inspection reports we have received for air and water balancing are suspect and may require re-testing in our presence for confirmation of the testing lab's integrity.

We have received Controlled Inspection Affidavits TRI's for the Refrigeration and Ventilation certifications and Equipment use permits for the chillers. Submissions of all other listed certified inspection reports will be required before the project can be closed out and final payments made.

It is not unusual for some reports to be submitted as part of the close out package so that if we do not have all Certified inspections on file at this time, they may still be provided in the close out package.

The following pages are sections of the Specification that require full compliance with the contract documents regardless of amounts previously certified.

January 10, 2005

Monsignor McClaney Memorial High School

CHAPTER II

ADJUSTMENTS AND PAYMENTS

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4. WITHHOLDING OF PAYMENTS.

If (1) the Contractor fails to perform any of his obligations under this contract or any other agreement between the Owner and the Contractor (including his obligation to the Owner to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Owner, or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor is made against the Owner or (3) any subcontractor under this Contract or any other agreement between the Owner and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor or if in the opinion of the Director any of the aforesaid contingencies is likely to arise, then the Owner shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Director may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Director may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Owner to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Owner does not intend to exercise its right to such contingency. Neither the above provisions for the rights of the Owner to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Owner shall create any obligation of any kind to such materialman, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the Rights of the Owner under this numbered clause.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Owner, the Owner shall pay the Contractor interest thereon at the rate of 2% per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

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B. CERTIFICATES OF PARTIAL COMPLETION.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

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Monsignor McClancy Memorial High School

CHAPTER V

WARRANTIES MADE AND LIABILITY ASSUMED
BY THE CONTRACTOR

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Monsignor McClancy Memorial High School

2. RISKS ASSUMED BY THE CONTRACTOR.

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, the Owner, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Owner subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs (a) through (c) below:

- (a) The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Owner;
- (b) The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Owner on account of injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work)

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Monsignor McClancy Memorial High School

CHAPTER VIII

SPECIAL PROVISIONS

- (c) The risk of loss or damage to any property of the Contractor, and of any claims made against the Contractor or the Owner for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Owner premises or the vicinity thereof.

The Contractor shall indemnify the Owner against all claims described in sub-paragraphs (b) and (c) above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State Laws, or any other applicable law. Unless a claim is one which the Contractor is not required to indemnify the Owner against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The provisions of this numbered clause shall also be for the benefit of the MMMHS's, officers, agents, employees and consultants of the Owner so that they shall have all the rights that they would have under this numbered clause if they were named at each place above at which the Owner is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Owner may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

January 10, 2005

Monsignor McClancy Memorial High School

4. NO ESTOPPEL OR WAIVER.

The Owner shall not be precluded or estopped by an acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Architect, or any officer, agent or employee of the Owner, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Owner shall not be precluded or estopped not withstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with this Contract, and any monies which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Owner, the Architect, or any officer, agent, or employee of the Owner nor any permission or direction to continue with the performance of the Work, nor any performance by the Owner of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the MMMHS, its officers, agents, or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Owner may be entitled because of any breach thereof, excepting only a resolution of its Officer's, providing expressly for such waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any damages to which the Owner may be entitled because of such breach. Moreover, no waiver by the Owner of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

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12. INSPECTIONS AND REJECTIONS.

All work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the MMMHS Representative, acting personally or through his Inspectors, and the execution in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the MMMHS Representative or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture or methods of construction will or may be so inspected. The MMMHS Representative shall be the judge of the quality and suitability of the Work, construction, processes of manufacture or methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the MMMHS Representative.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the MMMHS Representative may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the MMMHS Representative may designate, the Contractor shall secure for the MMMHS Representative and his Inspectors free access to all parts of such factories or plants and shall furnish to the MMMHS Representative three copies of purchase orders, two copies of mill shipping statements, and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days notice to the MMMHS Representative of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the MMMHS Representative shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

14. NO RELEASE OF CONTRACTOR.

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Owner not the Contractor. Any approval of such things shall be construed merely to mean that at that time the MMMHS Representative knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty.

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Monsignor McClaney Memorial High School
obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

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Soundproofing of
Monsignor McClancy Memorial High School

SECTION 01400
QUALITY CONTROL

1.01 SERVICES AND ITEMS INCLUDED

- A. Controlled inspections shall be performed by a Professional Engineer or Registered Architect (Licensed in the State of NY) retained by the Contractor on behalf of the MMCHS. All costs related to the controlled inspections shall be the responsibility of the Contractor. All forms required for this purpose by the NYC Building Department or other agency shall be prepared and filed by the Engineer or Architect retained by the Contractor.

1.02 CONTROLLED INSPECTIONS

- A. Material and service equipment designated for "Controlled Inspection" under the provisions of the New York City Building Code shall be inspected, tested and witnessed by or under the supervision of a Licensed Engineer or a Licensed Architect.
- B. The Engineer or Architect employed for "Controlled Inspections" shall file all initial amendments or Statements of Responsibility Form TR-1, properly executed, before work commences and all final amendments immediately upon completion of work with the Building Department. A copy of each approved amendment or Form TR-1 must be on file with the New York City Building Department before work commences and copies of final amendments or TR-1 Forms must be on file before final acceptance of the Work.
- C. Contractor shall notify in writing the Engineer or Architect responsible for controlled inspections at least 48 hours before the specific work item commences.
- D. Inspections and tests performed under controlled inspection shall in no way relieve the Contractor of the responsibility to construct the project in accordance with the Drawings and Specifications.

January 10, 2005

Soundproofing of
Monsignor McClancy Memorial High School

1.03 MANUFACTURERS' FIELD OBSERVATIONS AND TESTS

- A. Provide observations and tests as specified in the respective technical Sections.

1.04 MOCK-UPS AND FIELD SAMPLES

- A. Provide mock-ups and field samples as specified in the respective technical Sections.

1.05 ACCEPTANCE TESTS

- A. Governmental Agencies - All equipments and appliances furnished and installations made under the Contract shall conform to the requirements of the Specifications, and shall in any event be not less than that necessary to comply with the minimum requirement of all governmental agencies having jurisdiction.
- B. Notice of Tests - Whenever the Specifications or any governmental agency having jurisdiction requires the acceptance test, Contractor shall give written notice 48 hours in advance to all parties concerned of the time when these tests will be conducted.
- C. Utilities and Instruments - Contractor shall furnish energy, fuel, oil, water, air, smoke, light and electrical instruments as required for all testing.
- D. Contractor shall furnish labor and material necessary to conduct the acceptance tests at no additional cost to the MMHS.
- E. Certificate - The final acceptance by the MMHS shall be contingent upon the Contractor delivering to the MMHS Representative all necessary certificates evidencing compliance in every respect with the requirements of the agencies having jurisdiction.

END OF SECTION

It is noted for the record that the contractor has not submitted the Registered Architect or Professional Engineer for controlled Inspection's credentials to this office or the owner's for review.

We have not been advised us in advance of the contractor's performance of any required testing or inspections. The contractor has indicated that all inspections have been performed and will be provided upon request. Recent inspection reports we have received for air and water balancing are suspect and may require re-testing in our presence for confirmation of the testing lab's integrity.

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It is not unusual for some reports to be submitted as part of the close out package so that if we do not have all Certified inspections on file at this time, they may still be provided in the close out package.

The following pages are sections of the Specification that require full compliance with the contract documents regardless of amounts previously certified.

CHAPTER II

ADJUSTMENTS AND PAYMENTS

4. WITHHOLDING OF PAYMENTS.

If (1) the Contractor fails to perform any of his obligations under this contract or any other agreement between the Owner and the Contractor (including his obligation to the Owner to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Owner, or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor is made against the Owner or (3) any subcontractor under this Contract or any other agreement between the Owner and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor or if in the opinion of the Director any of the aforesaid contingencies is likely to arise, then the Owner shall have the right, in his discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Director may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Director may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Owner to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Owner does not intend to exercise its right to such contingency. Neither the above provisions for the rights of the Owner to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Owner shall create any obligation of any kind to such materialman, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the Rights of the Owner under this numbered clause.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Owner, the Owner shall pay the Contractor interest thereon at the rate of 2% per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

8. CERTIFICATES OF PARTIAL COMPLETION.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

January 10, 2005

Monsignor McClancy Memorial High School

CHAPTER V

WARRANTIES MADE AND LIABILITY ASSUMED BY THE CONTRACTOR

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Monsignor McClancy Memorial High School

2. RISKS ASSUMED BY THE CONTRACTOR.

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, the Owner, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Owner subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs (a) through (c) below:

- (a) The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Owner;
- (b) The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Owner on account injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work)

January 10, 2005

Monsignor McClancy Memorial High School

CHAPTER VIII

SPECIAL PROVISIONS

- (c) The risk of loss or damage to any property of the Contractor, and of any claims made against the Contractor or the Owner for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Owner premises or the vicinity thereof.

The Contractor shall indemnify the Owner against all claims described in sub-paragraphs (b) and (c) above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State Laws, or any other applicable law. Unless a claim is one which the Contractor is not required to indemnify the Owner against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The provisions of this numbered clause shall also be for the benefit of the MMMHS's, officers, agents, employees and consultants of the Owner so that they shall have all the rights that they would have under this numbered clause if they were named at each place above at which the Owner is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Owner may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

January 10, 2005

Monsignor McClancy Memorial High School

4. NO ESTOPPEL OR WAIVER.

The Owner shall not be precluded or estopped by an acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Architect, or any officer, agent or employee of the Owner, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Owner shall not be precluded or estopped notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with this Contract, and any monies which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Owner, the Architect, or any officer, agent, or employee of the Owner nor any permission or direction to continue with the performance of the Work, nor any performance by the Owner of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the MMMHS, its officers, agents, or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Owner may be entitled because of any breach thereof, excepting only a resolution of its Officers, providing expressly for such waiver. No cancellation, rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any damages to which the Owner may be entitled because of such breach. Moreover, no waiver by the Owner of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

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12. INSPECTIONS AND REJECTIONS.

All work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the MMMHS Representative, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the MMMHS Representative or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture or methods of construction will or may be so inspected. The MMMHS Representative shall be the judge of the quality and suitability of the Work, construction, processes of manufacture or methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the MMMHS Representative.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the MMMHS Representative may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the MMMHS Representative may designate, the Contractor shall secure for the MMMHS Representative and his Inspectors free access to all parts of such factories or plants and shall furnish to the MMMHS Representative three copies of purchase orders, two copies of mill shipping statements, and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days notice to the MMMHS Representative of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the MMMHS Representative shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

14. NO RELEASE OF CONTRACTOR.

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Owner not the Contractor. Any approval of such things shall be construed merely to mean that at that time the MMMHS Representative knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty.

53

January 10, 2005

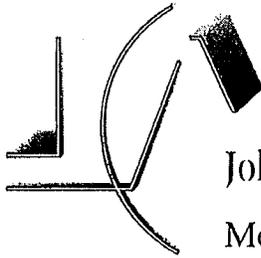
Monsignor McClanney Memorial High School
obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

that are ugly. There are some instances where the lack of coordination is effecting the school operations: i.e. The lab Rooms.

18. Roofing tar on the exterior walls at the locker room roof and MER room.
19. Pipe supports on the Mall roof do not conform with the detail on M2.13: A7.04
20. Railing at the ramp is damaged by the backhoe; catch basin at the mall needs to be cleaned of all dirt and debris; reset ramp/ stairs and railings.
21. Existing chain link fence is damaged.
22. MER room- close up of existing openings was not insulated. (a7.02)
23. No acoustical caulking in the Mall and MPR has been performed yet.
24. Damage to the existing parking lot throughout.
25. Life Safety and Fire Alarm system has been ignored at Classroom Unit #1
26. Sleeves for the Chiller pad are unacceptable. Sleeves are full of frozen water that may crack the foundation slab.
27. Numerous new ceiling tiles are damaged by the trades and need to be replaced throughout the school corridors.
28. New roof curbs have interfered with the existing roof water run off to drains. Water now ponds on the roof compromising the lifetime of the roof.
29. Overall dissatisfaction of subcontractors to the coordination and execution of contract work.
30. Unightly conditions left behind in the classrooms due to incomplete work. Over and beyond the normal.
31. Soffit construction does not conform to SK-7.
32. Continuous flashing at the exterior penetrations are missing throughout.

Work to be Performed During Normal Working Hours
January 2007

1. MER Railing: Shop Drawings/Install
2. Chiller Fence: Shop Drawings/Install
3. Complete EF #5,#6
4. Stairs and Awnings at Egress Stairs: Shop Drawings/Install L1.04
5. Kitchen Exhaust
6. Insulation of all pipes in the crawl space (90% complete)
7. MER Room: Ejector pumps, pit cover, and leader lines
8. Electrical: Wire AC-1, AC-2, EF-3,4,5, GX-3
9. Install all starters
10. Roof top electrical work, gas connections, condensate piping
11. Electrical stairs: Shop Drawings/Install



John Ciardullo Associates, P.C.

Memorandum

221 West 57th St
New York, NY 10019
T. (212) 245-0010
www.jca-architecture.com

date: October 30, 2007

to: **Jim Webber**
Jim Webber & Associates, Inc.
9 West 29th Street, 4th Floor
New York, NY 10001

tel: (212) 683-4044

fax: (212) 683-4144

from: Nelson Parra

cc: Msgr Edward Wetterer, Robert Dadona, Nick Russo, Zaheer Jaffery, Greenwich Insurance Co.

re: St. Michael's School Soundproofing- Window Replacement

Mr. Webber,

In a meeting held on June 13, 2007 JWA agreed to provide water tests to determine the source of the water leaks in the new windows installed by JWA. It has been almost 8 weeks since water tests were completed at St. Michael's School.

To date we have not received the test reports and there has been no response from JWA to any correspondence regarding the water tests.

Following completion of the water tests JWA never returned to the site to remove scaffolding and debris left by the testing company or to repair the plaster and panning that was removed around the windows for the tests.

JWA's failure to provide test results, failure restore tested windows, remove their scaffolding and debris from the site and their failure to respond to correspondence have delayed completion of the contract.

Based on this we find Jim Weber & Associates in breach of their contract with St. Michael's School under Chapter III Subsection 4 entitled "Cancellation for Delay" and Chapter 6 Subsection 1 entitled "Rights And Remedies Of The Owner".

By notice hereof the Bonding Company, in accordance with the terms of the Performance Bond #45031727 issued by Greenwich Insurance Company, shall be charged with the completion of the work, as required by their bond. A meeting with the owner and the bonding company will be scheduled, date to be determined.


Nelson Parra

RECEIVED
PORT AUTHORITY NY/NJ

OCT 31 2007

Msgr. McClancy Memorial H.S - (14) Daily
Narratives - Soundproofing

1A

MONSIGNOR McCLANCY
MEMORIAL HIGH SCHOOL
71-06 31ST
EAST ELMHURST, NY 11370

REVIEW OF THE UNIT VENTILATOR AND FAN COIL UNIT INSTALLATION

Lizardos Project No. 4530

February 2008

Headquarters
200 Old Country Road • Suite 670 • Mineola, NY 11501
v. 516.484.1020 • f. 516.484.0926

New York City
Two Penn Plaza • Suite 1500 • New York, NY 10121
v. 212.292.5121 • f. 212.292.5122
www.leapc.com



200 Old Country Road, Suite 670
Mineola, New York 11501
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FIELD REVIEW OF EXISTING TERMINAL UNITS (UNIT VENTILATORS AND FAN COIL UNITS)**Single Unit Ventilator Application (Faculty Room)**

1. Installation of the Unit

- a. The unit is mounted against an exterior wall and on top of a masonry pedestal. Outdoor air spills into the right (when facing the unit) panel piping pocket of the unit. The outdoor air comes from behind the unit. The back of the unit has a perimeter dust/dirt gasket to seal the unit to the building's masonry wall. The dust/dirt gasket is shallow (about 3/8 of an inch thick) and the right side of the unit is not sitting flush against the wall, leaving about a 1/2 inch gap between the right rear lower gasket of the unit and the masonry wall. The unconditioned outdoor air spills across the floor from within the right side panel piping pocket.
- b. At the bottom rear of the unit is its outdoor air intake connection. The outdoor air is drawn from a wall penetration that is located above the units' outdoor air intake. A sheet metal duct connects the elevated outdoor air wall penetration to the units' lower outdoor air intake. Outdoor air is not being confined to the outdoor air intake ductwork but is dispersing through the space between the back of the unit and the masonry wall. This unconditioned air is leaking into the conditioned space.

2. Operation of the Unit

- a. There were disconnected wires inside the left (when facing the unit) panel piping pocket of the unit. The ends of most of the wires were crudely taped with electricians tape; one wire end was bare.
- b. The actuator for the heating valve was loose. The stem position indicator was not attached and could be moved freely by hand.
- c. The unit was not functional. The disconnect switch was in its energized position. When switching the service switch to the off position and re-switching to the on position, the fan did not activate.
- d. The heating valve was closed and no heat was being provided to the coil.
- e. The indoor return air damper was closed but the damper edge was not fully seated and unconditioned outdoor air was leaking into the conditioned space. For the outdoor air to be able to reach the indoor return air damper would mean that the outdoor air was also not sealing.

Single Fan Coil Unit Application (Finance Room)

1. Installation of the Unit

- a. The unit is mounted against an exterior wall and on top of a masonry pedestal. Outdoor air was passing through the unit, from the back of the unit through the unit casing and out the front panel perimeter joints, but not through the heating coil. When looking inside the unit, light can be seen passing through the top of the wall penetration and the upper portion of the outdoor grill can be clearly seen.
- b. At the bottom rear of the unit is its outdoor air intake connection. The outdoor air is drawn from a wall penetration that is located above the units' outdoor air intake. A sheet metal duct connects the elevated outdoor air wall penetration to the units' lower outdoor air intake. Outdoor air is not being confined to the outdoor air intake ductwork but is also passing through the cabinet enclosure of the unit. This unconditioned outdoor air is flowing through the unit and into the conditioned space.

2. Operation of the Unit

- a. The unit was not functional. The disconnect switch was in its energized position. By moving this service switch from the on position to its off position and back to its on position, a relay could be heard to respond to the position of the service switch.
- b. However, the heating valve was open and heat was being provided to the coil, but the fan did not function.
- c. The indoor return air damper was closed but the damper blade had a twist in it that allowed the left (as facing the unit) side of the blade to remain partially open (3/16 of an inch) while the right side of the blade was seated firmly. A significant amount of unconditioned outdoor air was leaking past the indoor return air damper blade and into the conditioned space. For the outdoor air to be able to reach the indoor return air damper would mean that the outdoor air damper also was not sealing.

Dual Unit Ventilator Application (Classroom 201)

1. Installation of the Unit
 - a. Each unit is located against the exterior wall, and mounted on top of masonry pedestals. No unconditioned outdoor air spills through either unit's cabinet casing. Each masonry outdoor air wall penetrations is sealed air tight.
 - b. At the bottom rear of each unit there is an outdoor air intake connection. The outdoor air is drawn from wall penetrations that are located above the top of each unit. Sheet metal ducts connect each elevated outdoor air wall penetration to their respective unit's lower outdoor air intake. The outdoor air is confined to the outdoor air intake ductwork.
2. Operation of the Units
 - a. Both units were working and the room was being heated. However, the unit on the right (as facing the units) was providing heated discharge air but the second unit on the left was not providing heated discharge air. These two units may not be communicating with each other. They should be working as a master unit and a slave unit so as to function in unison.
 - b. The unit doing the heating was shut down by way of the service switch. Unconditioned outdoor air was felt to enter the room from the return air damper opening. The outdoor air damper was not sealing properly. When the unit's service switch was placed into the on position, the fan reactivated in less than 1 minute.
 - c. The return air sensor of each unit was insulated with a foam type of insulation.

EXISTING WATER/GLYCOL SYSTEM SERVING THE FORCED AIR HEATING PORTION OF THE BUILDING**1. Shell and Tube Heat Exchangers**

The heating plant's hot water is pumped through two heat shell and tube exchangers that are utilized to heat a water/glycol mixture that is pumped throughout the building.

2. Water/Glycol Pumps

Two pumps (operating and stand-by) are provided to circulate the water/glycol mixture through the heat exchangers and throughout the building. The pump serving the building at the time of the field trip was producing a high pitch squeal that would indicate a lead up to a bearing failure.

3. Water/Glycol System Water Temperature Control

The water/glycol mixture temperature is to be regulated inversely proportional to the outdoor air.

4. Room Temperature Control

Each room fan coil unit and unit ventilator is equipped with a two-way control valve that regulates the flow of water through its respective unit's heating coil to maintain space temperature. A return air sensor and a supply air sensor are located in each unit ventilator and may be utilized to provide information to a zone sensor. Outdoor air is regulated as required for economizer, and occupancy ventilation. It appears that the zone sensor within the unit is utilized for room temperature control.

5. Central Computer Console

A central located computer is utilized to control and monitor the equipment. When reviewing the equipment settings, it was noted that some of the unit ventilators and fan coil units were not communicating with the computer and no input or status data was being displayed.

It was also noted that the water/glycol system send out temperatures far exceed the setpoint data for that portion of the system. The system was not calibrated to the outdoor air temperature. The send out temperature was too high for the outdoor air temperature of that day.

RESULTS AND RECOMMENDATIONS

Outdoor Air Intakes

1. Results
 - a. The gap between outdoor air ductwork (unit ventilators and fan coil units) and the masonry wall penetration for outdoor air intake is not sealed. Part of the unconditioned air that is entering the building is through the gap between the outdoor air intake ductwork and the masonry wall opening.
 - b. Sealing of the gap between the outdoor air ductwork and outdoor air wall penetration is indicated on Drawing M-2.09, Section "C-C", and Note 29 on Drawing M0.01.
2. Recommendation
 - a. Each outdoor air intake grill on the face of the building should be removed and the gap between the outdoor air intake ductwork located in the masonry outdoor air opening must be sealed air tight. The sealing material must be impervious to water so that mold does not grow in the sealing material.

Outdoor Air and Return Air Dampers

1. Results
 - a. Outdoor air and return air dampers of the unit ventilators and fan coil units must be set up properly so that the dampers close air tight to the air pressure differential caused by the wind.
 - b. The indoor air damper should not be closed when the fan is in failure. Also the outdoor air damper should not be open when the fan is in failure. This inappropriate positioning has been demonstrated on the failed units located in Faculty and in Finance. These two units are suffering from blow through of the outside air.
 - c. The Shop drawing comment for this item reads "ALL OUTSIDE AIR DAMPER WITH SPRING RETURN, NORMALLY CLOSED TYPE." and the specifications 15950 (2.03 D) call for same.
 - d. There are no hardware commissioning data sheets.
2. Recommendation:
 - a. All of the units must be Hardware Commissioned as specified in Section 15950 3.16 A. to I.

Unit Heating Control Valves

1. Results
 - a. When a unit's fan fails, the heating valve should go to its full open position. This was not the case in the Faculty Room. The heating control valve was closed.
2. Recommendation
 - a. All of the units must be Hardware Commissioned as specified in Section 15950 3.16 A. to I.

Room Air Temperature Sensing

1. Results
 - a. A zone sensor (or RA Sensor as specified 15950 - 3.08 B. 1.) is not actually sensing the room occupancy space temperature which should be sensed at about 5 feet above the floor.
2. Recommendation
 - a. Trane has a wireless room thermostat that can provide a space temperature that is more in tune with what is actually happening in the room. A wireless wall mounted room thermostats should be provided to eliminate false readings that may drive the heating valve to its full open position and overheat the room or cause erratic temperature swings.

Water/Glycol Chemical Treatment Report

1. Results
 - a. The water/glycol solution test results have not been submitted.
2. Recommendation
 - a. A water testing firm should verify the water/glycol mixture that is circulating in this portion of the piping system. The test analysis will indicate if the solution meets the specifications and if it is stable and appropriate for the system. Water analysis report with recommend treatment to the solution should be provided as specified in Section 15815.

Water Balancing

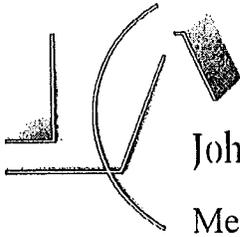
1. Results
 - a. It was noted that the field reviewed units had their balancing valves set to full open.
2. Recommendation
 - a. The water flow through each unit must be balanced to the unit's specifications or the relation between valve position and coil capacity performance will not correlate which can cause wide temperature swings in the discharge air temperature and in the room temperature.
 - b. Provide the water balancing reports as specified in Section 15900.

Central Computer Console and Control System

1. Results
 - a. It is apparent that the lack of communication between some of the unit ventilators and fan coil units with the computer console plus the lack of correlation between the sensors and the actual temperatures, that not only has hardware commissioning not been provided as specified but also that the software commissioning has not been provided as specified.
2. Recommendation
 - a. All software temperature sensing must be calibrated; all valve positioning, damper positioning, and all operations between the software and its respective hardware must be commissioned.
 - b. The software commissioning must be performed as specified. Provide the software data sheets as specified in 15950 3.16 A to I.

System Performance Demonstration and Final Acceptance:

1. Results
 - a. This system has not been demonstrated to perform as specified. The owner is entitled to select a portion of the system to be demonstrated to function flawlessly. If that portion does not function as specified, it must be repaired and made to function as intended. Upon which the owner may select another portion of the system to be demonstrated to function and it too must be made to function.
1. Recommendation
 - a. Provide the System Performance Demonstration for the owner as specified in 15950 3.16 D. & E.



John Ciardullo Associates, P.C.

Memorandum

575 8th Avenue
New York
New York
T. (212) 245-0010
www.jca-architecture.com

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RECEIVED
PORT AUTHORITY NY/NJ

date: August 29, 2007

to: Nadir Uygan
Nagan Construction
226 Wanser Ave
Inwood NY 11096

AUG 30 2007

tel: 516 374 6286

fax: 516 374 6290

from: Nelson Parra

**LaGuardia Airport ,
Central Terminal Building
Resident Engineer's Office**

re: McClancy H.S. Soundproofing

Mr Uygan,

At the meeting of 8/13/07 NCJV stated that their roofing subcontractor would be on site on 8/14/07 to inspect the roof of the main school building with JCA and the school's roofer to determine the source of leaks in and around areas of work performed by NCJV.

NCJV did not attend the site walkthrough on 8/14/07. JCA did inspect the roof of the main school building and many deficiencies were documented in the work performed by NCJV.

Over several months NCJV has been alerted to these leaks and has failed to correct them. As of 8/29/07 NCJV has not taken any action to correct these deficiencies.

Classes begin on Tuesday 9/4/07, at which time the roof work must be free of leaks.

Based on the above MMMHS finds NCJV in breach of the following contract terms: Chapter VIII Subchapter 12, Drawing A2.10, Specifications Section 01340.

NCJV is hereby notified that per Chapter VI of the Contract Documents, the Owner is exercising their right to take over and complete any portion of the contract work as agent for and at the expense of the Contractor.

The work being performed by the school as described above and in the enclosed proposal is a minimum required to correct defective work performed by NCJV and stop the leaks before the start of classes. It does not relieve NCJV from their responsibility to provide other work required by the contract documents. NCJV remains responsible for proper installation of duct weatherproofing, pitch pockets, duct curb counter flashing and any other work required by the contract documents.

Enclosed for your records please find a copies of photo documentation of the above and a copy of the MMMHS roofer's proposal to correct the defective work.


Nelson Parra

cc. Nick Melito

(212) 838-2236
(212) 535-7224

CLERICAL ERRORS SUBJECT TO CORRECTION

FAX: (212) 861-5846

GEIGER CONSTRUCTION CO., INC.

LEADERS & GUTTERS
ROOF DRAINS
EXHAUST SYSTEMS
SKYLIGHTS
INSTALLED & SERVICED
VIOLATIONS REMOVED
WELDING
DRY WALL

SPECIALIZING IN
WATERPROOFING
EXTERIOR RESTORATION
SHEET METAL
1587 FIRST AVENUE
NEW YORK N.Y. 10028
EST. 1888

METAL, SLATE & SPANISH TILE
BUILT UP / MODIFIEDS
ABOVE & BELOW GRADE
WATERPROOFING
FACADES / LINTELS
PARAPETS / CHIMNEYS
TUCK POINTING
CARPENTRY

August 23, 2007

Mr. Nelson Parra
John Ciardulla Assoc. Architects
575 8th Avenue 20th fl
New York, NY 10018
T: (917) 568-9284
E: NPARRA@JCA-ARCHITECTURE.COM

Re: 72-02 31st Avenue / Queens, NY
McClancy High School
Main Roof

Dear Mr. Parra:

As per Mr. Nick Melito's (McClancy) request for an inspection of the above-mentioned property, we are able to suggest the following recommendations as well as provide the necessary labor and materials to properly perform the following work in the highest craftsmanship-like manner.

1. Observations

The following observations were made by Junior (Geiger Construction)

- a. *The roof membrane was loose around the south A/C unit.*
- b. *There were openings around the base flashing of the curb supporting the A/C Unit and ducts.*
- c. *Screws penetration on galvanized cap on top of curb.*

2. Recommendations

The following recommendations are made based on the above-mentioned observations.

- a. Prepare and install approx. 400 sf of single ply modify bitumen roof membrane where necessary.

Cost: \$ 2,375.00

- b. Install new modify bitumen membrane base flashing around sixteen (16) curbs & four (4) duct penetrations.
Install new galvanized extension cap flashing to terminate base flashing.

Cost: \$ 9,850.00

- c. Check and caulk all openings and penetrations on galvanized cap.

Cost: \$ 1,200.00

August 23, 2007

Mr. Nelson Parra
John Ciardulla Assoc. Architects
575 8th Avenue 20th fl
New York, NY 10018

Pg. 2: 72-02 31st Avenue / Queens, NY
McClancy High School
Main Roof

SCHEDULE OF VALUES		
1a.	\$	2,375.00
1b.	\$	9,850.00
1c.	\$	1,200.00
TOTAL:	\$	13,425.00

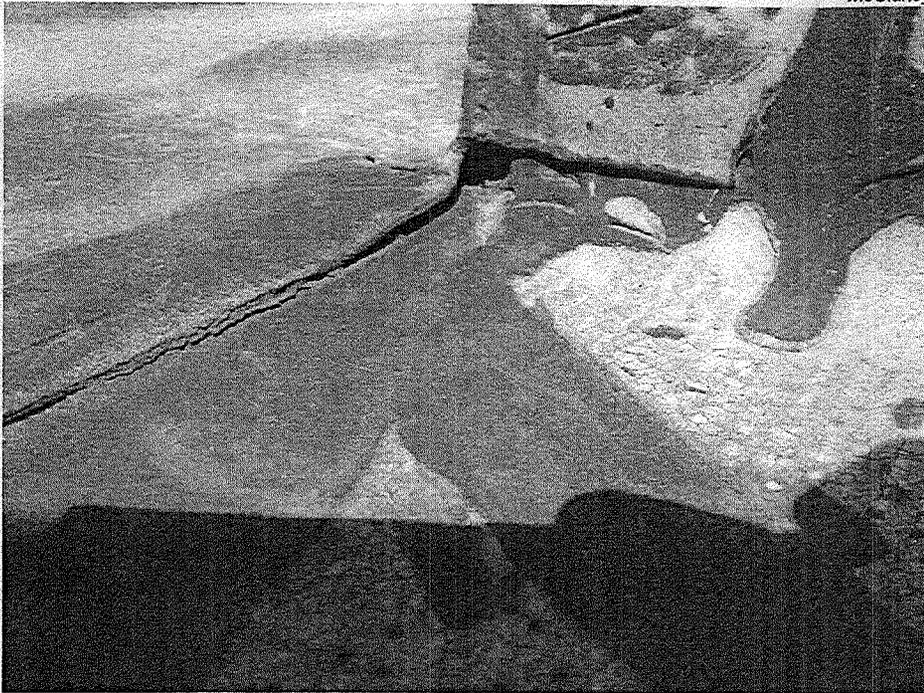
If the terms of this proposal meet with your approval, please sign one copy and return to our office with a **50% deposit** for the proposed work to be scheduled. Additional payments to be made as work progresses and final payment to be made within ten (10) days after completion. A late payment penalty of 1% per month will be charged on all invoices past 30 days. All prices are valid for sixty (60) days from proposal date.

Sincerely,

Karl Geiger, President
GEIGER CONSTRUCTION CO., INC.

APPROVED BY _____
DATE _____
AMOUNT OF DEPOSIT _____
Please make checks payable to GEIGER CONSTRUCTION CO.

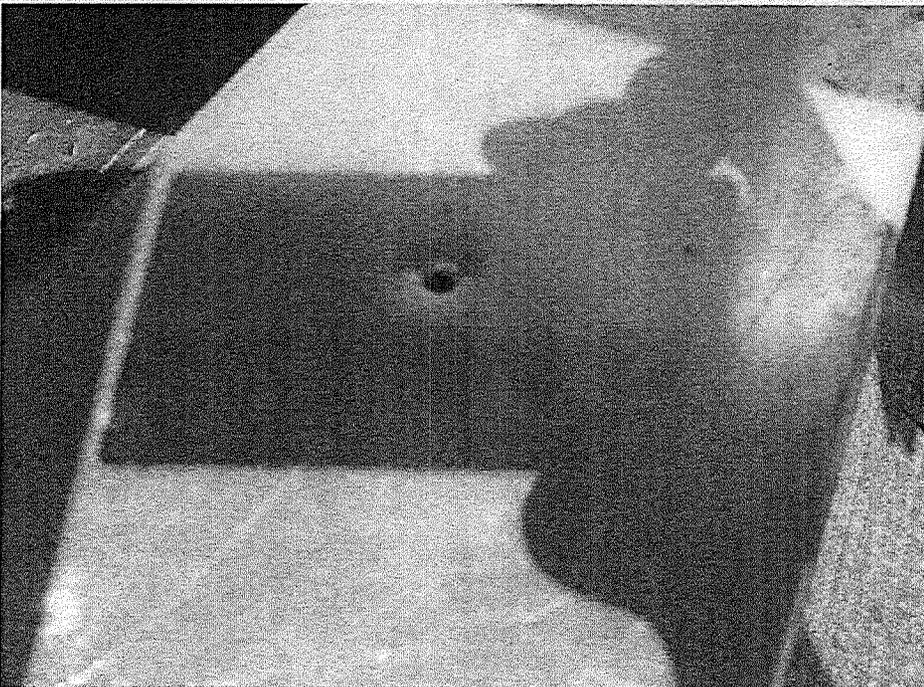
Cc. Mr. Nick Melito, McClancy HS
T: (917) 863-8397 / F: (718) 397-9325



hole in flashing at corner of curb (close-up)



hole in flashing at corner of curb



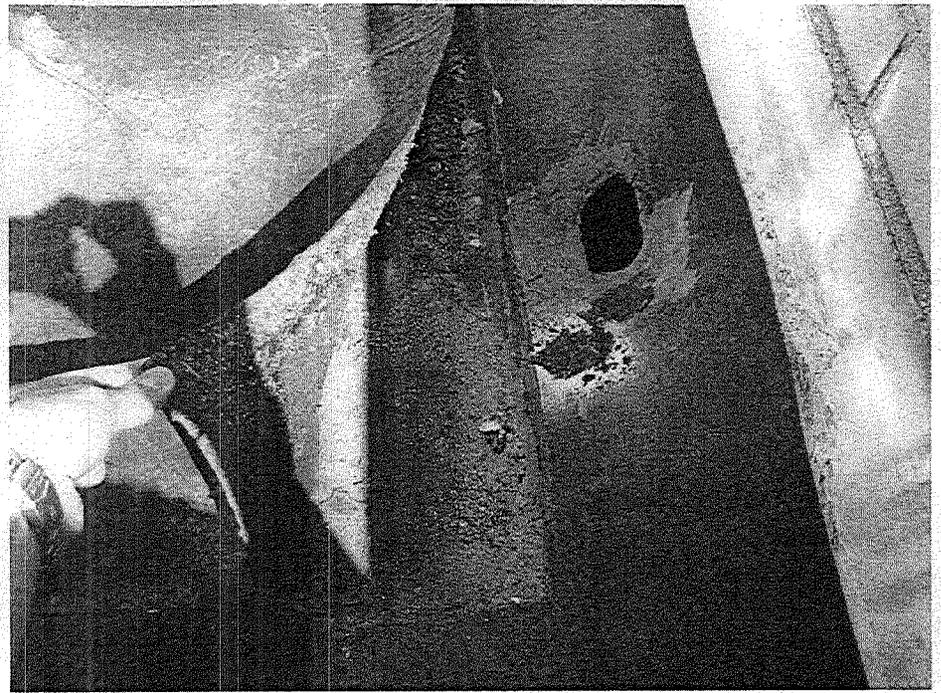
Hole on top of Curb



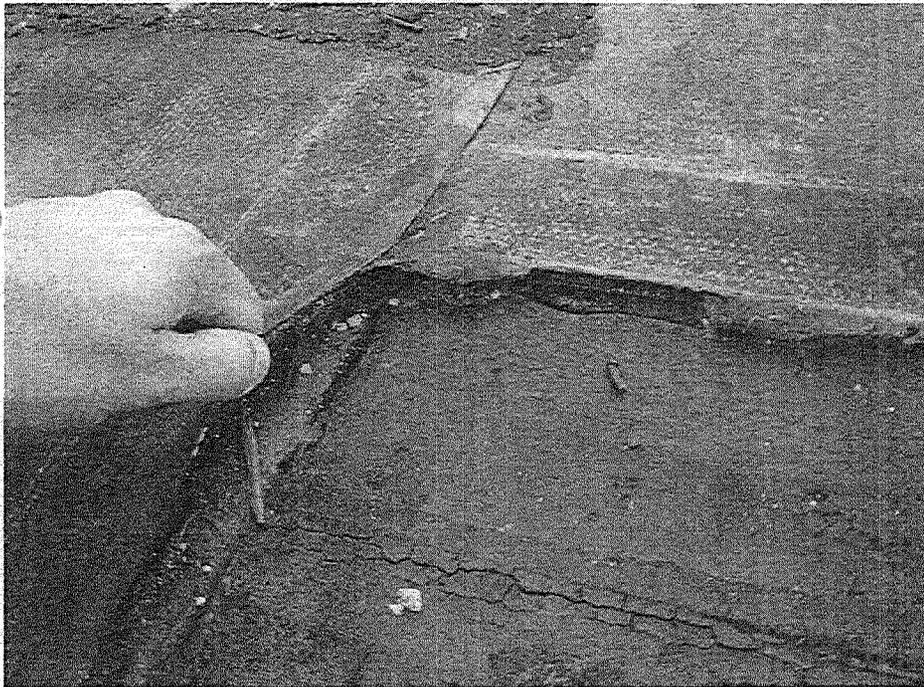
holes in membrane, not pitch pocket



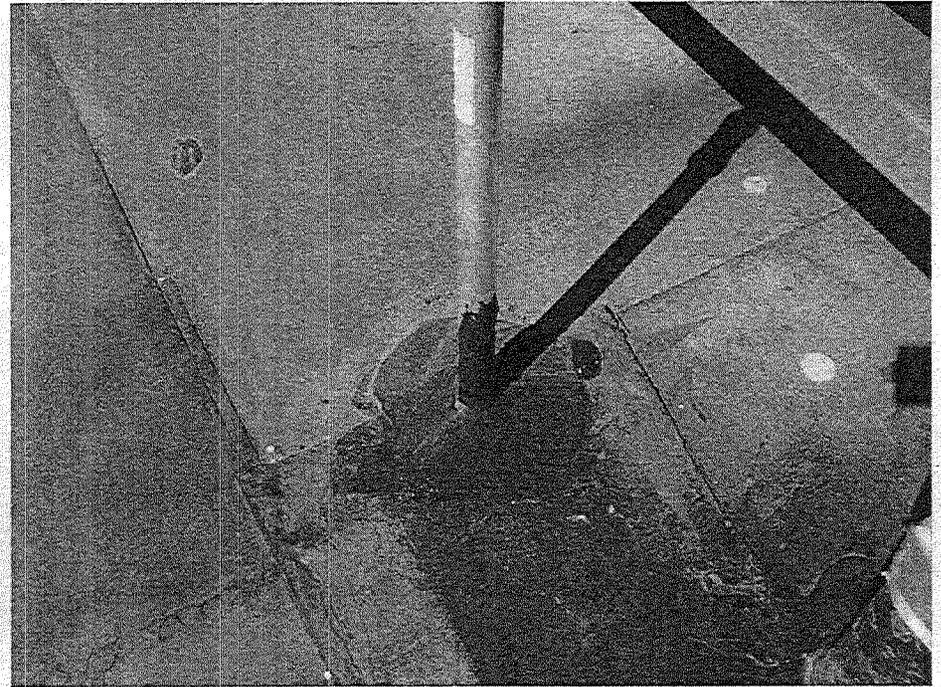
improperly installed flex duct collar



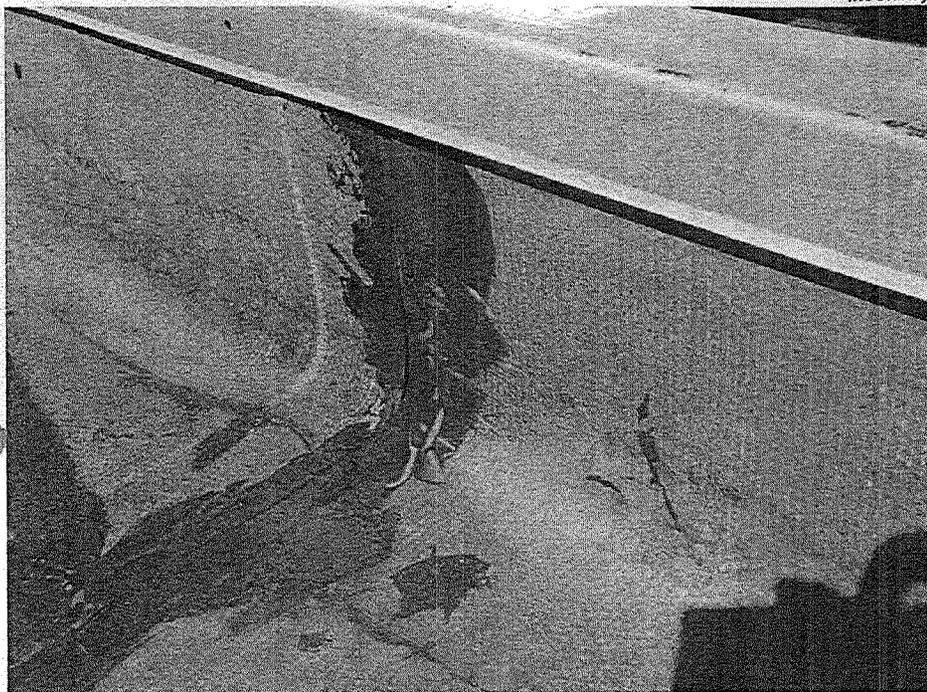
loose membrane not adhered to roof



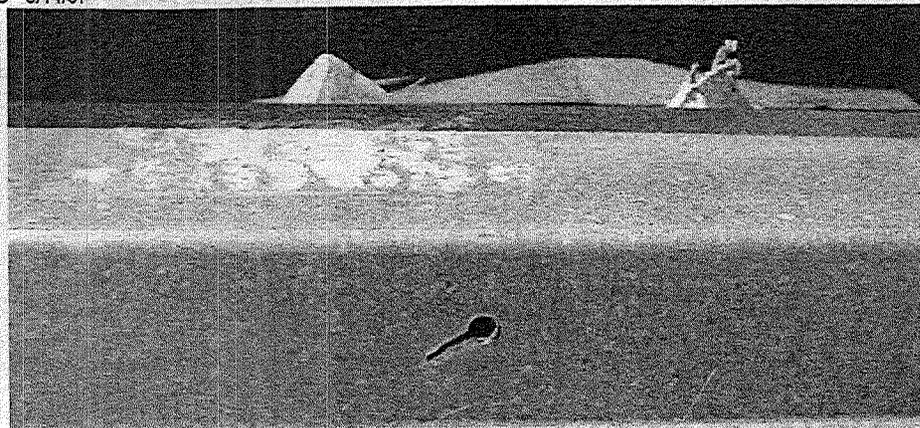
loose membrane not adhered



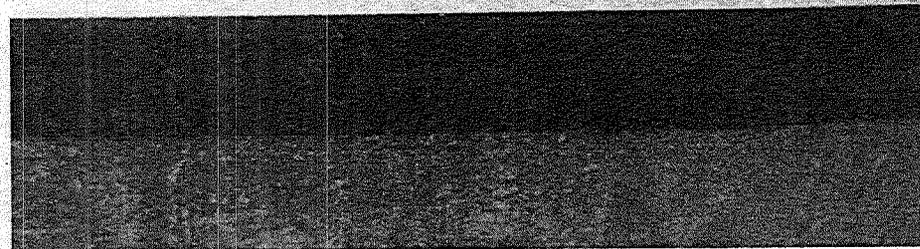
no pitch pocket



open flashing seam



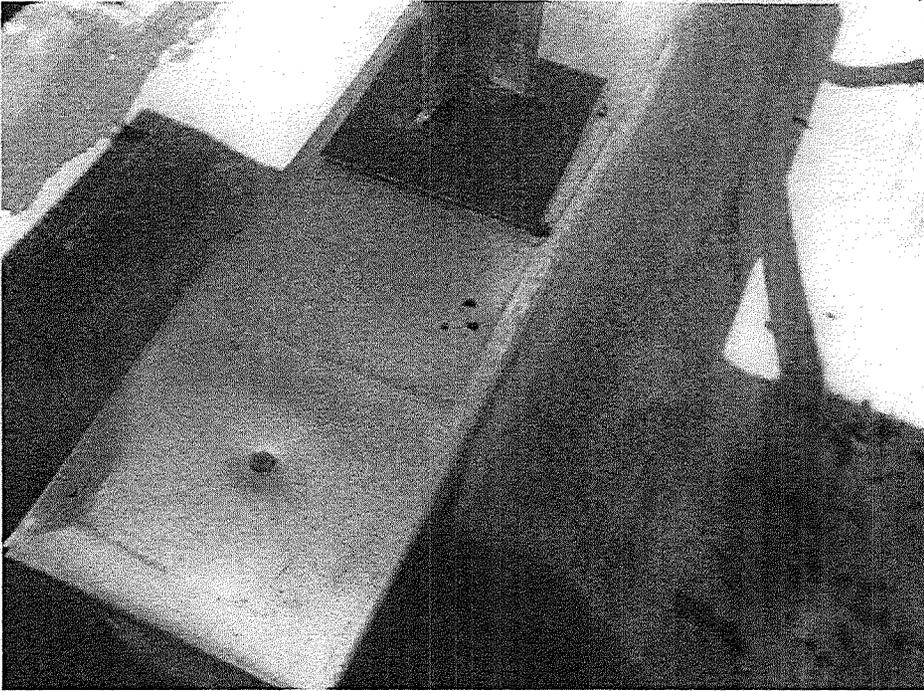
open hole in flashing



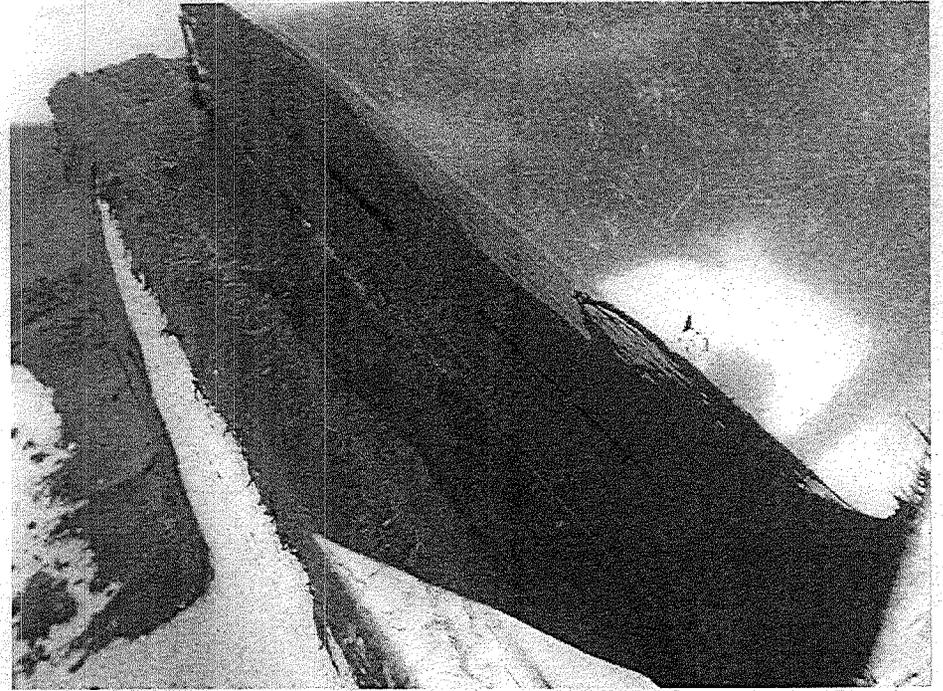
open hole on cap flashing - baseplate not glued



open hole, unsealed screw, mangled flashing



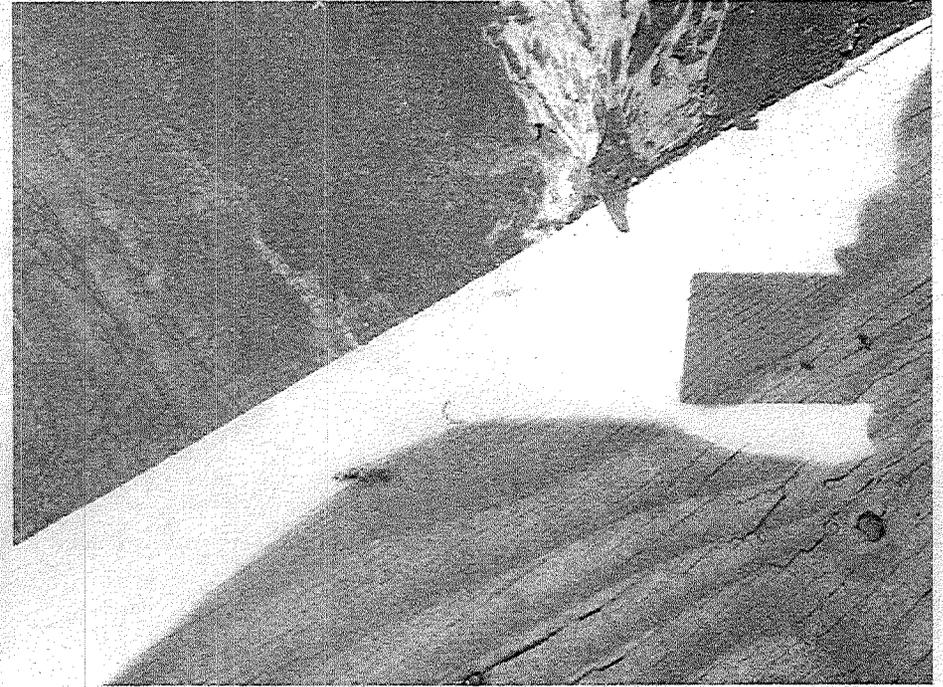
Open holes on top of curb



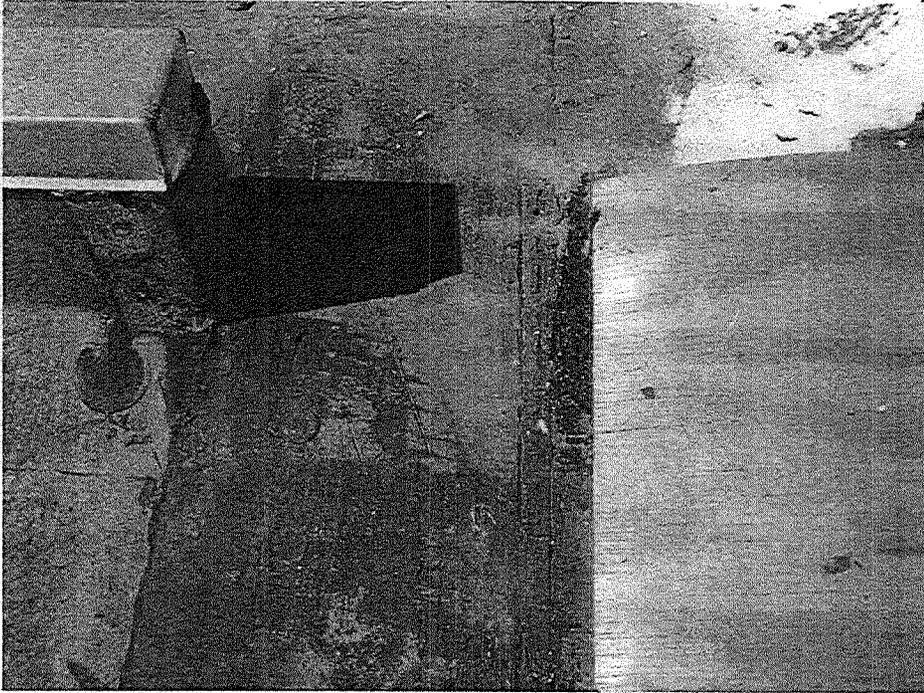
Open seam - no cap flashing



open seam



plywood digging into membrane at bulkhead



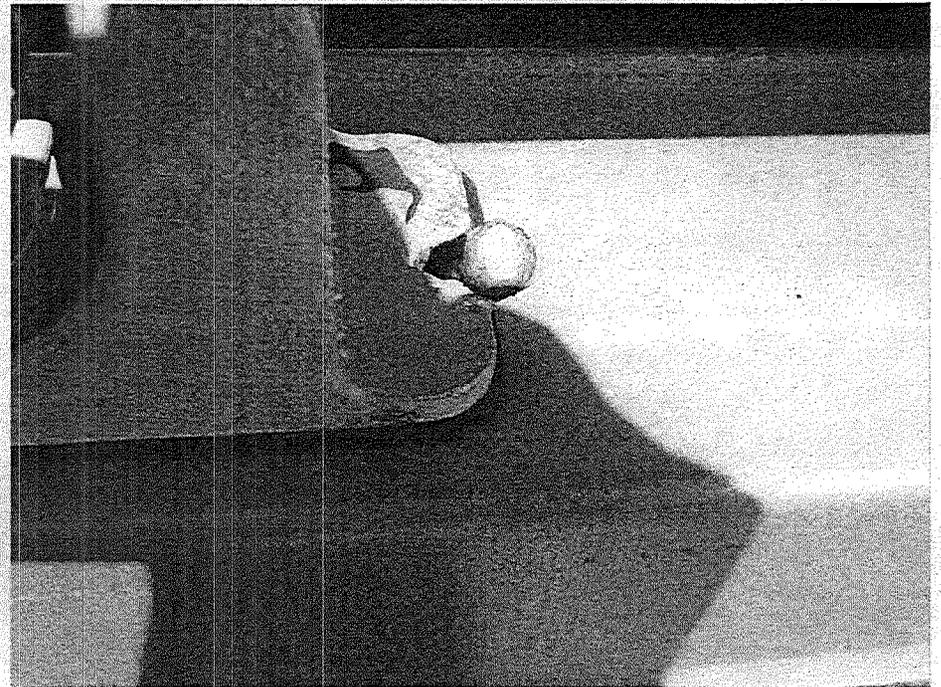
plywood digging into membrane at seam



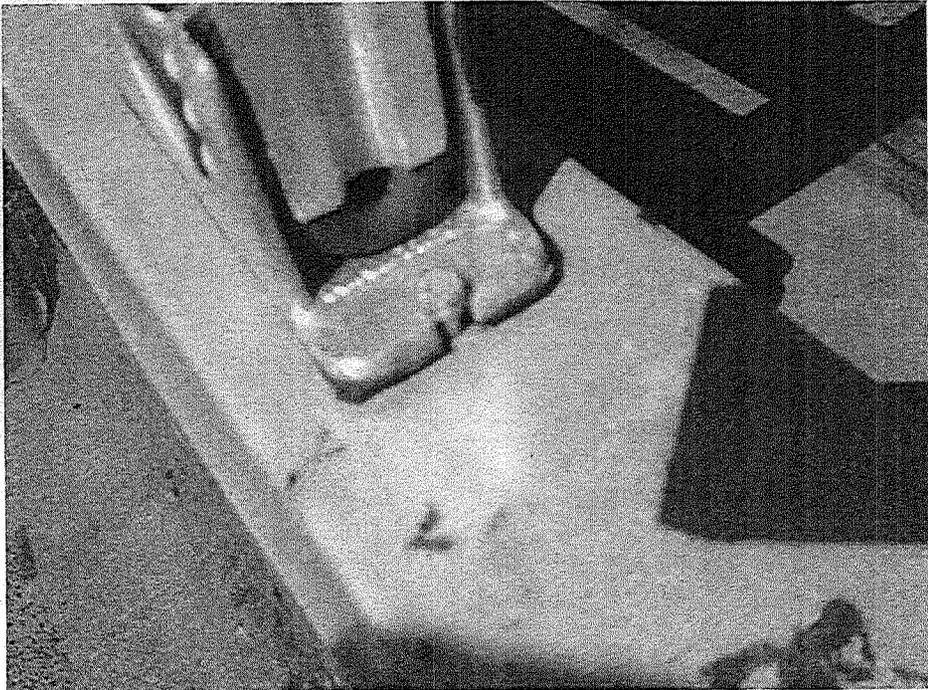
plywood digging into membrane on curb



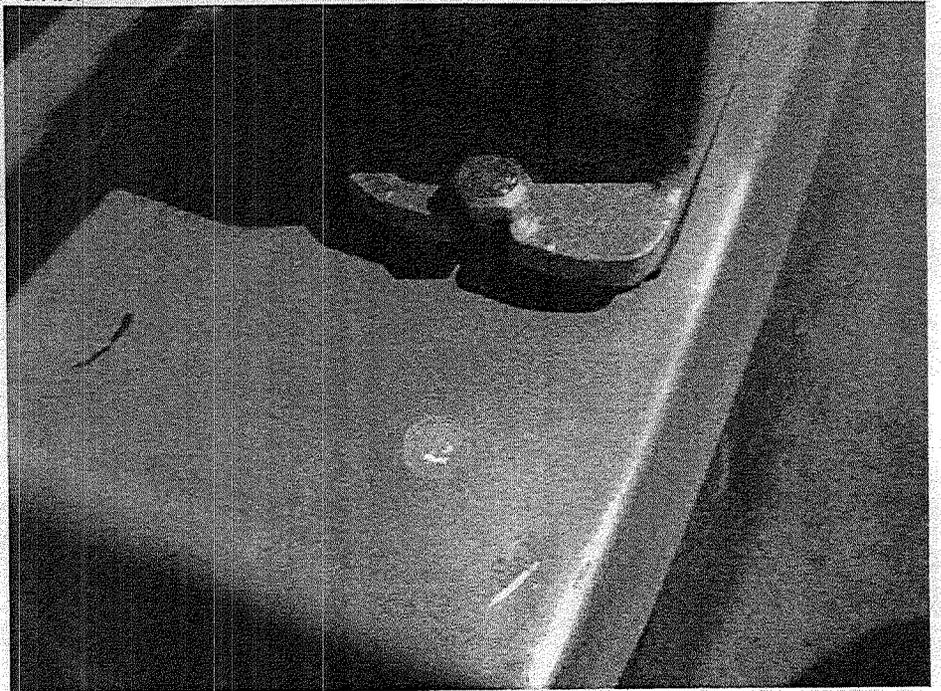
sinkhole forming near detached membrane



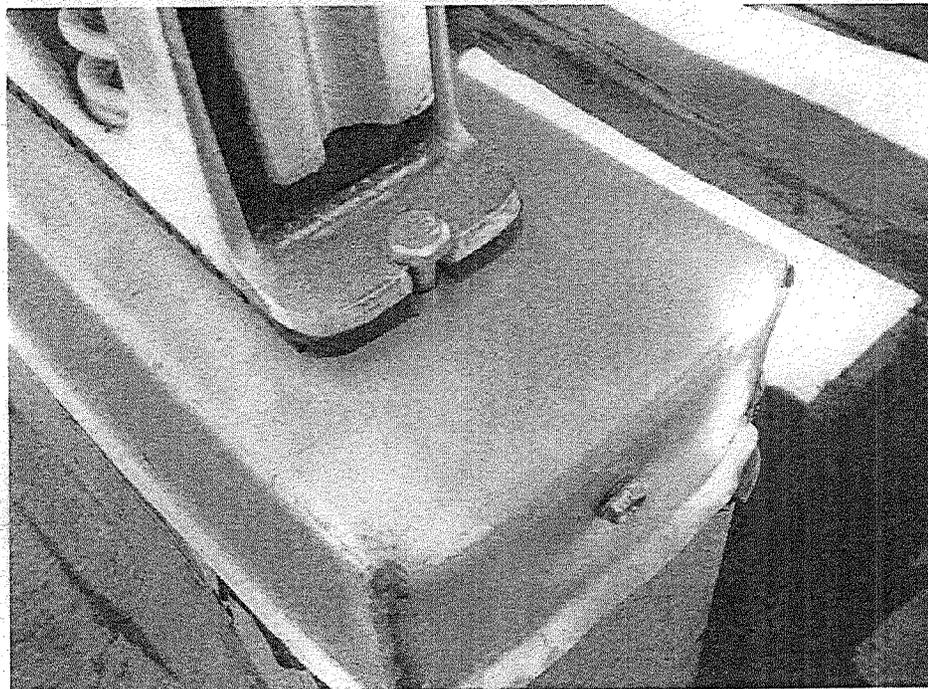
unsealed & misinstalled screw



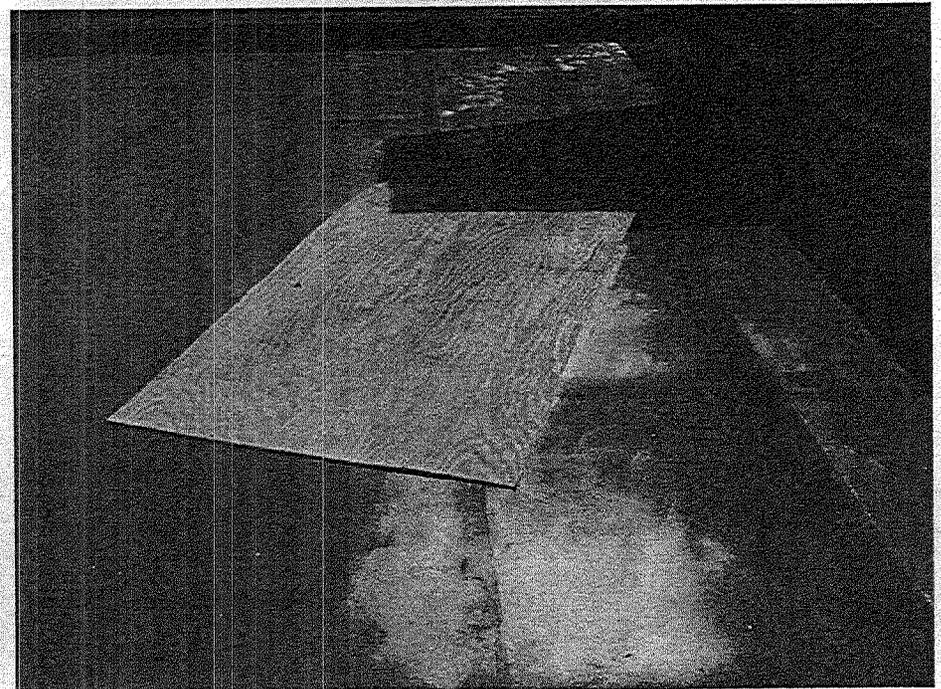
Unsealed screw hole



unsealed screw holes 2



unsealed screw holes



unsecured plywood stowed about roof away from work area



CONSTRUCTION PROGRESS AND INSPECTION REPORT AIRPORT GRANT PROGRAM

Period Ending
06/20/07

Project Number
**McClancy HS
LGA 841-099**

U. S. Department
of Transportation
**Federal Aviation
Administration**

Airport Name
LaGuardia Airport

Project Description
Soundproofing (Window replacement & AC) Contractor's Name
Nagan Conair JV

1. Rough Estimate of Percent Completion to Date of Construction Phases
(Include items such as clearing, grading, drainage, base, surface, lighting, etc.)
85%

2. Work Completed or in Progress this period
Repair of brick work at UV louver openings in progress
Installation of equipment for new electrical service and started transferring circuits to new electrical service panel
Duct Insulation @ stage area & kitchen exhaust
MER parapet coping stones
Began installation of acoustic panels in the MPR

3. Brief Weather Summary This Period Including Approximate Rainfall and Periods of Below Freezing Temperature
(On earthwork jobs include soil conditions)
Precipitation on 7 days throughout the month, Temperatures range from lowest 57 degrees to highest 92 degrees (F).

4. Summary of Laboratory and Field Testing This Period (Note failing tests and any retests. Summarize out-of-tolerance material. Identify material subject to pay reduction.)
Contractor submitted report for metal deck inspection @ MER on 7/10/2006

5. Describe Anticipated Work by Contractor for Next Period
Transfer electrical service to new panel
Install gas booster pump controls
Continue repair of UV louver openings

6. Problem Areas/Other Comments (Revisions to plans and specifications approved or denied, delays, difficulties, etc. and actions taken.)
Work performed is minor and has progressed slowly. Contractor still has not provided louver shop drawings.
Contractor still refuses to accept credits owed for work not performed or eliminated from the contract. Several outstanding NCR's remains unanswered and unresolved.

SPONSOR'S INSPECTOR OR REPRESENTATIVE

Date
6/20/07

Typed of Printed Name and Title
Nelson Parra

Signature

**ASBESTOS REMOVAL
IN CONNECTION WITH
THE SOUNDPROOFING OF
MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Specification
Book-1 of 1**

Issue For Bid January 10, 2005

Owner:

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
In the Borough of Queens
In the City of New York**

Architect:

**John Ciardullo Associates
221 West 57th Street
New York, New York 10019**

Mech/Elec Engineer:

**Lakhani & Jordan Engineers, P.C.
50 East 42nd Street
New York, NY 10017**

Asbestos Engineer:

**ATC Associates, Inc.
104 East 25th Street
New York, NY 10010**

Acoustic Engineer:

**Peter George Associates
P.O. Box 688
Millbrook, NY 12545**

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DIVISION 1 - GENERAL REQUIREMENTS

00900 - MILESTONE SCHEDULE	3 PAGES
ASBESTOS TECHNICAL SPECIFICATIONS	89 PAGES

THIS SECTION TO BE COMPLETED BY THE MMMHS & CONTRACTOR

The forms included in this package are excerpted from the full contract agreement as described in the table of contents herewith attached.

ACKNOWLEDGMENT BY THE OWNER:

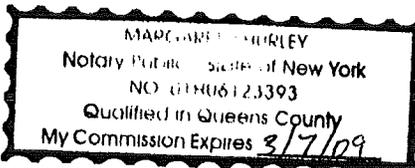
By: [Signature] Date: 6/30/05
(Signature of Authorized Officer of MMMHS)

Title: President

STATE OF New York) ss:

COUNTY OF Queens)

On the 30th day of June, in the year 2005, before me personally came, Brother Joseph Rocco who being by me duly sworn, did depose and say that he/she resides in Ex 1; that he/she is the President of the Monsignor McClancy Memorial High School and that he/she signed his/her name thereto by order of the Board of Trustees of said corporation.



[Signature]
Notary Public

ACKNOWLEDGMENT BY THE CONTRACTOR:

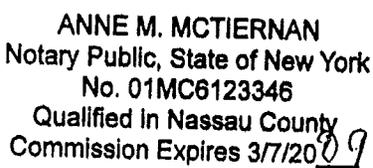
By: [Signature] Date: 6/29/05
(Signature of Authorized Officer of the Contractor)

Title: VP OF OPERATIONS

STATE OF NY) ss:

COUNTY OF NASSAU)

On the 27th day of JUNE, in the year 2005, before me personally came, SPRIS MIRKIN who being by me duly sworn, did depose and say that he/she resides in Ex. 1; that he/she is the VP OF OPERATIONS of JBH Environmental Inc. and that he/she signed his/her name thereto by order of the Board of Trustees of said corporation.



[Signature]
Notary Public

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**BID AND
CONTRACT AGREEMENT**

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Description: Aircraft Noise Abatement Project

Pursuant to and in compliance with the invitation for bids dated January 10, 2005 and the Contract Documents relating hereto, the undersigned hereby submits a binding offer to furnish all plant, labor, materials, supplies, equipment and all other facilities things, matters, and work necessary, proper or incidental to all work required by and in strict accordance with the applicable provisions of the referenced solicitation documents which include, but are not limited to, the plans, specification and all of the addenda thereto issued by the MMMHS and sent to the undersigned by U.S. mail, electronic transmission or other appropriate means or delivered to the Bidder prior to the date of opening the bids, whether received by the undersigned or not; for the total sum indicated on page 3 of this document in the "Base Bid Amount" blocks.

Notice of Award will be mailed, telegraphed or delivered to the successful bidder at its address listed on page three (3):

The Contractor shall commence Work under this Contract at a date to be specified in a Notice to Proceed letter issued by the MMMHS and shall complete Work on the Project, on or before 740 Consecutive Calendar Days, as indicated in Section 00900 - Milestone Schedule of the Specification, from the date in the above referenced Notice to Proceed letter.

Liquidated damages in the amount of five hundred dollars (\$500.00) per day shall be assessed against the Contractor for every calendar day exceeding the calendar days allowed in Section 00900 - Milestone Schedule or times as extended in accordance with the clause entitled "Extensions of Time" of the Specification.

Non-Collusive Bidding Certification:

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies on behalf of its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

- A. The prices in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- B. Unless otherwise required by law, the prices which have been quoted in the bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder to any competitor; and
- C. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Representations of the Bidder:

The Bidder represents and certifies that:

- A. The Bidder is financially solvent and competent to perform the Work;
- B. That the Bidder is familiar with all Federal, State, or other laws, ordinances, orders, rules and regulations, which may in any way affect the Work;

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

- C. That the Bidder has carefully examined the Contract documents and the Site of the Work and is satisfied as to the nature and location of the Work, the character quality and quantity of surface and subsurface materials likely to be encountered, the character or type of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other materials or items which may affect the Work;
- D. That the Bidder is an independent contractor and not an employee of the MMMHS. Unless the Contract specifically provides otherwise, the conduct and control of the Work shall be entirely the Bidder's responsibility at all times; and
- E. That Fair and Ethical Business Practices will be strictly adhered to during the life of this contract. During the term of this Contract, neither the Bidder nor any director, partner, principal, officer or employee shall:
1. File with a government office or employee, a written instrument which intentionally contains a false statement or false information;
 2. Intentionally falsify business records;
 3. Give, or offer to give, money or any other benefit to a labor official with intent to influence that labor official with respect to any of his or her acts, duties or decisions as a public servant; and
 4. Give, or offer to give, money or any other benefit to a public servant with intent to influence that public servant with respect to any of his or her acts, duties or decisions as a public servant; and
 5. Knowingly participate in the criminal activities of any organized crime group, syndicate or "family", nor shall any person employed by or associated with any such organized crime "family", syndicate or group participate through criminal means in any of the business affairs of the Bidder.
- F. If it becomes known that any director, partner, officer, employee of the Bidder, or any shareholder owning 5% or more of the Bidder's stock:
1. is subject of investigation involving any violation of criminal law or other federal, state or local law or regulation by any governmental agency: or
 2. is arrested, indicted or named as an unindicted coconspirator in any indictment or other accusatory instrument; or
 3. is convicted of any felony under state or federal law and/or any misdemeanor involving a business related crime.
- the bidder shall immediately notify the MMMHS of any such event.**
- G. That any Subcontract executed pursuant to this Contract will include the representations above as part of the Subcontract Agreement.

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School
(Print or Type ALL Information)

The Bidder's authorized representative on this project shall be:

Name: BORIS MIRKIN

Address: 194 ATLANTIC AVE, GARDEN CITY PARK Phone: 516 741-1777

The following Addenda* are acknowledged by the Bidder.

Addendum No.	<u>1</u>				
Date of issue	<u>1/17/05</u>				

* The terms Addendum & Amendment may be used by the MMMHS interchangeably.

Base Bid Amount:
(Excluding Item 1 work) Two Hundred and Seven Thousand/00 \$ 207,000⁰⁰~~XX~~
Amount in words Amount in figures

Item 1 Bid Amount: Eight Thousand/00 \$ 8,000
Amount in words Amount in figures

Bid Prepared By:

Firm Name: JBH Environmental, Inc.

Address: 194 Atlantic Avenue

City, State: Garden City Park, NY

Zip: 11540

By: BORIS MIRKIN
Name (Print or Type)

Title: VP of operations
(Print or Type)

(Signature)

Telephone: 516-741-1777

Date: 3/28/05

Tax ID No.

ACKNOWLEDGMENT OF THE BIDDER

STATE OF NEW YORK)
) ss:
COUNTY OF Nassau)

On the 28th day of March, in the year 2005, before me personally came Boris Mirkin, who being by me duly sworn, did depose and say that he/she resides in Ex. 1 that he/she is the representative of the Above Named Bidder and that he/she signed his/her name thereto by order of the Individual, Partners or Board of Trustees of Named Corporation.

Maria Luz P. Villa
Notary Public
MARIA LUZ P. VILLA
Notary Public, State of New York
No. 01VI6092791
Qualified in Nassau County
Commission Expires 3-27-2007

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

This Section to be Completed by the Contractor If a Partnership

AFFIDAVIT IF A PARTNERSHIP

Company: _____

By: _____ Date: _____

(Signature of Partner)

Title: _____

STATE OF _____, County of _____

as: _____ being duly sworn,

says:

I am a member of _____ of the above named partnership whose name is subscribed to and which executed the foregoing bid. I reside at _____ I have full knowledge of the matters pertaining thereto.

(Signature of the person who signed the Bid)

STATE OF _____) ss:

COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, to me known and known to me to be a member of the firm _____; described in and who executed the foregoing instrument; and he/she duly acknowledged to me that he/she executed the same for and in behalf of said firm for the uses and purposes mentioned therein.

Notary Public

If a Partnership, bidder must complete both Affidavit and acknowledgment sections and submit this page with its Bid.

NOTARY PUBLIC
STATE OF _____

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

This Section to be Completed by Contractor, If an Individual

AFFIDAVIT OF CONTRACTOR, IF AN INDIVIDUAL

By: _____ Date: _____

(Signature of Individual)

Title: _____

STATE OF _____, County of _____

as:

_____ being duly sworn,

says:

I am the person who submitted the foregoing bid. I reside at

_____. I have full knowledge of the matters pertaining thereto.

(Signature of the person who signed the Bid)

ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF NEW YORK)

) ss:

COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, to me known and known to me to be the person described in and who executed the foregoing instrument, and he/she duly acknowledged to me that he/she executed the same.

Notary Public
State of New York

Notary Public

If an Individual, bidder must complete both Affidavit and Acknowledgment sections and submit this page with its Bid.

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

This Section to be Completed by Contractor, If a Corporation

AFFIDAVIT OF CONTRACTOR, IF A CORPORATION

By:

[Signature] Date: 6/29/05

(Signature of Authorized Officer)

Title: VP OF OPERATIONS

STATE OF NY, County of NASSAU

as: BORIS MIRKIN being duly sworn,

says:
I am a member of JBH ENVIRONMENTAL INC The Above named corporation whose name is subscribed to and which is executed in the foregoing bid. I reside at _____

I have full knowledge of the matters pertaining thereto.

[Signature]
(Signature of the person who signed the Bid)

ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION

STATE OF NEW YORK)
COUNTY OF NASSAU) ss:

On the 28th day of March, in the year 2005, before me personally came Boris Mirkin, who being by me duly sworn, did depose and say that he/she resides in EX. 1; that he/she is the Vice President of the corporation described in and which executed the above instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.

[Signature]
Notary Public

MARIA LUZ P. VILLA
Notary Public, State of New York
No. 01V16092791
Qualified in Nassau County
Commission Expires 5-27-2007

If an a Corporation, bidder must complete both Affidavit and Acknowledgment sections and submit this page with its Bid.

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

THIS SECTION TO BE COMPLETED BY THE MMMHS

OWNER'S AFFIDAVIT

Bid Accepted by MMMHS

By: Brother Joseph Parro Date: 6/30/05
(Signature of Authorized Officer)

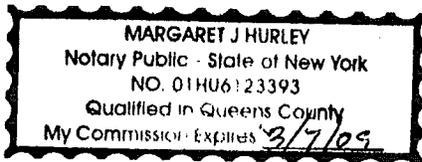
Title: President

ACKNOWLEDGMENT OF MMMHS

STATE OF New York)
) ss:
COUNTY OF Queens

On the 30th day of June, in the year 2005 before me personally came Brother Joseph Parro, who being by me duly sworn, did depose and say that he/she resides in Ex. 1 that he/she is the President of the MMMHS and that he/she signed his/her name thereto by order of the Board of Trustees of said corporation.

Margaret J Hurley
Notary Public



January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

Asbestos Removal in Connection With the Soundproofing Monsignor McClancy Memorial High School

BIDDER'S IDENTIFICATION AND EMERGENCY PHONE NUMBERS

Please provide the following information:

Principal: YVETTE BOOTH
Address: 184 KAMDA BLVD
City, State: NEW HYDE PARK, NY Zip: 11040
Signed By: [Signature] BORIS MIRKIN Title: VP OF OPERATIONS
Signature Name - (Print or Type) (Print or Type)
Telephone: 516 741-1777 Emergency Phone # Ex. 1

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

Bond No. KO 71 61 57 8

KNOW ALL MEN BY THESE PRESENTS, that we

JBH Environmental, Inc.

(Here insert full name and address or legal title of Contractor)

194 Atlantic Avenue, Garden City Park, NY 11040

as Principal, hereinafter called the Principal, and

Westchester Fire Insurance Company

(Here insert full name and address or legal title of Surety)

140 Broadway, 41st Floor, New York, NY 10005

a corporation duly organized under the laws of the State of **New York**

as Surety, hereinafter called the Surety, are held and firmly bound unto

Monsignor McLancy Memorial High School

(Here insert full name and address or legal title of Owner)

71-06 31st Street, East Elmhurst, NY 11370

as Oblige, hereinafter called the Oblige, in the sum of

Ten Percent of Amount Bid

Dollars (\$ **10%**),

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

Asbestos Removal and Soundproofing at the

Monsignor McLancy Memorial High School

AIP Project# NY-LGA 80-02 and NY-LGA 98-03

(Here insert full name, address and description of project)

NOW, THEREFORE, if the Oblige shall accept the bid of the Principal and the Principal shall enter into a Contract with the Oblige in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Oblige the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Oblige may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

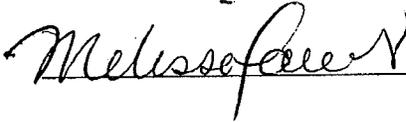
Signed and sealed this

21st

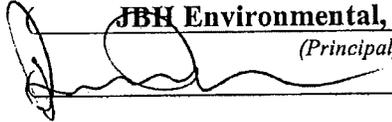
day of

March

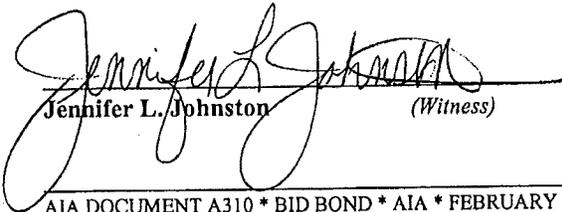
2005



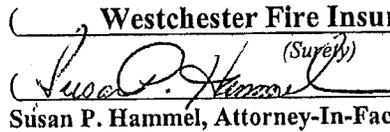
(Witness)



JBH Environmental, Inc.
(Principal)  vp of OPERATIONS
(Title)



Jennifer L. Johnston
(Witness)



Westchester Fire Insurance Company
(Surety) 
Susan P. Hammel, Attorney-In-Fact
(Title)

Individual Acknowledgment

State of _____)
) ss.
County of _____)

On this _____ day of _____, _____, before me personally came _____
_____ to me known, and known to me to be the individual described in
and who executed the foregoing instrument, and acknowledged to me that ___he executed the same.

My commission expires _____
Notary Public

Firm Acknowledgment

State of _____)
) ss.
County of _____)

On this _____ day of _____, _____, before me personally
came _____ to me known and known to me to be a member of the firm
of _____ described in and who executed the foregoing instrument,
and ___he thereupon acknowledged to me that ___he executed the same as and for the act and deed of said firm.

My commission expires _____
Notary Public

Corporation Acknowledgment

State of New York)
) ss.
County of Suffolk)

On this _____ day of _____, _____ before me personally came _____
_____ to me known, who being by me duly sworn, did depose and say that ___he is the
_____ of JBH Environmental, Inc. the corporation described
in and which executed the above instrument; that ___he knows the seal of said corporation; that the seal affixed to
said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation,
and that he signed his name thereto by like order.

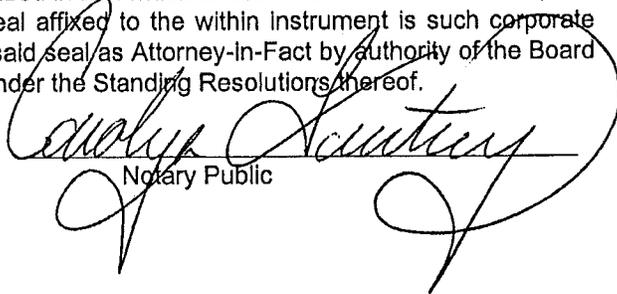
My commission expires _____
Notary Public

Surety Acknowledgment

State of New York)
) ss.
County of Suffolk)

On this 21st day of March, 2005, before me personally came Susan P. Hammel
to me known, who, being by me duly sworn, did depose and say that she is an attorney-in-fact of
Westchester Fire Insurance Company the corporation described in and which executed the within instrument; that
she knows the corporate seal of said corporation; that the seal affixed to the within instrument is such corporate
seal, and that she signed the said instrument and affixed the said seal as Attorney-in-Fact by authority of the Board
of Directors of said corporation and by authority of this office under the Standing Resolutions thereof.

My commission expires _____
Notary Public



CAROLYN FANTRY
Notary Public, State of New York
No. 01FA6012042
Qualified in Suffolk County
Commission Expires Dec. 11, 2006

Power of Attorney

226775

WESTCHESTER FIRE INSURANCE COMPANY



1074342

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the State of New York, having its principal office in the City of Atlanta, Georgia, pursuant to the following Resolution, adopted by the Board of Directors of the said Company on November 8, 1999, to wit:

"RESOLVED, that the following Rules shall govern the execution for the Company of bonds, undertakings, recognizances, contracts and other writings in the nature thereof:

- (1) That the President, any Senior Vice President, any Vice President, and Assistant Vice President, or any Attorney-in-Fact, may execute for and on behalf of the Company any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof, the same to be attested when necessary by the Corporate Secretary, or any Assistant Corporate Secretary, and the seal of the Company affixed thereto; and that the President, any Senior Vice President, any Vice President or any Assistant Vice President may appoint and authorize any other Officer (elected or appointed) of the Company, as Attorneys-In-Fact to so execute or attest to the execution of all such writings on behalf of the Company and to affix the seal of the Company thereto.
- (2) Any such writing executed in accordance with these Rules shall be as binding upon this Company in any case as though signed by the President and attested to by the Corporate Secretary.
- (3) The signature of the President, or a Senior Vice President, or a Vice President, or an Assistant Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted pursuant to this Resolution, and the signature of a certifying Officer and the seal of the Company may be affixed by facsimile to any certificate of any such power, and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company.
- (4) Such other Officers of the Company, and Attorneys-In-Fact shall have authority to certify or verify copies of this Resolution, the By-Laws of the Company, and any affidavit or record of the Company necessary to the discharge of their duties.
- (5) The passage of this Resolution does not revoke any earlier authority granted by Resolutions of the Board of Directors."

Does hereby nominate, constitute and appoint PAUL DEMASSI, DAVID R. AFANADOR, SUSAN P. HAMMEL and JENNIFER L. JOHNSTON all of the City of Hauppauge, State of New York, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Three Million Dollars (\$3,000,000) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office.

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 30th day of August 2004.



WESTCHESTER FIRE INSURANCE COMPANY

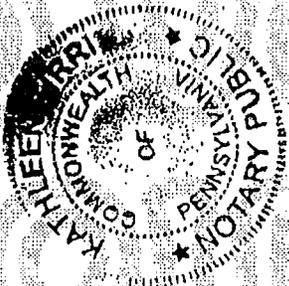
Stephen M. Haney

Stephen M. Haney, Vice-President

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.

On this 30th day of August, A.D. 2004, before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.



NOTARIAL SEAL
Kathleen Tirri, Notary Public
Philadelphia, Philadelphia County
My commission expires September 22, 2007.

Kathleen Tirri

Notary Public

I, the undersigned Secretary of WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Secretary, and affixed the corporate seal of the Corporation, this 21st day of March 2005



George D. Mulligan

George D. Mulligan, Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER August 30, 2006.

WESTCHESTER FIRE INSURANCE COMPANY

FINANCIAL STATEMENT

DECEMBER 31, 2003

ADMITTED ASSETS

BONDS	\$1,211,249,339
SHORT - TERM INVESTMENTS	32,096,506
STOCKS	2,499,900
REAL ESTATE	0
CASH ON HAND AND IN BANK	2,502,736
PREMIUM IN COURSE OF COLLECTION*	77,829,346
INTEREST ACCRUED	13,923,276
OTHER ASSETS	<u>94,597,742</u>
TOTAL ASSETS	<u>1,434,698,845</u> ✓

LIABILITIES

RESERVE FOR UNEARNED PREMIUMS	\$379,073,789
RESERVE FOR LOSSES	747,946,558
RESERVE FOR TAXES	8,300,884
FUNDS HELD UNDER REINSURANCE TREATIES	13,943
OTHER LIABILITIES	<u>(176,810,273)</u>
TOTAL LIABILITIES	<u>\$958,524,901</u>

CAPITAL: SPECIAL SURPLUS	\$117,300,000
CAPITAL: 928,592 SHARES, \$4.85 PAR VALUE	4,503,671
CAPITAL: PAID IN	128,333,500
SURPLUS (UNASSIGNED)	<u>226,036,772</u>
SURPLUS TO POLICYHOLDERS	<u>476,173,943</u>
TOTAL	<u>\$1,434,698,844</u> ✓

(*EXCLUDES PREMIUM MORE THAN 90 DAYS DUE.)

STATE OF PENNSYLVANIA

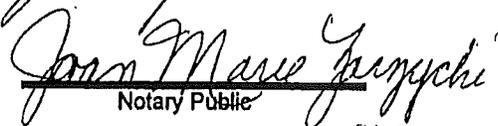
COUNTY OF PHILADELPHIA

John P. Taylor, being duly sworn, says that he is Vice President of Westchester Fire Insurance Company and that to the best of his knowledge and belief the foregoing is a true and correct statement of the said Company's financial condition as of the 31 st day of December, 2003.

Sworn before me this 16th day of April, 2004.



Vice President



Notary Public

10/18/2004
My commission expires

NOTARIAL SEAL
JOAN MARIE ZARZYCKI, Notary Public
City of Philadelphia, Phila. County
My Commission Expires Oct. 8, 2004

**POLICYHOLDER DISCLOSURE NOTICE OF
TERRORISM INSURANCE COVERAGE**

Named Insured JBH Environmental, Inc.			Endorsement Number
Policy Symbol	Policy Number KO 71 61 57 8	Policy Period TO	Effective Date of Endorsement
Issued By (Name of Insurance Company) Westchester Fire Insurance Company			

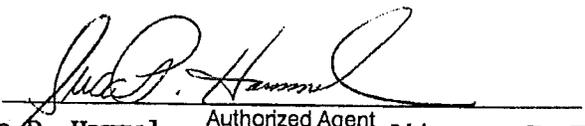
THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

You should be aware that under the Terrorism Risk Insurance Act of 2002 ("The Act") effective November 26, 2002, any losses caused by certified acts of terrorism under your existing coverage may be partially reimbursed by the United States under a formula established by federal law (applicability is subject to the terms and conditions of each individual policy). The Act was specifically designed to address the ability of businesses and individuals to obtain property and casualty insurance for terrorism and to protect consumers by addressing market disruptions and ensure the continued availability of terrorism coverage.

Under the terms of The Act, you may now have the right to purchase insurance coverage for losses arising out of acts of terrorism, as defined in Section 102(1) of the Act: The term "act of terrorism" means any act that is certified by the Secretary of the Treasury, in concurrence with the Secretary of State, and the Attorney General of the United States-to be an act of terrorism; to be a violent act or an act that is dangerous to human life, property; or infrastructure; to have resulted in damage within the United States, or outside the United States in the case of an air carrier or vessel or the premises of a United States mission; and to have been committed by an individual or individuals acting on behalf of any foreign person or foreign interest, as part of an effort to coerce the civilian population of the United States or to influence the policy or affect the conduct of the United States Government by coercion.

Responsibility for Compensation under The Act is shared between insurance companies covered by The Act and the United States. Under the formula set forth in The Act, the United States pays 90% of covered terrorism losses exceeding the statutorily established deductible, which is paid by the insurance company providing the coverage.

We are providing you with the terrorism coverage required by The Act. We have not established a separate price for this coverage; however the portion of your annual premium that is reasonably attributable to such coverage is: \$0.00.


 Susan P. Hammel Authorized Agent Attorney-In-Fact

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

BIDDER'S NET WORTH PACKAGE

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School East Elmhurst, NY

Description: Aircraft Noise Abatement Project

BIDDERS NET WORTH

(INSERT DATA BELOW - ATTACH ADDITIONAL SHEETS AS NECESSARY)

JBH ENVIRONMENTAL, INC.

FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2004 AND 2003

JBH ENVIRONMENTAL, INC.
FINANCIAL STATEMENTS
YEARS ENDED DECEMBER 31, 2004 AND 2003

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Schedules of direct costs and general and administrative expenses	12
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CAPALBO & LAURO

37 New Haven Street
Harrison, New York 10528
914.835.6430
914.835.0520 Fax

INDEPENDENT ACCOUNTANTS' REVIEW REPORT

To the Stockholders
JBH Environmental, Inc.
194 Atlantic Avenue
Garden City Park, New York 11040

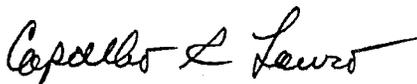
We have reviewed the accompanying balance sheets of JBH Environmental, Inc. as of December 31, 2004 and 2003 and the related statements of income and retained earnings, and cash flows for the years then ended, in accordance with Statements on Standards for Accounting and Review Services issued by the American Institute of Certified Public Accountants. All information included in these financial statements is the representation of the management of JBH Environmental, Inc.

A review consists principally of inquiries of Company personnel and analytical procedures applied to financial data. It is substantially less in scope than an audit in accordance with generally accepted auditing standards, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

Based on our reviews, we are not aware of any material modifications that should be made to the accompanying financial statements in order for them to be in conformity with generally accepted accounting principles.

Our reviews were made for the purpose of expressing limited assurance that there are no material modifications that should be made to the financial statements in order for them to be in conformity with generally accepted accounting principles. The supplementary information is presented only for additional analysis purposes. Such information has been subjected to the inquiry and analytical procedures applied in the reviews of the basic financial statements, and we are not aware of any material modifications that should be made thereto.

CAPALBO & LAURO
Certified Public Accountants, P.C.



Harrison, New York
January 15, 2005

JBH ENVIRONMENTAL, INC.
BALANCE SHEETS
DECEMBER 31, 2004 AND 2003

	<u>2004</u>	<u>2003</u>
<u>ASSETS</u>		
Current assets:		
Cash	\$302,939	\$73,508
Accounts receivable	302,433	688,589
Retainage receivable	75,730	-
Costs and estimated earnings in excess of billings on uncompleted contracts	<u>13,393</u>	<u>-</u>
Total current assets	<u>694,495</u>	<u>762,097</u>
Property and equipment:		
Transportation equipment	91,827	105,539
Machinery and equipment	53,642	28,535
Office equipment	<u>36,390</u>	<u>14,571</u>
	181,859	148,645
Less accumulated depreciation	<u>96,192</u>	<u>137,990</u>
Net property and equipment	<u>85,667</u>	<u>10,655</u>
Other assets:		
Security deposits	<u>8,000</u>	<u>8,000</u>
Total assets	<u>\$788,162</u>	<u>\$780,752</u>

	<u>2004</u>	<u>2003</u>
<u>LIABILITIES AND STOCKHOLDERS' EQUITY</u>		
Current liabilities:		
Notes payable - bank	\$ -	\$133,000
Accounts payable	327,962	250,801
Income taxes payable	10,597	3,641
Deferred income taxes	<u>80,153</u>	<u>166,324</u>
Total current liabilities	418,712	553,766
Loans payable-stockholders	-	48,034
Deferred income taxes	<u>86,833</u>	<u>-</u>
Total liabilities	<u>505,545</u>	<u>601,800</u>
Commitments and contingencies		
Stockholders' equity:		
Common stock; no par value; 200 shares authorized, issued and outstanding	1,000	1,000
Additional paid-in capital	32,742	6,702
Retained earnings	<u>248,875</u>	<u>171,250</u>
Total stockholders' equity	<u>282,617</u>	<u>178,952</u>
Total liabilities and stockholders' equity	<u>\$788,162</u>	<u>\$780,752</u>

See accountants' review report and notes to financial statements

JBH ENVIRONMENTAL, INC.
STATEMENTS OF INCOME AND RETAINED EARNINGS
YEARS ENDED DECEMBER 31, 2004 AND 2003

	<u>2004</u>	<u>2003</u>
Net contract revenue	\$3,199,993	\$3,369,502
Direct costs	<u>2,385,105</u>	<u>2,641,190</u>
Gross profit	814,888	728,312
General and administrative expenses	<u>718,598</u>	<u>699,805</u>
Income from operations	<u>96,290</u>	<u>28,507</u>
Other income (expense):		
Interest expense	<u>(5,770)</u>	<u>(5,467)</u>
	<u>(5,770)</u>	<u>(5,467)</u>
Income before income taxes	<u>90,520</u>	<u>23,040</u>
Income taxes (benefit):		
Current	12,233	4,336
Deferred	<u>662</u>	<u>-</u>
	<u>12,895</u>	<u>4,336</u>
Net income	77,625	18,704
Retained earnings, beginning of year	<u>171,250</u>	<u>152,546</u>
Retained earnings, end of year	<u>\$248,875</u>	<u>\$171,250</u>

See accountants' review report and notes to financial statements

JBH ENVIRONMENTAL, INC.
STATEMENTS OF CASH FLOWS
YEARS ENDED DECEMBER 31, 2004 AND 2003

	<u>2004</u>	<u>2003</u>
Cash provided by (used in):		
Operating activities:		
Cash received from customers	\$3,497,026	\$3,522,820
Direct disbursements	(2,296,926)	(2,622,957)
General and administrative disbursements	(718,598)	(697,305)
Interest paid	(5,770)	(5,467)
Income taxes (paid) received	(5,277)	(695)
Net cash provided by operating activities	<u>470,455</u>	<u>196,396</u>
Investing activities:		
Capital expenditures	<u>(86,030)</u>	<u>-</u>
Net cash used in investing activities	<u>(86,030)</u>	<u>-</u>
Financing activities:		
Advances from (payments to) stockholders	(48,034)	(165,356)
Additional paid in capital (return of capital)	26,040	-
Proceeds from (payments on) bank loan	(133,000)	-
Decrease in long-term debt borrowings-net	<u>-</u>	<u>(4,564)</u>
Net cash used in financing activities	<u>(154,994)</u>	<u>(169,920)</u>
Net increase in cash	229,431	26,476
Cash, beginning of year	<u>73,508</u>	<u>47,032</u>
Cash, end of year	<u>\$302,939</u>	<u>\$73,508</u>

See accountants' review report and notes to financial statements

JBH ENVIRONMENTAL, INC.
STATEMENTS OF CASH FLOWS
(CONCLUDED)
YEARS ENDED DECEMBER 31, 2004 AND 2003

	<u>2004</u>	<u>2003</u>
Reconciliation of net income to net cash provided by (used in) operating activities:		
Net income	\$77,625	\$18,704
Adjustments to reconcile net income to net cash provided by (used in) operating activities:		
Depreciation	11,018	8,656
Changes in assets (increase) decrease:		
Accounts receivable	386,156	153,318
Retainage receivable	(75,730)	-
Costs and estimated earnings in excess of billings on uncompleted contracts	(13,393)	-
Changes in liabilities increase (decrease):		
Accounts payable	77,161	12,077
Income taxes payable	6,956	3,641
Deferred income taxes	662	-
Net cash provided by (used in) operating activities	<u>\$470,455</u>	<u>\$196,396</u>

See accountants' review report and notes to financial statements

JBH ENVIRONMENTAL, INC.
NOTES TO FINANCIAL STATEMENTS
YEARS ENDED DECEMBER 31, 2004 AND 2003

(1) Nature of operations:

JBH Environmental, Inc. (the Company) is an asbestos and lead removal contractor. The Company's services include the removal of asbestos material and the subsequent installation of new insulation. The Company's contracted work is primarily performed in the lower New York State region.

(2) Summary of significant accounting policies:

(A) Revenue and cost recognition:

Revenue is recognized on the "percentage of completion" method for reporting revenue on contracts not yet completed, measured by the percentage of total costs incurred to date to estimated total costs for each contract. This method is utilized because management considers the cost-to-cost method the best method available to measure progress on these contracts.

Contract costs include all direct material and labor costs and those other direct and indirect costs related to contract performance including, but not limited to, indirect labor, subcontract costs and supplies. General and administrative costs are charged to expense as incurred.

The Company has contracts that may extend over more than one year, therefore, revisions in cost and profit estimates during the course of the work are reflected in the accounting period in which the facts, which require the revisions, become known.

Provisions for estimated losses on uncompleted contracts are made in the period in which such losses are determined. No provisions are made for unbilled receivables on disputed claims for work done in addition to contract terms.

Revenues recognized in excess of amounts billed are recorded as a current asset under the caption "Costs and estimated earnings in excess of billings on uncompleted contracts." Billings in excess of revenues recognized are recorded as a current liability under the caption "Billings in excess of costs and estimated earnings on uncompleted contracts."

In accordance with construction industry practice, the Company reports in current assets and liabilities those amounts relating to construction contracts realizable and payable over a period in excess of one year.

JBH ENVIRONMENTAL, INC.
NOTES TO FINANCIAL STATEMENTS
(CONTINUED)
YEARS ENDED DECEMBER 31, 2004 AND 2003

(2) Summary of significant accounting policies - continued:

(B) Use of estimates:

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

(C) Property and equipment:

Property and equipment are stated at cost. Depreciation is computed over the estimated useful lives of the assets using the straight-line method. Maintenance and repairs are charged to operations in the period incurred.

(D) Income taxes:

For income tax purposes, the Company reports earnings using the accrual method. Under this method, under and over billings on uncompleted contracts and retainages are not recognized (See Note 2(A) for financial reporting method). Deferred income taxes, if any, are provided for the timing differences resulting from the different methods used to report income for tax and financial reporting purposes.

(3) Stockholder loans:

At December 31, 2004 and 2003 the Company was indebted to the stockholders in the amounts of \$ - 0 - and \$48,034 respectively. The loans are unsecured and non-interest bearing.

(4) Notes payable - bank:

The Company has a line of credit with a bank that permits borrowings up to \$150,000. Interest is charged at the bank's prime rate plus 1%. The line is secured by company assets and renews every July. Any borrowings under this facility are personally guaranteed by the stockholders of the company. The amount outstanding at December 31, 2004 and 2003 was \$ - 0 - and \$133,000 respectively.

JBH ENVIRONMENTAL, INC.
NOTES TO FINANCIAL STATEMENTS
(CONTINUED)
YEARS ENDED DECEMBER 31, 2004 AND 2003

(5) Income taxes:

Effective January 1, 2004 the Company has changed its method of accounting for income tax purposes from the cash basis to the accrual basis. The effect of this change is to recognize total deferred income for tax purposes of \$437,788 over a four year period commencing in year 2004.

(6) Contracts in progress:

Information with respect to contracts in progress as of December 31, 2004 is as follows:

Expenditures on uncompleted contracts	\$ 233,431
Gross profit thereon	<u>79,205</u> 312,636
Less billings applicable thereto	<u>299,243</u>
	<u>\$ 13,393</u>

Included in the accompanying balance sheet under the following caption:

Costs and estimated earnings in excess of billings on uncompleted contracts	\$ <u>13,393</u>
	<u>\$ 13,393</u>

(7) Concentration risk:

(A) Credit risk:

Financial instruments, which potentially expose the Company to a concentration of credit risk, consist of trade accounts and retainage receivable (if any). Trade accounts and retainage receivables (if any) are due from customers located in the New York metropolitan area. The Company does not require collateral in most cases, but may file statutory liens against the construction projects if a default in payment occurs.

(B) Customers:

The company obtains its contract work primarily through a competitive bid process. This may result in the Company earning a substantial portion of its revenue from relatively few customers in any given year.

JBH ENVIRONMENTAL, INC.
NOTES TO FINANCIAL STATEMENTS
(CONTINUED)
YEARS ENDED DECEMBER 31, 2004 AND 2003

(8) Commitments and contingencies:

(A) Operating leases:

The Company has an operating lease for office and storage space. Rent expense for the years ended December 31, 2004 and 2003 was \$51,474 and \$58,064, respectively. In addition, the Company leases automobiles for business use. The related expense is included in general and administrative expenses.

The aggregate minimum lease payments at December 31, 2004 are as follows:

<u>Year ending December 31,</u>	<u>Amount</u>
2005	\$ 75,660
2006	71,329
2007	67,623
2008	<u>51,650</u>
	<u>\$ 266,262</u>

(B) Performance bonds:

The Company is contingently liable to a surety under a general indemnity agreement. The Company agrees to indemnify the surety for any payments made on contracts of suretyship, guaranty or indemnity. The Company believes that all contingent liabilities will be satisfied by their performance on the specific bonded contracts involved.

(C) Multiemployer pension plans:

The Company made contributions during both 2004 and 2003 to multiemployer pension plans that cover its union employees. These plans provide benefits based on union members' earnings and period of coverage under the respective plans. However, in the event of plan terminations or Company withdrawal from the plans, the Company may be liable for a portion of the plans' unfunded vested benefits, the amounts of which, if any, has not been determined.

JBH ENVIRONMENTAL, INC.
NOTES TO FINANCIAL STATEMENTS
(CONCLUDED)
YEARS ENDED DECEMBER 31, 2004 AND 2003

(9) Backlog:

Backlog represents the amount of revenue the Company expects to realize from work to be performed on uncompleted contracts in progress at December 31, 2004 and from contractual agreements on which work has not commenced. Backlog consists of the following:

Estimated revenue to be recognized from:	
Contracts in progress	\$ 106,957
Contracts on which work has not commenced	<u>299,099</u>
Total	<u>\$ 406,056</u>

SUPPLEMENTARY INFORMATION

JBH ENVIRONMENTAL, INC.
SCHEDULES OF DIRECT COSTS AND
GENERAL AND ADMINISTRATIVE EXPENSES
YEARS ENDED DECEMBER 31, 2004 AND 2003

	<u>2004</u>	<u>2003</u>
Direct costs:		
Labor	\$1,047,911	\$893,592
Payroll taxes	118,358	99,891
Union costs	182,144	204,671
Subcontractors	73,521	362,324
Materials	476,085	558,653
Waste removal	87,164	77,753
Insurance	238,106	301,499
Transportation	39,204	26,749
Permits and filing fees	82,119	74,926
Depreciation	11,018	8,656
Other direct costs	29,475	32,476
	<u>\$2,385,105</u>	<u>\$2,641,190</u>
Total direct costs		
General and administrative expenses:		
Officers' salaries	\$373,750	\$363,500
Office salaries	106,776	79,619
Payroll taxes	36,636	34,002
Office expense	32,600	40,376
Transportation	16,708	23,556
Professional fees	16,277	27,984
Rent	51,474	58,064
Telephone	24,263	27,961
Utilities	14,524	10,853
Advertising	33,654	25,170
Professional education	1,400	700
Dues and subscriptions	6,600	6,360
Contributions	2,350	-
Bank charges	1,586	1,660
	<u>\$718,598</u>	<u>\$699,805</u>
Total general and administrative expenses		

See accountants' review report.

JBH ENVIRONMENTAL, INC.
SCHEDULE OF CONTRACTS
DECEMBER 31, 2004

	TOTAL CONTRACT PRICE	TOTAL ESTIMATED COSTS	ESTIMATED GROSS PROFIT	BILLED TO DATE	COSTS TO DATE	% OF COMPLETION	COSTS AND ESTIMATED EARNINGS IN EXCESS OF BILLINGS	BILLINGS IN EXCESS OF ESTIMATED EARNINGS	GROSS PROFIT ABSORBED TO DATE	GROSS PROFIT ABSORBED PRIOR PERIOD	GROSS PROFIT CURRENT PERIOD	ESTIMATED COMPLETION DATE
Contracts in progress												
Brentwood High School	\$389,293	\$292,030	97,263	\$290,993	\$227,856	78.02%	\$12,752	-	\$75,889	-	\$75,889	Aug-05
South Beach P.C.	30,300	19,000	11,300	8,250	5,575	29.34%	641	-	3,316	-	3,316	May-05
Total contracts in progress	419,593	311,030	108,563	299,243	233,431		13,393	-	79,205	-	79,205	
Contracts completed												
Bayshore Gardiner Manor	196,233	148,965	47,268	196,233	148,965	100.00%	-	-	47,268	-	47,268	
Mephane High School	58,760	41,986	16,774	58,760	41,986	100.00%	-	-	16,774	-	16,774	
Lindenhurst UFSD	55,525	40,127	15,398	55,525	40,127	100.00%	-	-	15,398	-	15,398	
HPD	93,253	86,197	7,056	93,253	86,197	100.00%	-	-	7,056	-	7,056	
Elmont UFSD	9,250	5,235	4,015	9,250	5,235	100.00%	-	-	4,015	-	4,015	
Crestwood Lake Apartments	202,641	142,536	60,105	202,641	142,536	100.00%	-	-	60,105	-	60,105	
Harborfield High School	95,250	75,156	20,094	95,250	75,156	100.00%	-	-	20,094	-	20,094	
Total Restoration	12,200	8,465	3,735	12,200	8,465	100.00%	-	-	3,735	-	3,735	
Petro Oil Company	55,407	32,356	23,051	55,407	32,356	100.00%	-	-	23,051	-	23,051	
SYL-LEN Realty	18,350	14,652	3,698	18,350	14,652	100.00%	-	-	3,698	-	3,698	
Bonnie - Lynn	35,000	24,596	10,404	35,000	24,596	100.00%	-	-	10,404	-	10,404	
Famma Realty	25,855	20,369	5,486	25,855	20,369	100.00%	-	-	5,486	-	5,486	
BHM Realty	12,600	8,896	3,704	12,600	8,896	100.00%	-	-	3,704	-	3,704	
Gemstar	16,175	11,003	5,172	16,175	11,003	100.00%	-	-	5,172	-	5,172	
Arrow Steel	49,260	30,982	18,278	49,260	30,982	100.00%	-	-	18,278	-	18,278	
Parkchester	14,160	9,986	4,174	14,160	9,986	100.00%	-	-	4,174	-	4,174	
Capital Restoration	7,700	5,236	2,464	7,700	5,236	100.00%	-	-	2,464	-	2,464	
Globe Restoration	7,100	4,230	2,870	7,100	4,230	100.00%	-	-	2,870	-	2,870	
Northern Manhattan	7,700	7,520	180	7,700	7,520	100.00%	-	-	180	-	180	
Central Consulting	20,700	16,596	4,104	20,700	16,596	100.00%	-	-	4,104	-	4,104	
Rasmussen Architects	7,050	4,569	2,481	7,050	4,569	100.00%	-	-	2,481	-	2,481	
Insba Allah	21,515	12,598	8,917	21,515	12,598	100.00%	-	-	8,917	-	8,917	
Aurora - BJS	24,598	20,888	3,710	24,598	20,888	100.00%	-	-	3,710	-	3,710	
Islip Terrace Junior High School	230,500	163,698	66,802	230,500	163,698	100.00%	-	-	66,802	-	66,802	
Merrick et al	203,851	159,004	44,847	203,851	159,004	100.00%	-	-	44,847	-	44,847	
Bothpage High School	113,050	90,695	22,355	113,050	90,695	100.00%	-	-	22,355	-	22,355	
Gilman Management	202,655	158,366	44,289	202,655	158,366	100.00%	-	-	44,289	-	44,289	
Bank of New York	101,825	77,896	23,929	101,825	77,896	100.00%	-	-	23,929	-	23,929	
Thermo Tech	95,000	78,965	16,035	95,000	78,965	100.00%	-	-	16,035	-	16,035	
Michael Anthony Contracting	82,250	70,104	12,146	82,250	70,104	100.00%	-	-	12,146	-	12,146	
West Hempstead UFSD	62,500	49,632	12,868	62,500	49,632	100.00%	-	-	12,868	-	12,868	
SUNY	22,400	17,523	4,877	22,400	17,523	100.00%	-	-	4,877	-	4,877	
Miscellaneous jobs under 5,000	727,044	512,647	214,397	727,044	512,647	100.00%	-	-	214,397	-	214,397	
Total contracts completed	2,887,357	2,151,674	735,683	2,887,357	2,151,674		-	-	735,683	-	735,683	
Total contracts	\$3,306,950	\$2,462,704	\$844,246	\$3,186,600	\$2,385,105		\$13,393	-	\$814,888	-	\$814,888	

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

CONTRACTOR QUALIFICATIONS

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Instructions

This form shall be completed by all bidders. It should be completed by an officer who is knowledgeable about the past and present operations of the applicant.

All questions must be answered fully and accurately. If necessary, additional pages should be attached. If changed circumstances require different answers subsequent to the submission of this application, the bidder must promptly notify the MMMHS in writing of such changes.

(Each person identified in response to question B must file a certification, in the form attached, attesting to the truth of the answers and information submitted.)

GENERAL INFORMATION

1. Empt. Tax Id #: Ex. 1
2. Name of Firm: JBH Environmental, Inc.
3. Street Address: 194 Atlantic Avenue
City, St, Zip: Garden City Park, NY 11040
4. Phone No: 516-741-1777 Fax No: 516-741-5807
5. Previous Address (if less than 5 years at current address)
Street Address: N/A
City, St, Zip: N/A
6. Type of Firm: Corporation Partnership Limited
Sole Proprietorship General
Joint Venture Names: _____
7. Category of Firm: MBE Certified by: NYS ECONOMIC DEV. CORP
Date: 3/5/98
WBE Certified by: NYS ECONOMIC DEV. CORP.
Date: 3/5/98

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

8. Principals and Owners of firm (Directors, partners, officers, and holder's of more than 5% interest):

	PERSON/FIRM #1	PERSON/FIRM #2	PERSON/FIRM #3	PERSON/FIRM #4
NAME				
DATE OF BIRTH				
SS#				
TITLE				
YEARS WITH FIRM				
% OF OWNERSHIP				

If Contractor is owned by another firm, provide Employer I.D.# for that firm N/A

9. Type of business (GC, HVAC, etc.)

N/A

10. Under what other current or former names has the firm done business?

NAME	LOCATION	YEARS

11. List of comparable projects completed in last 5 years

Owner and Address	Architect of Record	Date Complete	Contact's Phone Number	Project Cost
See Attached				

(Attach additional pages if necessary)

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

12. List all current projects.

Owner and Address	Architect of Record	Start Date	% Complete	Contact's Phone Number	Project Cost
BRENTWOOD VFSB	THOMAS ASSO.	6/04	70%		355,000
ISLIP VFSB	THOMAS ASSO.	6/04	90%		220,000

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:
- | | <u>Yes</u> | <u>No</u> |
|---|------------|-------------------------------------|
| a. Been cited for violation of Labor Law 220? | () | <input checked="" type="checkbox"/> |
| b. Been cited by OSHA or other safety violations? | () | <input checked="" type="checkbox"/> |
| c. Been defaulted on any contract? | () | <input checked="" type="checkbox"/> |
| d. Been suspended, disqualified or barred from bidding? | () | <input checked="" type="checkbox"/> |
| e. Been deemed unsatisfactory or a poor performer by any governmental agency? | () | <input checked="" type="checkbox"/> |
| f. Had a contract terminated? | () | <input checked="" type="checkbox"/> |
| g. Been denied an award of a contract for any reason? | () | <input checked="" type="checkbox"/> |

Explain any "Yes" answer(s) for question a - g below. Attach additional pages if necessary.

14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:
- | | Yes | No |
|---|-----|-------------------------------------|
| a. Been the subject of an investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency? | () | <input checked="" type="checkbox"/> |
| b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument? | () | <input checked="" type="checkbox"/> |
| c. Been convicted of any felony under state or federal law and/or for any misdemeanor involving business-related crimes? | () | <input checked="" type="checkbox"/> |

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

~~_____~~
~~_____~~
~~_____~~
~~_____~~
~~_____~~

15. Within the past ten years, has the firm or any person identified in response to question 8:

- | | Yes | No |
|--|--------------------------|-------------------------------------|
| a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. Intentionally falsified business records? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. Engaged in collusive bidding practices? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

~~_____~~
~~_____~~
~~_____~~
~~_____~~
~~_____~~
~~_____~~

January 10, 2005

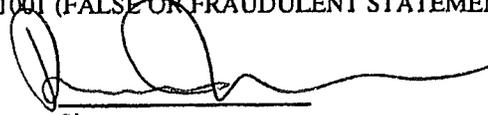
Asbestos Removal - Monsignor McClancy Memorial High School

CERTIFICATION BY CONTRACTOR

I certify that, to the best of my knowledge, information and belief, I have supplied full, complete and truthful information and answers to each question in this application. I acknowledge and recognize that this application is being submitted for the purpose of inducing the MMMHS to approve me/my firm as contractor. I further acknowledge that the MMMHS may, by means of its own choosing, determine the truth and accuracy of all statements made.

A MATERIAL FALSE STATEMENTS OR OMISSION MADE IN CONNECTION WITH THIS APPLICATION WILL RESULT IN DISAPPROVAL OF THE APPLICANT, THEREBY PRECLUDING IT FROM PERFORMING WORK AS THE SUBCONTRACTOR. IN ADDITION, SUCH FALSE SUBMISSION MAY SUBJECT THE PERSON AND/OR ENTITY MAKING THE FALSE STATEMENT TO CRIMINAL CHARGES, INCLUDING NEW YORK STATE PENAL LAW SECTION 175.35 (OFFERING A FALSE STATEMENT FOR FILING) AND 210.40 (SWORN FALSE STATEMENT) AND/OR TITLE 18 U.S.C. SECTIONS 1001 (FALSE OR FRAUDULENT STATEMENT AND 1341 (MAIL FRAUD).

Subscribe and sworn to before me this 28 day of Nov 2005



Signature

BORIS MIRKIN

Print Name

3/29/05

Date

516 741-1777

Phone #

[Signature]
Notary Public

Notary Public
Title

MARIA LUZ P. VILLA
Notary Public, State of New York
No. 01VI6092791
Qualified in Nassau County
Commission Expires 5-27-2007

(EACH PERSON IDENTIFIED IN RESPONSE TO QUESTION 8 MUST FILE A CERTIFICATION, ATTESTING TO THE TRUTH OF THE ANSWERS AND INFORMATION SUBMITTED.)

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

ADDENDA LIST

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Description: Aircraft Noise Abatement Project

Addenda

Number	Description	Date
1	DATE Change	1/17/05

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

11. Describe the relationship of the firm to the prime contractor. (E.g. subsidiary, affiliate, etc.):

Specific Information

12. List all current projects.

OWNER	LOCATION	DATE STARTED	% COMPLETED	# EMPLOYEES

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:
- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| a. Been cited for violation of Labor Law 220? | () | () |
| b. Been cited by OSHA or other safety violations? | () | () |
| c. Been defaulted on any contract? | () | () |
| d. Been suspended, disqualified or barred from bidding? | () | () |
| e. Been deemed unsatisfactory or a poor performer by any governmental agency? | () | () |
| f. Had a contract terminated? | () | () |
| g. Been denied an award of a contract for any reason? | () | () |

Explain any "Yes" answer(s) for question a - g below. Attach additional pages if necessary.

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:

Yes No

- a. Been the subject of an investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency?
- b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument?
- c. Been convicted of any felony under state or federal law and/or for any misdemeanor involving business-related crimes?

Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

15. Within the past ten years, has the firm or any person identified in response to question 8:

Yes No

- a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information?
- b. Intentionally falsified business records?
- c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions?
- d. Engaged in collusive bidding practices?

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

Empire State Development

Michelle Marquez-Melecio
Vice President
Affirmative Action, Compliance and Certification

March 5, 1998

File ID#: 44606

Ms. Yvette Feyjoo
JBH Environmental Inc.
1804 Plaza Avenue, Suite 1
New Hyde Park, NY 11040

Dear Ms. Feyjoo:

On behalf of New York State, the Department of Economic Development, Division of Minority and Women's Business Development (D/MWBD) has completed its review of your application for State certification as a Minority and Woman-owned Business Enterprise and has determined that your firm meets eligibility requirements pursuant to Executive Law, Article 15-A.

We are pleased to inform you that the firm of JBH Environmental Inc., has been granted status as a Minority and Woman-owned Business Enterprise.

Your business will be listed in the State's Directory of Certified Businesses with the following list of principal products or services:

Asbestos Removal (29) & Lead Abatement (240)

Certification status is not intended to imply that the State of New York guarantees your company's capability to perform on contracts, nor does it imply that your company is guaranteed any State business.

Be advised that your certification remains in effect until such time as you are contacted by this Office for recertification. Please remember that any changes in your company that affect ownership, managerial, and/or operational control must be reported to this Office within 30 days of such changes; including changes of company name, business address, telephone numbers, principal products/services, and bonding capacity. At such time as it is necessary for your company to be recertified, you will be notified by this Office.

Empire State Development Corporation
633 Third Avenue New York, New York 10017-6754 Tel 212 803 3223 Fax 212 803 3223

If your certification status is questioned by any public or private entity, please direct the inquiry to this office for clarification.

Thank you for your cooperation. On behalf of the State of New York, I wish you luck in your business endeavors, particularly in those involving State agencies.

Sincerely,

A handwritten signature in black ink, appearing to read 'Anthony Fowora', with a horizontal line extending to the right.

Anthony Fowora
Sr. Certification Analyst
Certification Unit

cc: Fran Genovesi

JBH ENVIRONMENTAL, INC.

ASBESTOS AND LEAD ABATEMENT

194 ATLANTIC AVENUE
GARDEN CITY PARK, NY 11040

PHONE #(516) 741-1777
FAX #(516) 741-5807

COMPANY OVERVIEW

INTRODUCTION

JBH Environmental is a specialty contractor providing remedial services to government and private industry. Its primary objective is to apply the heavy construction needed to start and complete any project. In addition, JBH provides the environmental acumen needed to evaluate financial and operating risk, provide our own designs and plans, health and safety supervision.

CAPABILITIES

JBH provides turn-key operations from the earliest phases of project engineering and planning to total completion. The following sections outline many of the services offered by JBH.

DISPOSAL

JBH contracts transportation with hazardous waste carriers who are fully insured in the areas of general and automobile liability as well as pollution liability insurance. We insist on protection not less than that required by existing state, federal, and local environmental regulations.

FINANCIAL BONDING AND INSURANCE INFORMATION

JBH and its affiliates are provided with bonding by FRONTIER BONDING. We are able to provide performance bonds for hazardous waste projects as well as traditional construction work.

JBH personnel have extensive experience in all aspects of remedial service. These personnel are familiar with the problems associated with bonding hazardous wastes project development from the earliest planning components through project implementation and post-closure care.

CONTRACTOR'S LIABILITY COVERAGE

JBH provides general liability insurance with limits of \$2,000,000 per occurrence and a \$2,000,000 annual aggregate with a \$4,000,000 umbrella policy.

Higher limits can be obtained on a "site specific" basis. General and pollution liability coverage are provided by a leading US insurer licensed in all states best rated A+15 specializing in pollution liability coverage. Project specific Insurance certificates will be provided for client review prior to commencement of work.

CORPORATE HEALTH AND SAFETY PROGRAM

JBH's Corporate Health and Safety Plan addresses personnel protection and medical monitoring. It provides a framework for activities necessary to develop and monitor site specific health and safety plans. JBH is dedicated to the protection of its personnel within environmental projects and to limiting client liability.

This has prompted JBH to develop an internal protocol for review of all projects by a certified industrial hygienist and a medical doctor experienced in occupational health issues. This review, coupled with project screening provides a high level of protection against the liabilities associated with health and safety issues. The following sections outline the key components of the plan.

MEDICAL MONITORING PROGRAM

All employees involved with hazardous waste or other contaminated sites participate in a medical monitoring program which includes a pre-employment physical, annual and termination examinations. Additional examinations may be required by the corporate health and safety consultant and/or the corporate medical consultant. These medical examinations provide employee protection and act as reference for worker's compensation claims. Furthermore, such monitoring supports preventative medical care. All occupational relevant information is retained by the medical consultant and released to employees upon request.

EMPLOYEE EXPOSURE PROGRAM

JBH implements Employee monitoring of exposure to site contaminants. This information is used to verify protection levels and supplements medical exams. Exposure monitoring is carried out in accordance with accepted industrial hygiene practice using NIOSH standardized methods, or a suitable equivalent. All samples are analyzed by a laboratory accredited by the American Industrial Hygiene Association. The corporate health and safety consultant provides written notification to all employees monitored under this program.

RESPIRATORY PROTECTION PROGRAM

Selection of respiratory protection is the responsibility of the site safety officer in cooperation with the corporate health and safety consultant. Site specific requirements for respiratory protection are provided in compliance with OSHA standards and are defined in the site health and safety plans.

TRAINING

All employees engaged in contaminated site activities receive training in compliance with 29 CFR 1910.120. This training includes 40 hours basic courses and OSHA supervisor training and refresher courses in addition to supervised on-the-job training and site-specific training. Each employee receives a written certification of their attendance at training courses a copy of which is provided to the client prior to commencement of site activities. Site training sessions and safety meeting are also documented for record keeping purposes.

ACCIDENT INVESTIGATION AND REPORTING

All accidents involving personal injuries, company owned equipment, property damage, or vehicle accidents are reported to the JBH office within 24 hours and to the site safety officer and client safety officer immediately.

GENERAL WORK RULES AND CONDITIONS OF EMPLOYMENT

Specific work rules are employed for the prevention of accidents. Conditions of employment include requirements for medical, drug, and exposure monitoring and adherence to all applicable safety rules and requirements.

OSHA RECORD KEEPING

The OSHA prescribed record keeping requirements for hazardous waste projects apply to training, medical, and exposure monitoring and for occupational illnesses and injuries. Corporate record keeping procedures include all aspects of these requirements.

SUBCONTRACTOR HEALTH AND SAFETY

JBH's subcontractors are required to comply with all applicable health and safety regulations, as well as any site-specific plans. All subcontractors are required to submit documentation of compliance with the medical monitoring and training requirements of 29 CFR 1910.120 if necessary.

OSHA INSPECTIONS

The corporate procedures for OSHA inspections have been defined. The general guidelines for inspections are to provide full cooperation and complete documentation for the inspection.

CONFINED SPACE ENTRY PROGRAM

The confined entry program includes procedures and training requirements for work in confined spaces. This program is extremely important and rigidly enforced.

OSHA HAZARD COMMUNICATION PROGRAM

Hazardous waste is specifically excluded from the OSHA hazard communications requirements. However, these requirements do apply to any chemicals purchased for use by JBH employees. As such, this program addresses the training and information, which must be provided to help employees safely handle hazardous materials.

STANDARDIZED PROCEDURES

JBH has developed a series of standardized operating procedures (SOPs) and quality assurance/quality control (QA/QC) procedures. These improve safety and productivity while assuring consistency within various tasks. This consistency helps minimize liability resulting from negligence and demonstrates the effectiveness of remedial methods to regulatory agencies. The principal elements are described in the following sections.

STANDARD OPERATING PROCEDURES

The SOPs which JBH implements include activities specific to various field operations as identified below:

- Field documentation
- Field investigative procedures
- Equipment decontamination
- On-site screening
- Reporting of analytical information

These procedures are supplemented on a site-specific basis, as needed, with procedures amenable to standardization.

QUALITY ASSURANCE/QUALITY CONTROL

Environmental remediation projects require unique sampling and laboratory support. This support is often expensive and crucial to project commitment and direction.

For this reason, JBH operates its own field service laboratories which are capable of performing virtually all analytical procedures required in support of environmental remediation.

REGULATORY AFFAIRS

Remedial activities often require interface with regulatory agencies, citizen groups, and elected officials. The statutory framework affecting a particular project is often restrictive and cumbersome. To facilitate remedial operations, permit acquisition, and regulatory compliance, JBH maintains third party legal counsel. Additionally, qualified environmental counsel can help provide liability recognition and avoidance.

JBH's counsel is available to work with client operating and legal staffs during the planning and implementation phases of projects. This may be particularly helpful during the development of liability assessments.



United States Environmental Protection Agency

This is to certify that:

JBH Environmental

194 Atlantic Avenue
Garden City Park, NY 11040

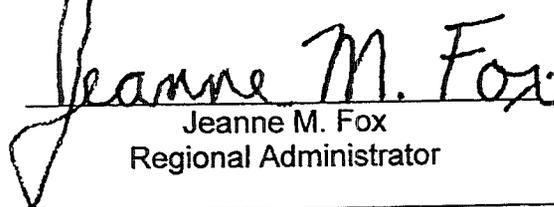
has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402(a)(1), and has received certification as a firm, pursuant to 40 CFR Part 745.226 to conduct lead-based paint activities:

Jurisdiction: State of New York excluding Indian Tribes

This certification is valid for three (3) years from the date of issuance
and expires April 26, 2003

Certification # NY-D1-042003-254

Issued on: April 27, 2000


Jeanne M. Fox
Regional Administrator



STATE OF NEW YORK - DEPARTMENT OF LABOR
DIVISION OF SAFETY AND HEALTH
License and Certificate Unit
BUILDING 12, Room 161
STATECAMPUS
ALBANY, NY 12240
ASBESTOS HANDLING LICENSE

LICENSE NUMBER: 99-1068
DATE OF ISSUE: 1/25/02
EXPIRATION DATE: 1/31/03

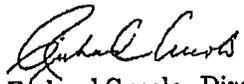
Contractor: JBH Environmental, Inc.

Address: 194 Atlantic Avenue
Garden City Park, NY 11040

Duly Authorized Representative: James Booth

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. The licensee verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.


Richard Cucolo, Director
FOR THE COMMISSIONER OF LABOR

JBH ENVIRONMENTAL, INC.

ASBESTOS REMOVAL & REINSULATION

194 Atlantic Avenue
Garden City Park, NY 11040

Phone: {516} 741-1777
Fax: {516} 741-5807

COMPLETED JOB REFERENCES FOR JBH ENVIRONMENTAL, INC. :

<u>JOB SITE:</u>	WEST HEMPSTEAD UFSD CHESTNUT STREET SCHOOL 516-390-3105	JEFFREY BANFIELD
<u>JOB SITE:</u>	SUNY OLD WESTBURY PRESIDENT'S HOUSE 516-876-3327	SHAWN WOODS
<u>JOB SITE:</u>	SOUTH COUNTRY CONSTRUCTION NORTHPORT HIGH SCHOOL 631-286-3899	GREG DASILVA
<u>JOB SITE:</u>	INCORPORATED VILLAGE OF LAKE SUCCESS LAKE SUCCESS COMMUNITY CENTER 516-482-4411	CAROL POGRELL
<u>JOB SITE:</u>	BECKER PARKER CONSTRUCTION LOCUST VALLEY UFSD 631-273-8642	KEITH PARKER
<u>JOB SITE:</u>	NORSTAR BUILDERS CORPORATION NORTH HEMPSTEAD HOUSING LAUREL HOMES 516-484-2537	MIKE DICKMAN
<u>JOB SITE:</u>	NEW YORK CITY HPD - ASBESTOS VARIOUS LOCATIONS THROUGHOUT NEW YORK CITY	CHACKO THOMAS 718-366-6230
	NEW YORK CITY HPD - LEAD VARIOUS LOCATIONS THROUGHOUT NEW YORK CITY	RASSOUL AZARNEJAD 718-366-4970
<u>JOB SITE:</u>	HAPPAUGE UFSD WHIPORWIL ELEMENTARY SCHOOL 631-761-8211	STEPHEN BILYK

<u>JOB SITE:</u>	BONNIE-LYNN REALTY THE CAMELOT APARTMENT BUILDING 718-658-2620	BRUCE REBEL
<u>JOB SITE:</u>	LEVITTOWN UFSD SUMMIT LANE SCHOOL 516-520-8335	MR. EWALD
<u>JOB SITE:</u>	MERCY HOSPITAL 1000 N. VILLAGE AVE, ROCKVILLE CENTRE 516-255-2959	JACK/ ENGINEERING
<u>JOB SITE:</u>	ROCKVILLE CENTRE UFSD FLOYD B. WASTON SCHOOL 516-255-8932	MATTY
<u>JOB SITE:</u>	ELMONT UFSD GOTHAM AVENUE SCHOOL 516-326-5500	JOHN DUMBLISS
<u>JOB SITE:</u>	GEREL CORPORATION 1100 MADISON AVENUE, MANHATTAN 212-754-4001	DAN ELYACHER
<u>JOB SITE:</u>	DAMON DOUGLAS CO. 90-10 GRAND CENTRAL PKWY, QUEENS 908-272-0100	NEIL VENTRIELLO
<u>JOB SITE:</u>	NEW HYDE PARK UFSD NEW HYDE PARK SCHOOL 516-352-2924	CHRIS MILANO
<u>JOB SITE:</u>	TRIGEN NASSAU ENERGY CORP. COOLING TOWER/ POWER PLANT 516-222-2884	DAVE PETTY
<u>JOB SITE:</u>	UPR CARE CORP UNITED PRESBYTERIAN RESIDENCE 516-622-7704	GREGG HOMEYER
<u>JOB SITE:</u>	ISLAND MEDICAL CENTER HOSPITAL 516-560-1390	JUNIOR RICHARDS

<u>JOB SITE:</u>	VALLEY STREAM CENTRAL HIGH SCHOOL DISTRICT VALLEY STREAM SOUTH HIGH SCHOOL 516-872-5686	JOHN LA BARE
<u>JOB SITE:</u>	NAI LONG ISLAND COMMERCIAL REAL ESTATE BAY HARBOR MALL 516-746-1300 x 226	JENNIFER LI PROPERTY MANAGER
<u>JOB SITE:</u>	JONATHAN WOODNER MANAGEMENT 43-44 KISSENA BOULEVARD 718-539-7166	RENEE
<u>JOB SITE:</u>	WEST ISLIP UFSD BAYVIEW ELEMENTARY SCHOOL 631-567-0200	NICHOLAS AMORUSO
<u>JOB SITE:</u>	BROOKLYN NAVY YARD DEVELOPMENT CORPORATION BUILDING 292 718-852-1441	NICHOLAS MANN
<u>JOB SITE:</u>	PORT WASHINGTON UFSD PAUL D. SCHREIBER HIGH SCHOOL 516-767-4314	ERIC VONDERHORST
<u>JOB SITE:</u>	BOYS CLUB OF NEW YORK VARIOUS LOCATIONS 212-677-1107	DON CANGELOSI
<u>JOB SITE:</u>	PETRO FUEL OIL COMPANY VARIOUS RESIDENTIAL REMOVALS 718-628-3341	DAVE WAGNER
<u>JOB SITE:</u>	BANK OF NEW YORK VARIOUS LOCATIONS 212-635-6441	GIL DISTEFANO
<u>JOB SITE:</u>	GERALD COULSTON 825 EAST 233 rd STREET, BRONX 718-324-1950	FRANK/ GERRY
<u>JOB SITE:</u>	ZYTEL CORPORATION 9201 KINGS HIGHWAY, BROOKLYN 516-493-3400	RICHARD JACKSON



287 EAST 10TH STREET, NEW YORK, N.Y. 10009 212-677-1107 FAX 212-353-0016

SERVING THE NEEDS OF 7000 BOYS

September 22, 1992

Mr. James Booth
JBH Environmental, Inc.
246-02 Jericho Turnpike
Floral Park, NY 11001

Dear Jim:

Just a note of thanks for a job well done. Over the past four years that The Boys' Club of New York and JBH Environmental have been doing business together, your company has demonstrated a demeanor of professionalism and personalized service in performing any and all Abatement Projects that we have had. The asbestos removal of the Flushing Clubhouse roof is a case in point.

Your turnaround time in any emergencies that we have encountered has given you a reputation for reliable service which we have to appreciate and admire.

We are very pleased with JBH and will continue to use your company for any future projects we may have.

Thank you.

Sincerely,

Don Cangelosi
Assistant Executive Director

DC/dcs

LISTINGS OF TRUSTEES AND WOMEN'S BOARD ON REVERSE SIDE

HARRIMAN CLUBHOUSE
Lower East Side

JEFFERSON PARK CLUBHOUSE
Upper East Side

MILLIKEN CLUBHOUSE
Lower East Side

FLUSHING CLUBHOUSE
Queens, NY

CAMP CROMWELL
Bound Brook, NJ

**SENID
PLUMBING & HEATING CORP.**
21523 42nd Avenue
BAYSIDE, NEW YORK 11361

JBH Environmental, Inc.
246-02 Jencho Turnpike
Floral Park, NY 11001

Dear Jim,

I would like to take this opportunity to thank JBH Environmental for the years of excellence and dedicated work that they have delivered to the Senid Plumbing & Heating Corp.

Over the years Senid Plumbing has had nothing but dependable and pleasant experiences with JBH. While working with you on projects we have always had excellent and prompt service with all of our projects. The service you have provided us with has always been professional and dependable.

It is with great pleasure that Senid Plumbing thanks you for your service. We look forward to working on future projects together. It has always been an advantage to know you are a part of our team.

Sincerely,



Robert Giuliante

(718) 428-3400

THE BANK OF NEW YORK

NEW YORK'S FIRST BANK - FOUNDED 1784 BY ALEXANDER HAMILTON

48 WALL STREET, NEW YORK, N. Y. 10286

May 31, 1995

JBH Environmental, Inc.
246-02 Jericho Turnpike
Floral Park, NY 11001

Dear Jim:

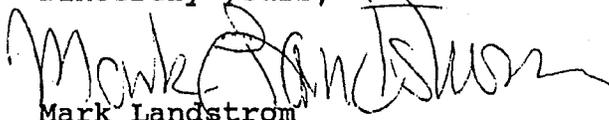
I would like to take this opportunity to express my appreciation to JBH for the years of excellence and dedicated work that you have delivered to the Bank of New York.

In the past several years that the Bank of New York and JBH have been doing business together, your company has proven to us that you are dependable, experienced and fully equipped to handle all emergencies in the removing and disposing of Asbestos Containing Materials.

Your company has a reputation for being on the job site immediately which we have come to respect. It has been a gratifying experience doing business with you and we look forward to a continued correlation with you and your company.

Many thanks.

Sincerely yours,


Mark Landstrom
Assistant Vice President

ML:lh

YVETTE FEYJOO-BOOTH

Ex. 1

EDUCATION:

SKINNER BUSINESS SCHOOL

Garden City, NY

1983-1984

Intensified Secretarial Program

FLORAL PARK MEMORAL HIGH SCHOOL

Floral Park, NY

1971 - 1975 Regents Diploma

EXPERIENCE:

1988 - Present

JBH ENVIRONMENTAL, INC.

New Hyde Park, NY

Chief Executive - Owner

1985 - 1988

CERTILMAN, BUCKLEY & KREMER

Mineola, NY

Supervisor - Document Prep. Dept.

Duties: Supervised the scheduling & preparation of all documents in Mortgage Closing for eight different banks.

1984 - 1985

CONSOLIDATED NEWSPRINT, INC.

New York, NY

Secretary to Vice President of the Specialty Sales Dept. All phases of Secretarial duties performed.

1978 - 1981

HAZELTINE ELECTRONICS CORPORATION

Huntington, NY

Secretary to Credit Manager of the Collections Dept.

1975 - 1978

EQUITABLE LIFE ASSURANCE SOCIETY

New York, NY

Secretary to Vice President of Commercial Mortgage Dept.

Boris Mirkin

Ex. 1

Highlights of Qualifications

- Proven success in implementing productivity in the field.
- Strong practical knowledge of the abatement industry.
- Excellent management skills and experience.

Professional Experience

JBH Environmental, Inc., Garden City Park, NY 2001-present
VP of Operations
Duties include sales, marketing, estimating and day to day operations.

Microtech Contracting Corp, W. Babylon, NY 1998-2001
Senior Project Manager/Estimator
Supervised operations of the company, including sales, marketing and estimating. Managed and Analyzed, labor and management performance.

Achievements

- Increased customer satisfaction ratings
- Achieved 15% reduction in operating costs
- Increased total sales by 40%

Asbestelle Environmental, Brooklyn, NY 1988-1998

M&M Abatement, Brooklyn, NY

Kemron Environmental, Huntington, NY

Cashel Abatement, Bronx, NY

The Tel-Aviv Bus Co., Tel-Aviv, Israel

AEV Construction, Brooklyn, NY

Supervision of field and office personnel. Improved productivity and service level. Evaluated bidding strategies. Implemented resources to maximize efficiency.

Achievements

- Increased rate of customer satisfaction and repeat business
- Helped in establishing a training and abatement program for The Dept. of Health of Israel

Education

Broadcasting/Advertising - Kingsborough Community College

JAMES M. BOOTH

Ex. 1

EDUCATION

High School	Martin Van Buren H.S. Graduated 1978
College	St. John's University 1 year in Communications
Asbestos	Mason Tenders 6/87 NYC Supervisor #07043 NYS AH 88-12634 AHERA 8910-02-968

EMPLOYMENT

JBH ENVIRONMENTAL, INC.

1804 Plaza Avenue - Suite 1
New Hyde Park, NY 11040
Title: Vice President
Duties - In charge of all estimating and coordinating of all jobs.

NAACO

2500 83rd Street
North Bergen, NJ 07047
6/86 to 1/88
One of Six Supervisors on the Great Neck North High School Project.
Ran crew in Coal Feed Boiler Room and Crawl Spaces. Shared Responsibilities in six other areas including Cafeteria and Gym

MARIO & DIBONO FIRE PROOFING

309 Denton Avenue
New Hyde Park, NY 11040
1/83 to 5/86
Duties: Sprayer and Laborer of Monocote on the Battery Park Project.

MOTIVATION

In addition to being able to demonstrate initiative, I can follow Directions and work well under pressure. I am highly motivated By a work atmosphere with challenging and varying responsibilities.

Range of completed projects: \$300.00 - \$1,000,000.00

1st CONSIGNOR McLIANCY Memorial BK 1 of 3



**SOUNDPROOFING OF
MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Specification
Book 1 of 3**

Issue For Bid January 10, 2005

Owner:

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
In the Borough of Queens
In the City of New York

Architect:

John Ciardullo Associates
221 West 57th Street
New York, New York 10019

Mech/Elec Engineer:

Lakhani & Jordan Engineers, P.C.
50 East 42nd Street
New York, NY 10017

Asbestos Engineer:

ATC Associates, Inc.
104 East 25th Street
New York, NY 10010

Acoustic Engineer:

Peter George Associates
P.O. Box 688
Millbrook, NY 12545

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January 10, 2005

Monsignor McClancy Memorial High School

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January 10, 2005

Monsignor McClancy Memorial High School
REQUEST FOR BID PROPOSALS

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NY 11370

Public notice is hereby given that sealed Bid Proposals for the Soundproofing Construction work as prescribed by the Plans and Specifications Bid Documents for the Soundproofing of Monsignor McClancy Memorial High School, East Elmhurst, New York will be received at the Monsignor McClancy Memorial High School 71-06 31st Avenue East Elmhurst, New York 11370, in the General Office before 10:30 AM on *February 17, 2005* when Bidding will be closed and the packages publicly opened and read aloud. No late Bid Proposals will be accepted and incomplete or non-compliant Bid Proposals will be rejected.

Bids shall be for General Construction - All Trades on the basis of a Stipulated Lump Sum Contract.

Complete sets of Bid Documents, prepared by the Architect, John Ciardullo Associates, 221 West 57 Street, New York, N.Y. 10019, 212/ 245-0010 will be available to General Contractors at the Architect's office on or after *January 10, 2005* upon receipt of a non-refundable payment of \$100.00 per set. Only cash or certified checks payable to the order of John Ciardullo Associates will be accepted. When purchasing Bid Documents, all General Contractors must be prepared to provide the following information: Complete company name, mailing and street address, telephone numbers, facsimile number and responsible contact person.

Complete sets or parts of sets of Bid Documents will not be issued to Subcontractors, material suppliers, or manufacturers. They are requested to arrange for copies with their respective General Contract Bidders. A list of Bidders will be made available through the Architect's office upon request.

All Bids must be submitted in accordance with the INFORMATION TO BIDDERS section of the Specification. The Bid Proposal, with all other required information must be submitted in a sealed opaque inner envelope marked "GENERAL CONSTRUCTION - ALL TRADES, SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL - A.I.P. PROJECT NO. NY-LGA 80-02 and NY-LGA 98-03" A larger outer envelope containing the Bid Proposal shall be addressed to Monsignor McClancy Memorial High School, 71-06 31st Avenue East Elmhurst, New York 11370 with the Contractor's return address and project name indicated on the outer envelope.

The Bidder must submit with his Bid Proposal a notarized affidavit including the firm's legal status, a list-itemizing projects that are currently under contract, contract amounts and the name and telephone numbers of project contacts on the attached Current Contract Form and that there have been no material adverse changes in his qualification information or the total amount of uncompleted work on contracts at this time.

Bidders are alerted to the Information for Bidders Section 11 - F.A.A. Requirements, 14.3% DBE Participation Goal.

Bidders are required to comply with the requirements of P.L. 1975, C 127-Affirmative Action Regulation and Executive Order #11246 for Federal Equal Employment Opportunity.

The successful Bidder shall be required to pay at least the US Department of Labor Davis Bacon Prevailing Wage Rates or The City of NY Office of the Comptroller Prevailing Wage Schedule Rates whichever is greater. (See appendix 3 & 4).

January 10, 2005

Monsignor McClancy Memorial High School

According to Public Law, Chapter 15, Title 40 and Chapters 32 and 33, Title 52, the Contractor shall agree that in the performance of construction, only domestic materials and manufacturers will be used when available.

Bidders are alerted that "Approval of Subcontractors" is required for all subcontract work, and a window manufacturer's certification of compliance form shall be submitted with bid in the bid envelope. The work under this solicitation requires General Construction, VAC. and Electrical work. Therefore Subcontractor Approval Application forms and Request for Subcontractor Approval forms are required for each of the above referenced trades or portions of trades. If the bidder intends to perform any of the above work with its own forces, it must complete the subject forms using its company name and related information.

Each Bid Proposal must be accompanied by a certified check, or Bid Bond in the amount of 10% of the Bid amount. Additionally each Bidder shall include as part of his Bid Proposal the cost of a Performance and Labor and Material Payment Bond in the amount of 100% of the Contract Price. The Bid must also be accompanied by a certificate from a Surety Company authorized to do business in the State of New York, certifying that said Surety Company will be providing the Bidder with a Performance Bond and Labor and Material Payment Bond which shall remain in force to cover the three year guarantee period after the completion of construction.

A Pre-Bid Conference will be held at 11:00 AM on *January 19, 2005* in the Second Floor Office of Monsignor McClancy Memorial High School to review the existing conditions. This invitation is extended to Bidders only and their associated subcontractors. Participation is strongly advised. Bidders are to confirm their attendance by facsimile to the Architect's office. All questions regarding this Request for Bid Proposals must be submitted in writing and transmitted by facsimile to the Architect no later than 4:00 PM *January 28, 2005*

The Owner reserves the right to reject any and all bids or to waive any immaterial defects or informality in any bid should it be deemed to the best interest or discretion of the Owner to do so.

Any inquiries or questions relating to this Request for Bid Proposals should be directed, in writing, to Mr. Richard Piacentini and faxed to John Ciardullo Associates, 221 West 57 Street - 9th Floor, New York, N.Y. 10019, telephone 212/245-0010, facsimile 212/245-0020.

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**Monsignor McClancy Memorial High School
INFORMATION FOR BIDDERS**

1. FORM AND SUBMISSION OF BIDS

The Monsignor McClancy Memorial High School, hereinafter called the "Owner", invites Proposals in the annexed form. Proposals will be received until the time and date indicated on the attached Addendum in the General Office, at the Monsignor McClancy Memorial High School, East Elmhurst, New York. Each proposal must be sealed in an envelope which shall conspicuously endorsed with the Bidder name and the Title of this Contract on the front.

The proposal must be submitted upon the blank forms bound herewith and must give all information required. The proposal must be signed and the acknowledgment taken on the appropriate form following the Proposal.

Submission of the completed forms and required supplemental documents shall signify complete agreement and acceptance of the terms and conditions contained, described or required in the complete set of bid documents including both contract specification books, contract drawings and addenda by the bidder.

No effort is made to emphasize any particular provision of the Contract, but bidders must familiarize themselves with every provision and its effect.

The Owner, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non discrimination in Federally-Assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that any contract entered into pursuant to this advertisement, minority business enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of sex, race, color, or national origin in consideration for an award.

In addition, this Contract is subject to the requirements of Part 23 of Title 49 of the Code of Federal Regulations, Participation by Minority Business Enterprise in Department of Transportation programs, Part 60-4 of Title 41 of the Code of Federal Regulations, (Department of Labor) Construction Contractors, Affirmative Action Requirements.

Bids shall not contain any recapitulation of the work to be done. No oral, telegraphic or telephonic bids or modifications shall be considered.

Bids that are illegible or that contain omissions, alterations, additions or items not called for in the bidding documents may be rejected as not responsive. Any bid which modifies, limits, or restricts all or any part of such bid, other than as expressly provided for in the Contract Documents, may be rejected as not responsive.

The Owner may reject any bid not made, prepared and submitted in accordance with the provisions of the Contract Documents. The Owner also reserves the right to reject any and all bids or to waive any immaterial defects or informality in any bid should it be deemed in his best interest to do so.

Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof and any bid received after such time and date shall not be considered.

No Bidder may withdraw a bid for sixty (90) days after the actual date of the opening thereof.

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2. PAPERS ACCOMPANYING PROPOSALS

Each Proposal must be accompanied by the following papers, which, unless otherwise indicated, should be enclosed with the Proposal:

(1) Bid and Contract Agreement (with Acknowledgment)

The Form of Contract bound herewith, including the bidder's prices inserted in the clause thereof entitled "Contract Sum". The amount must be given both in figures and in writing, and in the case of discrepancy, the writing shall control. The Contractor shall complete the correct acknowledgment form for the entity or individual submitting the proposal.

If the bidder be a corporation: (a) a statement of the name and residence of its president or chief executive officer, which may be on the last page of the agreement.

If the bidder be a partnership, a statement of the name and residence of a partner, which may be on the last page of the agreement.

If the bidder be an individual, a statement of his residence, which may be on the last page of the agreement.

(1a) Window Manufacturer's Certification of Compliance with window Specifications.

(2) Bid Bond and Surety Co. Certification

Either the Bid Bond bound herewith, duly executed by the bidder as a principal and by one or more surety companies duly authorized to carry on the business of surety ship in the state of New York, whose names appears on the current list of the Treasury Department of the United States as acceptable as sureties upon federal contracts; or in lieu of a Bid Bond:

A certified check payable to the order of the Owner, in the amount of 10 % of the Base Bid Amount appearing in the Bid and Contract Agreement, which check shall be separately delivered, prior to the time of bid opening, to the Monsignor McClancy Memorial High School, 71-06 31ST Avenue, East Elmhurst, New York 11370; Attention Brother Robert Connolly . The bidder will be given proper receipt for his check.

Bid bond shall stipulate and certify that the Surety will issue upon award of contract, a performance and material payment bond in the full amount of the contract price as stipulated therein.

(3) Bidder's Net Worth

A balance sheet showing the net worth of the bidder as of a date not earlier than forty-five days prior to the opening of the Proposals; or in lieu thereof, a balance sheet showing the net worth of the bidder not earlier than the end of a preceding fiscal year, together with a statement in writing, signed by a duly authorized representative of the bidder, that the present financial condition of the bidder is at least as good as that shown on the balance of the sheet submitted and that the net worth of the bidder is in excess of 10% of the current cumulative project value. The balance sheet or statement shall also note the name and address of the bidder's chief bank with the name of the representative handling the account.

*(4) Contractor's Qualifications

Bidders current Contracts shall be certified and itemized noting contract date, contract amount, anticipated project completion date, project contact individual and the individual's telephone number. Provide all information and certifications indicated on the form provided.

a. Submit evidence that the bidder has acted as the General Contractor for a minimum of 7 years. The documentation shall include a list of projects on the attached form indicating Project Cost, Location, Architect of Record, Owner, Owner's contact person, phone number and Date of Substantial Completion on the attached Data Sheet.

b. Submit evidence that the bidder has successfully completed at least 5 projects of comparable size

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and scope within the last 5 years. The documentation shall include a list of projects on the attached form indicating Project Cost, Location, Architect of Record, Owner, Owner's contact person, phone number and Date of Substantial Completion.

- c. The Bidder shall certify that there has been no unsatisfactory evaluation filed on any of the work performed by the bidder on any past or present projects by any client or agency.
- * (5) Addenda
One copy of each addendum, if any, issued during the bidding period shall be initialed and attached to the proposal, but any Proposal submitted without such addendum installed and attached will nevertheless be construed as though such addendum had been initialed and attached.
- (6) Request for subcontractor approval form.
On the form provided, indicate all proposed subcontractors to be used on all phases of the work
- (7) Subcontractor approval applications.
On the form provided, submit data for each proposed subcontractors to be used on any phase of the work.
- * (8) Progress Schedule
The bidder's progress schedule and analysis of the bid filled in on the form furnished herewith. The Contractor will be required to furnish a more detailed progress schedule and analysis of the bid at a later date in accordance with the requirements of the Clause entitled Progress Schedule and Analysis of Bid".
- * (9) Certificate of Non-Segregated Facilities
A Certification of Non-Segregated Facilities filled in on the form provided herein.
- * (10) Asbestos
- * (11) DBE participation form
Asbestos acknowledgment form provided, and attached hereto, shall be submitted by Contractor and all subcontractors performing Work of any type whatsoever, prior to commencement of that Work.

* Items noted with an asterisk (*) shall be submitted within 72 hours of a request for this information by the owner.

3. QUALIFICATION INFORMATION

Contractor and Subcontractors shall and will certify that they are Reputable Contractors in good standing and provide tradesmen licensed offer the services required by and contracted for under this Contract. The Owner may make any investigation as the Owner may deem necessary to determine the responsibility of any Bidder or to determine the ability of any Bidder to perform the Work. The Bidder s shall furnish to the Owner all information and data required by the Owner, including complete financial data, within the time and in the form and manner required by the Owner. The Owner reserves the right to reject any bid if the information required by the Owner is not submitted as required or if the information submitted by or the investigation of any bidder fails to satisfy the Owner that the Bidder is responsible, or is able or qualified to carry out the obligations of the Contract or to complete the work as contemplated. The owner shall be the sole judge of the Qualifications of the contractor to perform the work in a manner consistent with contract requirements. Unqualified bids will be judged defective.

4. SUBCONTRACTOR INFORMATION REQUIREMENTS

- A. These provisions are in addition to the provisions of the General Conditions under which the Owner reserves the rights of approval and acceptance of the use of any subcontractors that the contractor proposes to use on the project.
- B. Each Bidder shall within 72 Hrs. of a request by owner a separately sealed envelope containing , completed Subcontractor Approval Application forms (form attached) for the proposed plumbing, VAC. and electrical

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subcontractors. In the same envelope which contains the Subcontractor Approval Application, the Bidder shall submit a completed Request for Subcontractor Approval Form (form attached) indicating the names of the above-proposed subcontractors and the estimated value of the work to be performed.

5. ACCEPTANCE OR REJECTION OF PROPOSAL

Within sixty (60) days after the opening of the proposals, the Owner will accept one of the Proposals, if it accepts any. The acceptance of a Proposal will be only by mailing to or delivering at the office designated in the Proposal, a notice in writing specifically indicating acceptance signed by an authorized representative on behalf of the Owner. No other act of the Owner, its agents, or employees shall constitute acceptance of a Proposal. Such notice will state whether or not the Owner elects to require the bidder to furnish a Performance and Payment Bond. Rejection of a proposal will be by only either (a) a notice specifically stating that the Proposal is rejected, signed by an authorized representative on behalf of the Owner and mailed to or delivered at the office designated in the Proposal or (b) omission of the Owner to accept a Proposal within 60 days after the opening of Proposals; and no other act of the Owner, its agents or employees shall constitute rejection of a Proposal, including any counter offer or other act of the Owner its agents or employees.

In the selection of the successful bid, the owner shall select the combined Base Bid and Item 1 Bid most advantageous to the owner.

The Owner reserves the unqualified right, in its sole and absolute discretion, to reject any bid proposal and/or to waive minor defects in any Proposal.

In the event that a successful bidder defaults upon the Contract by failing to furnish a satisfactory Performance and Payment Bond, or failing to adequately demonstrate through submitted documentation or subsequent investigation, adequate Qualifications of the bidder's capacity or experience to perform the work of the contract and the Owner terminates the Contract, the Owner reserves the option to subject the Proposal of the each of the next lowest bids in turn to the same tests and accept the next lowest bid within sixty (60) days after the opening of Proposals, in which case such acceptance shall have the same effect as to such other bidder as though he were the original lowest bidder.

6. RETURN OF CERTIFIED CHECKS

Within ten (10) days after the opening of the Proposals, the Owner will return all certified checks deposited by the bidders, except those deposited by three bidders to be selected by the Owner, which will be returned within three (3) days after the satisfactory Performance and Payment Bond is furnished to the Owner; or if all Proposals are rejected, not later than three (3) days after such rejection. The return of a bidder's check shall not however, be deemed to be a rejection of his Proposal.

7. INSPECTION OF SITE AND CONTRACT DOCUMENTS

Prospective bidders shall examine the contract documents carefully, before bidding. A pre-bid walk-through is scheduled for the date included in the cover letter attached at Monsignor McClancy Memorial High School, 71-06 31st Avenue East Elmhurst, New York 11370 The bidder shall, at the time of bid opening, be presumed to have read and to be familiar with all the Contract Documents and to have inspected the site and be familiar with field conditions.

For site visits other than the pre-bid walk-through each bidder or his authorized representative must make proper arrangements with the Architect before inspecting the construction site. (Richard Piacentini of John Ciardullo Associates, 221 West 57 Street - 9th Floor, New York, N.Y. 10019, telephone 212/245-0010, facsimile 212/245-0020.

8. QUESTIONS BY BIDDERS

Prospective Bidders shall examine the Contract Documents carefully and, before bidding, shall make a

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written request to the MMMHS's Representative for clarification of any ambiguity, or correction of any inconsistency or error therein. Every request for such clarification must be received at least ten (10) days prior to the date fixed for the opening of the bid. Such clarifications or corrections as well as any additional Contract Provisions as the Owner shall decide to include shall be issued in writing by the Owner or the Owner's representative as an addendum, which shall be sent by certified or registered mail or by telegraph or delivered to each prospective Bidder recorded as having received a copy of the Contract Documents from the Architect's office, and shall be available at the places where the Contract Documents are available for inspection by prospective bidders. Upon such mailing or delivery and making available for inspection, such addendum shall become a part of the Contract Documents and shall be binding on all bidders whether or not the Bidder receives or acknowledges the actual notice of such addendum. The requirements contained in all the contract documents shall apply to all addenda.

Questions may be addressed to Mr. Richard Piacentini of John Ciardullo Associates, (212) 245-0010). Neither he nor any employee of the Architect or owner is authorized to give interpretations of any portion of the Contract. Accordingly, nothing contained herein and no representation, statement or promise, oral or in writing, of the Owner, its representatives, agents or employees shall impair or limit the effect of the warranties and guarantees of the bidder. The provisions of this clause shall apply to questions addressed by prospective bidders both before and after their receipt of Contract Documents.

9. NON-COLLUSIVE BIDDING CERTIFICATION

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in case of a joint bid each party thereto certifies as to its own organization that: (a) the prices in his bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting completion, as to any matter relating to such prices with any other bidder or with any competitor; (b) the prices quoted in his bid have not been and will not be knowingly disclosed, directly or indirectly by the bidder prior to the official opening of such bid to any other bidder or to any competitor; (c) no attempt has been made and none will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

The foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the certificate as to non-collusion and Code of Ethics as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor.

10. CERTIFICATION OF NO INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT OR TERMINATION

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that the bidder has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred or otherwise disqualified from entering into contracts with any governmental agency; and (c) had a contract terminated by any governmental agency for breach of contract or for any cause related directly or indirectly to an indictment or conviction.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefore.

11. F.A.A. REQUIREMENTS

The contractor shall include the terms and conditions of this section in every subcontract entered for performance of contract work on this project. The Attachments titled "FAA REQUIREMENTS" and "49 CFR PART 23" apply to all contract and subcontract work on this project and are furnished in their entirety for the purpose of inclusion in all subcontracts.

A. D.B.E. PROGRAM

This Contract is subject to the United States Department of Transportation regulations on Disadvantaged Business Enterprise ("DBE'S") contained in Part 23 of Title 49 of the Code of Federal Regulations. The following goal for D.B.E. participation has been set for this Contract:

Fourteen point three percent (14.3%) of the value of the Contract for firms owned and controlled

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by socially and economically disadvantaged individuals.¹

By bidding on this Contract, the bidder assures that it will meet the foregoing goal. If the bidder determines that he cannot make this assurance, he may nevertheless submit a bid but in such event he shall submit with the bid a separate writing which contains a statement of the percentage of DBE participation he anticipates.

In order to facilitate identifying DBE's the Port Authority of New York and New Jersey has a list of certified firms which is available on request.

Within Three (3) working days of the opening of bids, the bidder shall submit to the Owner the names and addresses of DBE firms, a description of the work each is to perform, and the dollar value of each proposed DBE subcontract. The bidder shall also submit the completed form labeled "Schedule A" and "Schedule B" (if appropriate) for any firm he proposes as a DBE.

If a bidder proposes to use the services of a subcontractor who has not been previously certified, then it must submit the name of the proposed DBE and the other information required by the Office, to the Port Authority's Office of Business and Job Opportunity for certification.

In the event that the bidder for this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met.

A bidder who fails to meet the DBE goal for this Contract and fails to demonstrate to the Board that the Bidder has made good faith efforts to meet same shall not be eligible to be awarded the Contract. The following are illustrative of good faith efforts:

- (i) Attendance at a pre-bid meeting, if any, scheduled to inform DBE's of subcontracting opportunities under a solicitation;
- (ii) Advertisement in a general circulation media, trade association publications and minority focused media for at least 20 days before bids or proposals are due. If 20 days are not available, publication for a shorter reasonable time is acceptable;
- (iii) Written notification to DBE's that their interest in the Contract is solicited;
- (iv) Efforts made to select portions of the work proposed to be performed by DBE's in order to increase the likelihood of achieving the stated goal;
- (v) Efforts to negotiate with DBE's for specific sub-bids including at a minimum;
 - (a) The names, addresses and telephone numbers of DBE's that were contacted;
 - (b) A description of the information provided to DBE's regarding the plans and specifications for the portions of the work to be performed; and
 - (c) A statement of why additional agreements with DBE's were not reached;
- (vi) Concerning each DBE, the bidder contacted but rejected as unqualified, and the reason for the rejection;
- (vii) Efforts made to assist the DBE's contacted that needed assistance in obtaining bonding or insurance required by the bidder or Owner.

B. STANDARD EEO SPECIFICATION

¹ Individuals who are rebuttably presumed to be socially and economically disadvantaged include women, Blacks, Hispanics, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. A bidder may meet the DBE goal by using any combination of disadvantaged businesses.

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The following constitutes Standard Federal Equal Opportunity Construction Contract Specifications (Executive Order 11246, as amended). These specifications should be included in all AIP assisted construction contracts or subcontracts (including the Solicitations for Bids) in excess of \$10,000.00 in geographical areas designated by the Director.

Standard Federal Equal Opportunity Construction Contract Specifications (Executive Order 11246, as amended).

- A. As used in these specifications:
- (1) "Covered Area" means the geographical area described in the solicitation from which this contract resulted;
 - (2) "Director" means Director, office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
 - (3) "Employer identification number" means the Federal Social Security Number used on the Employers's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
 - (4) "Minority" includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic Origin);
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South America, or other Spanish culture regardless of race);
 - (c) Asian or Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (d) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation of community identification.
- B. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and the female participation which is set forth in the solicitations from which this contract resulted.
- C. If the contractor is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through association, in its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with the plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in the compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.
- D. the Contractor shall implement the specific affirmative action standards provided in paragraphs G (1) through (16) to these specifications. The goal set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilizations that the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress towards its goals in each craft during the period specified.
- E. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive

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Order 11246, as amended, or the regulations promulgated pursuant thereto.

- F. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
- G. The Contractor shall take specific affirmative actions to ensure EEO. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
- (1) Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more *women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.*
 - (2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
 - (3) *Maintain a current file of the names, addresses, and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union, or, if referred, not employed by the contractor, this shall be documented in the file with the reason, therefore, along with whatever additional actions the contractor may have taken.*
 - (4) Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.
 - (5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under G(2) above.
 - (6) *Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.*
 - (7) Review, at least annually, the companies EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment lay-off, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foreman, etc, prior to the initiation of construction work at any job sites. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - (8) Disseminate the contractor's EEO policy externally by including it in any

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advertising in the news media, specifically including minority and female news media, and providing written notification to and the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

- (9) Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. No later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- (10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on site and in other areas of the contractor's workforce.
- (11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- (12) Conduct, at least annually, an inventory and evaluation, at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc, such opportunities.
- (13) Ensure the seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractors obligations under these specifications are being carried out.
- (14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user access toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- (15) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- (16) Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

- H. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations under G(1) through G(16). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under G(1) through G(16) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's non-compliance.
- I. A single goal for minorities and a separate goal for women have been established. The contractor, however, is required to provide EEO and to make affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).
- J. The contractor shall not use the goals and timetables or affirmative action standards to discriminate

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against any person because of race, color, religion, sex or national origin.

- K. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246, as amended.
- L. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- M. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction grade, union affiliation if any, employee identification number when assigned, social security number, race, sex status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status (e.g. worked per week in the indicated trade), rate of pay, and locations the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that the existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- N. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

REQUIRED NOTICE FOR CONTRACTS FOR 50 OR MORE EMPLOYEES AND A CONTRACT OF \$50,000 OR MORE

The prime contractor and each of his subcontractors who have 50 or more employees and a contract of \$50,000 or more shall, within 120 days from contract commencement, be required to develop and maintain a written affirmative action compliance program for each of its establishments.

In addition, the following will be required:

- A. Compliance Reports. Within 30 days after award of this contract, the contractor shall file a compliance report (Standard Form (SF) 100) with the Joint Reporting Committee if:
 - (1) The contractor has not submitted a complete compliance report within 12 months preceding the date of award, and
 - (2) The contractor is within definition of "employer" in paragraph 2e (3) of the instructions included in SF 100.
- B. The contractor shall require the subcontractor on any first tier subcontracts, irrespective of dollar amount, to file SF 100 within 30 days after award of the subcontract if the above two conditions apply. SF 100 is normally furnished contractors annually, based upon a mailing list currently maintained by the Joint Reporting Committee. In the event a contractor has not received the form, he may obtain it by writing to the following address:

Joint Reporting Committee
1800 G Street
Washington, D.C. 20506
- C. The contractor shall after commencement of contract work submit the Monthly Manpower Utilization Report (SF 257) to the OFCCP regional office, on or before the fifth working day of each month, reporting the activity of the previous month. If no work was accomplished, the form should be submitted stating that fact. A form is to be submitted for the last month of activity stating that the work has been completed.

SPECIAL PROVISIONS, NOTICES AND CERTIFICATIONS CONCERNING NONSEGREGATED FACILITIES

SPECIAL PROVISIONS RELATING TO AIP ASSISTED CONSTRUCTION PROJECTS IN EXCESS OF \$10,000

The sponsor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or part with funds obtained from the Federal Government or borrowed on the credit of the Federal

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Government pursuant to a grant contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan insurance, or guarantee the following equal opportunity clause.

During the performance of this contract, the contractor agrees as follows:

- A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising, layoff or termination, rate of pay or other forms of compensations; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices (to be provided) setting forth the provisions of this non-discrimination clause.
- B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice (to be provided) advising the said labor union or worker's representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. The contractor will comply with all provisions of Executive Order 11246, as amended, of 24 September 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- E. The contractor will furnish all information and reports required by Executive Order 11246, as amended, of 24 September 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rule, regulations, and orders.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order 11246, as amended, of 24 September 1965, and such other sanctions may be imposed as remedies invoked as provided in Executive Order 11246, as amended, of 24 September 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- G. The Contractor will include the portion of the sentence immediately preceding paragraph A and the provisions of paragraphs A through G in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, of 24 September 1965, so that such provisions will be binding upon each subcontractor or vendor. the contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY (FOR CONSTRUCTION CONTRACTS EXCEEDING \$10,000).

BIDDERS NAME

ADDRESS

INTERNAL REVENUE SERVICE EMPLOYER IDENTIFICATION NUMBER
NONSEGREGATED FACILITIES

NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS:

- a. A certification of Nonsegregated Facilities must be submitted prior to the award of a Federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.

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- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The Federally-assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not allow his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor agrees that a breach of his certification is a violation of the equal opportunity clause in his contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and any other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or any other reason. The Federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause, and that he will retain such certifications in his files.

NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR CERTIFICATION FOR NON SEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATION ON NONSEGREGATED FACILITIES

- a. A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.
- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

C. A.I.P. REQUIREMENTS

REQUIRED LANGUAGE IN AIP CONSTRUCTION CONTRACTS, WAGE, LABOR, EEO AND SAFETY REQUIREMENTS

SECTION A. LABOR, EQUAL, EMPLOYMENT OPPORTUNITY AND SAFETY REQUIREMENTS FOR ALL CONSTRUCTION CONTRACTS AND SUBCONTRACTS

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- A-1 **AIP PROJECT** - The work in this contract is included in AIP Project No. NY-LGA 80-02 and NY-LGA 98-03, which is being undertaken and accomplished by The Port Authority of New York and New Jersey and the United States, under the Airport and Airway Improvement Act of 1982 (AAIA)(P.L. 97-248, 49 U.S.C. 2201 et seq.) and Part 152 of the Federal Aviation Regulations (FAR) 14 CFR part 152, pursuant to which the United States has agreed to pay a certain percentage of the costs of the projects that are determined to be allowable project costs under that Act. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.
- A-2 **CONSENT TO ASSIGNMENT** - The Contractor shall obtain prior written consent of the and the Monsignor McClancy Memorial High School to any proposed assignment of any interest in or part of this contract.
- A-3 **VETERAN'S PREFERENCE** - In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to veterans of the Vietnam era and disabled veterans. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.
- A-4 **FAA INSPECTION AND REVIEW** - The contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.
- A-5 **HEALTH AND SAFETY REQUIREMENTS** - It is a condition of this Contract, and shall be made a condition of each subcontract entered into pursuant to this Contract, that the Contractor and any subcontractor shall not require any laborer or mechanic employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under Construction Safety and Health Standards Title 29 CFR Part 1926 and other occupational and health standards (29 CFR Part 1910) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (CWHSSA).
- A-6 **CONTRACT TERMINATION** - A breach of paragraph A-4 may be grounds for termination of the contract.

SECTION B. SECRETARY OF LABOR REQUIREMENTS

B-1 MINIMUM WAGES

1. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate of any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents therefore) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1 (b) (2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to laborers and mechanics, subject to the provisions of subparagraph a. (4) below; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5 (a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under a. (2) of the section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.
2. (a) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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- 1 The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- 2 The classification is utilized in the area by the construction industry; and
- 3 The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers or mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, US Department of Labor, Washington, DC 20210. The Administrator or an authorized representative, will approve, modify, or disapprove every additional classification action which 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the view of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30 day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (2)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under the this contract from the first day on which is performed in the classification.

3. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
4. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

B-2 **WITHHOLDING** - The Federal Aviation Administration shall upon its own action or upon written request of any authorized representative of Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

B-3 **PAYROLLS AND BASIC RECORDS**

1. Payrolls and basic records relating thereto will be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(2)(B) of

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the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5 (a)(1) (iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated providing benefits under a plan or program described in Section 1 (b) (2) (B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification or trainee programs, the registration of the apprentices and trainees, and the rates and wage rates prescribed in the applicable programs.

2. (a) The contractor shall submit weekly for each week in which any contract work is performed, a copy of all payrolls to the Sponsors. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5 (a)(3) (I) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), US Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.
(b) Each payroll submitted shall be accompanied by a "Statement of Compliance", signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - 1 That the payroll for the payroll period contains the information required to be maintained under paragraph 5.5 (a)(3) (I) of Regulations, 29 CFR Part 5 and that such information is correct and complete;
 - 2 That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that not deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;
 - 3 That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination.
(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission on the "Statement of Compliance" required by paragraph B-3 (2)(b) of this section.
(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
3. The contractor and subcontractor shall make the records required under paragraph B-3 (2) (b) of this section available for inspection, copying or transcription by authorized representatives of the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

B-4 APPRENTICES AND TRAINEES

1. Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the US Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person

is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid not less than the rate specified in registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. The apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at least than the applicable predetermined rate for the work performed until an acceptable program is approved.

2. Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification, by the United States Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of trainee program. If the trainee does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
 3. Equal Employment Opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- B-5 COMPLIANCE WITH COPELAND ACT REQUIREMENTS - The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in its contract.
- B-6 SUBCONTRACTS - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5 (a) (1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.
- B-7 CONTRACT TERMINATION DEBARMENT - A breach of contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for the debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

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- B-8 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- B-9 DISPUTES CONCERNING LABOR STANDARDS - Disputes arising out of labor standards provisions of this contract (sponsor) shall not be subject to the general disputes clause of this contract (sponsor). Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause includes disputes between the contractor (or any of its subcontractors) and the contracting agency, the US Department of Labor, or the employees or their representatives.
- B-10 CERTIFICATION OF ELIGIBILITY
1. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is ineligible to be awarded Government contracts by virtue of Section 3 (a) of the Davis-Bacon Act or 29 CFR 5.12 (a)(1).
 2. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3 (a) of the Davis-Bacon Act or 29 CFR 5.12 (a)(1).
 3. The penalty for making false statements is prescribed in the US Criminal Code, 18 U.S.C. 1001.
- C-1 CONTRACT WORK HOURS AND SAFETY STANDARD ACT - Note: As used in the following, the terms "laborers" and "mechanics" include watchmen and guards.
1. Overtime Requirements - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of eight hours in any calendar day or in excess of 40 hours in such work week unless such laborer or mechanic receives compensation at a rate not less than 1 ½ times his basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of 40 hours in such work week, whichever is greater.
 2. Violations, Liability for Unpaid Wages, Liquidated Damages - In the event of any violation of the clause set forth in subparagraph (1) of the paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10.00 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this paragraph.
 3. Withholding for Unpaid Wages and Liquidated Damages The FAA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy and liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.
 4. Subcontracts - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier contractor with the clauses set forth in subparagraph (1) through (4) of this paragraph.
- C-2 CONTRACTS SUBJECT ONLY TO CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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1. The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.
2. The records to be maintained under paragraph (1) above shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

SECTION D - (HEALTH AND SAFETY REQUIREMENTS) CONTRACTS EXCEEDING \$2,000.

- D-1 It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under Construction Safety and Health Standards Title 29 CFR Part 1926 and other occupational and health standards (29 CFR Part 1910) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the OWHSSA.

SECTION E - CLEAN AIR AND WATER POLLUTION CONTROL REQUIREMENTS FOR CONSTRUCTION CONTRACTS AND SUBCONTRACTS

- E-1 Contractors and subcontractors agree (for any contract/ subcontract exceeding \$100,000):
- a. That any facility to be used in the performance of the contract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities.
 - b. To comply with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations issued thereunder.
 - c. That as a condition for award of a contract he will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be utilized for performance of or benefit from the contract is under consideration to listed on the EPA List of Violating Facilities.
 - d. To include or cause to be included in any contract or subcontract which exceeds \$100,000 the aforementioned criteria and requirements.

- E-2 For all projects, contractors and subcontractors agree:

That in the performance of this contract agrees that he will adhere to all state and local regulations concerning air and water pollution controls (unless contrary to Federal requirements), secure necessary permits, inspections, and conduct his operations so as to minimize affects on the *surrounding environment*.

BID GUARANTEE AND BONDING/INSURANCE CLAUSES (FOR BID AND/PR CONTRACTS IN EXCESS OF \$100,000.)

For all bid documents for contracts include:

The requirements for a bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidders will, upon acceptance of his bid, execute contractual documents as may be required within the time specified.

For contracts include:

- A. The contractor agrees to furnish a performance bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

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B. The contractor agrees to furnish a payment bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of work provided for in the contract.

NONDISCRIMINATION IN FEDERALLY-ASSISTED PROGRAMS OF THE DEPARTMENT OF TRANSPORTATION

During the performance of this contract, the contractor for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

A. **Compliance with Regulations.** The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations), Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations); which are herein incorporated by reference and made part of this contract.

B. **Nondiscrimination.** The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

C. **Solicitations for Subcontracts, Including Procurement of Materials and Equipment.** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

D. **Information and Reports.** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent information required of a contractor is in the exclusive possession of one another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the Federal Aviation Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

E. **Sanctions for Noncompliance.** In the event of the contractor's noncompliance with nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including but not limited to:

- (1) withholding of payments to the contractor under the contract until the contractor complies, and/or
- (2) cancellation, termination, or suspension of the contract, in whole or in part.

F. **Incorporation of Provisions.** The contractor shall include in provisions paragraph 1 through 5 in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations or directives issues pursuant thereto: The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sections for noncompliance. Provided, however, that, in the event a contractor becomes involved in, or is threatened with litigation with a sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

G. **Breach of Contract Terms - Sanctions.** Any violation or breach of the terms of this contract on the part of the contractor/subcontractor may result in the suspension or termination of this contract or such other action which may be necessary to enforce the rights of the parties of this agreement.

H. Certification - Foreign Trade Restrictions

The Contractor by submitting a proposal on this Contract certifies that it:

- a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against the U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. has not knowingly entered into any contract or subcontract for this project that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country said list.

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Monsignor McClancy Memorial High School

c. has not procured any product nor subcontracted for the supply of any product that is produced in a foreign country said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 59 CFR 30.17, no contract shall be awarded to a Contractor who is unable to certify the above. Thereafter, if the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the MMMHS, cancellation of the Contract at no cost to the Government or the MMMHS.

Further, the Contractor agrees that, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The Contractor shall provide immediate written notice to the MMMHS if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor or Subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the Monsignor McClancy Memorial High School cancellation of the Contract or Subcontract for default at no cost to the Government or the Monsignor McClancy Memorial High School.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

POLICY OF THE DEPARTMENT OF TRANSPORTATION (DOT) REGARDING MINORITY BUSINESS ENTERPRISE

Minority business enterprises shall have the fullest possible participation in the performance of this contract.

Policy - The policy of the Department of Transportation (DOT) that minority business enterprises as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in performance or contracts financed in whole or in part with Federal funds under this agreement. Consequently, the MBE requirements of 49 CFR Part 23 are made part of this agreement.

Objective - The contractor agrees to ensure that minority business enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds provided under this agreement. In this regard, all contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts. Contractors shall not discriminate on the basis of race, color, national origin or sex in the award and performance of DOT assisted contracts.

All bidders*, potential contractors*, or subcontractors* for this DOT assisted contract are hereby notified that failure to carry out the DOT policy and DBE obligation, as set forth in the above, shall constitute a breach of contract which may result in termination of the contract or such other remedy as deemed appropriate by the Monsignor McClancy Memorial High School (recipient) *Includes firms owned and controlled by minorities and firms owned and controlled by women.

Sub-Contract Clauses. All bidders and potential contractors hereby assure that they will include the clauses in all sub-contracts which offer further sub-contracting opportunities.

The apparent successful bidder will be required to submit, at a time before award of the contract designated by Monsignor McClancy Memorial High School (recipient) concerning the Minority Business Enterprise participation in the contract:

- (A) The names and addresses of DBE firms that will participate in the contract;
- (B) A description of the work of each named DBE firm will perform;
- (c) The dollar amount of participation by each named DBE firm.

If the Disadvantaged Business Enterprise participation submitted in response to (A) above does not meet Disadvantaged Business Enterprise goals, information to satisfy the Monsignor McClancy Memorial High School that the bidders made good faith to meet these goals. The successful bidder shall establish and maintain records and

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submit reports, as required, which will identify and assess the efforts made to achieve DBE subcontract goals and other DBE affirmative action efforts.

Meeting Minority Business Enterprise goals or making good faith efforts to do so is a condition of being awarded a DOT assisted contract for which contract goals have been established.

D. ORIGIN OF MATERIALS AND EQUIPMENT

The parties agree that the following provision shall be incorporated into all Construction Contracts for the project:

That contractor and subcontractors shall include the clause "BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS" in all solicitations for contractors and subcontractors in accordance with the "BUY AMERICAN CLAUSE" in APPENDIX A.

*Buy American
Steel*

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submit reports, as required, which will identify and assess the efforts made to achieve DBE subcontract goals and other DBE affirmative action efforts.

Meeting Minority Business Enterprise goals or making good faith efforts to do so is a condition of being awarded a DOT assisted contract for which contract goals have been established.

D. ORIGIN OF MATERIALS AND EQUIPMENT

The parties agree that the following provision shall be incorporated into all Construction Contracts for the project:

That contractor and subcontractors shall include the clause "BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS" in all solicitations for contractors and subcontractors in accordance with the "BUY AMERICAN CLAUSE" in APPENDIX A.

CHAPTER I

GENERAL PROVISIONS

1. DEFINITIONS

To avoid undue repetition, the following terms whenever they occur in this Form of Contract or any of the other papers forming a part of the Contract shall be construed as follows:

"Contract" and "Contract Documents" shall mean, in addition to the Contract Form, the Information for Bidders, the Owner's acceptance, the General Conditions, the Specifications and the Contract Drawings (including written Addenda issued over the name of the Architect), all of which are made part hereof as though herein set forth in full. The Contract as so defined shall constitute the complete and exclusive statement of the terms of the agreement between the parties and the Contract may not be explained or supplemented by course of dealing, usage of trade or course of performance.

"Bidder" and "Contractor" shall mean the person, persons, corporation or other entities submitting this proposal for bidding and contract.

The term "days" or "calendar days" in reference to a period of time shall mean consecutive calendar days, Saturdays, Sundays and holidays, included.

The term "construction site" or words of similar import shall mean the Owner's Monsignor McClancy Memorial High School, for the Monsignor McClancy Memorial High, East Elmhurst, New York 11370. and the vicinity thereof.

"Work" shall mean all structures, equipment, plant, labor, materials (including materials and equipment, if any, furnished by the Owner) and other facilities and all other things necessary or proper for or incidental to furnishing and installing noise suppression materials, systems and components at Monsignor McClancy Memorial High School, the Monsignor McClancy Memorial High, East Elmhurst, New York 113; and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things.

"Work required by the Contract Drawings and Specifications in their present form" or words of similar import shall include all Work required by the Specifications in their present form (whether or not mentioned in the Specifications) and all the Work involved in or incidental to the accomplishment of the results intended by the Specifications and Contract Drawings in their present form (whether or not mentioned therein or shown thereon).

"Extra Work" shall mean Work required by the Owner which is in addition to that required by the Contract Drawings and Specifications in their present form.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings" and except as used in the phrase "Contract Drawings in their present form" shall include any future alterations and revisions of said drawings.

"Owner", "MMMHS" and "Monsignor McClancy Memorial High School" shall mean the Monsignor McClancy Memorial High Chief executive officer or his successor in duties acting personally or through one of his authorized representatives for the purposes of this Contract.

"MMMHS Representative" and "Monsignor McClancy Memorial High Representative" are used interchangeably in the contract documents and shall mean the supervising and design Architects, John Ciardullo Associates, for the administration of this contract in all matters concerning the work.

"Architect" shall mean the Architect, John Ciardullo Associates, John Ciardullo, President, acting personally or his representative acting within the scope of the particular authority vested in him.

The term "Permanent Construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, existing or furnished by the Owner) to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Owner) after the completion of the Work (whether or not they are yet delivered or installed), even though they are subsequently to be removed by others. The terms, "permanent installation", "permanent structure", "permanent materials", and words or similar import shall have the same meaning as the term "permanent construction".

"Subcontractor" shall mean anyone who performs Work (other than or in addition to the furnishing of materials, plant or equipment) at or about the construction site, directly or indirectly for or in behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnishes his own personal labor or his own personal services or who performs Work which consists only of the operation of construction equipment of which he is the lessor.

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"Materialman" shall mean anyone who furnishes materials, plant, or equipment to the Contractor or any subcontractor for use at or about the construction site in the performance of Work.

"Materialman" or "subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor of the parent or of the subsidiary of the Contractor has a substantial interest, provided however, that for the purpose of the clause hereof entitled "Assignments And Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor himself.

"Workingman" or "worker" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"Lump Sum" shall mean the amount stipulated in the clause hereof entitled "General Agreement".

"Notice" shall mean a written notice.

Whenever they refer to the Work or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed" and words of similar import shall mean directed, required, permitted, ordered, designated, or prescribed by the MMMHS Representative; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by, acceptable or satisfactory to the MMMHS Representative; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgement of the MMMHS Representative.

Whenever "including", "such as", or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of things preceding such words.

"Owner" and "Monsignor McClancy Memorial High" shall mean the Monsignor McClancy Memorial High Inc., 71-06 31ST Avenue, East Elmhurst, New York 11370 "Custodian" shall mean the Principal of Monsignor McClancy Memorial High School or his designed.

January 10, 2005

Monsignor McClancy Memorial High School

CONTRACT FORMS

January 10, 2005

Monsignor McClancy Memorial High School

Monsignor McClancy Memorial High School
71-06 31ST AVENUE
East Elmhurst, NY 11370

**BID AND
CONTRACT AGREEMENT**

Soundproofing of Monsignor McClancy Memorial High School, East Elmhurst, N.Y.

Description: Aircraft Noise Abatement Project

Pursuant to and in compliance with the invitation for bids dated January 10, 2005 and the Contract Documents relating hereto, the undersigned hereby submits a binding offer to furnish all plant, labor, materials, supplies, equipment and all other facilities things, matters, and work necessary, proper or incidental to all work required by and in strict accordance with the applicable provisions of the referenced solicitation documents which include, but are not limited to, the plans, specification and all of the addenda thereto issued by the MMMHS and sent to the undersigned by U.S. mail, or other appropriate means or delivered to the Bidder prior to the date of opening the bids, whether received by the undersigned or not; for the total sum indicated on page 3 of this document in the "Base Bid Amount" blocks.

Notice of Award will be mailed, telegraphed or delivered to the successful bidder at its address listed on page three (3):

The Contractor shall commence Work under this Contract at a date to be specified in a Notice to Proceed letter issued by the MMMHS and shall complete Work on the Project, on or before 740 Consecutive Calendar Days, as indicated in Section 00900 - Milestone Schedule of the Specification, from the date in the above referenced Notice to Proceed letter.

Liquidated damages in the amount of five hundred dollars (\$500.00) per day shall be assessed against the Contractor for every calendar day exceeding the calendar days allowed in Section 00900 - Milestone Schedule or times as extended in accordance with the clause entitled "Extensions of Time" of the Specification.

Non-Collusive Bidding Certification:

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies on behalf of its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

- A. The prices in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- B. Unless otherwise required by law, the prices which have been quoted in the bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder to any competitor; and
- C. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Representations of the Bidder:

The Bidder represents and certifies that:

- A. The Bidder is financially solvent and competent to perform the Work;

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- B. That the Bidder is familiar with all Federal, State, or other laws, ordinances, orders, rules and regulations, which may in any way affect the Work;
- C. That the Bidder has carefully examined the Contract documents and the Site of the Work and is satisfied as to the nature and location of the Work, the character quality and quantity of surface and subsurface materials likely to be encountered, the character or type of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other materials or items which may affect the Work;
- D. That the Bidder is an independent contractor and not an employee of the MMMHS. Unless the Contract specifically provides otherwise, the conduct and control of the Work shall be entirely the Bidder's responsibility at all times; and
- E. That Fair and Ethical Business Practices will be strictly adhered to during the life of this contract. During the term of this Contract, neither the Bidder nor any director, partner, principal, officer or employee shall:
1. File with a government office or employee, a written instrument which intentionally contains a false statement or false information;
 2. Intentionally falsify business records;
 3. Give, or offer to give, money or any other benefit to a labor official with intent to influence that labor official with respect to any of his or her acts, duties or decisions as a public servant; and
 4. Give, or offer to give, money or any other benefit to a public servant with intent to influence that public servant with respect to any of his or her acts, duties or decisions as a public servant; and
 5. Knowingly participate in the criminal activities of any organized crime group, syndicate or "family", nor shall any person employed by or associated with any such organized crime "family", syndicate or group participate through criminal means in any of the business affairs of the Bidder.
- F. If it becomes known that any director, partner, officer, employee of the Bidder, or any shareholder owning 5% or more of the Bidder's stock:
1. is subject of investigation involving any violation of criminal law or other federal, state or local law or regulation by any governmental agency; or
 2. is arrested, indicted or named as an unindicted coconspirator in any indictment or other accusatory instrument; or
 3. is convicted of any felony under state or federal law and/or any misdemeanor involving a business related crime.
- the bidder shall immediately notify the MMMHS of any such event.**
- G. That any Subcontract executed pursuant to this Contract will include the representations above as part of the Subcontract Agreement.

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Monsignor McClancy Memorial High School

(Print or Type ALL Information)

The Bidder's authorized representative on this project shall be:

Name:

Address:

Phone:

The following Addenda* are acknowledged by the Bidder

Addendum No.					
Date of issue					

* The terms Addendum & Amendment may be used by the MMMHS interchangeably.

Base Bid Amount:

(Excluding Item 1 work)

\$

Amount in words

Amount-in figures

Item 1 Bid Amount:

\$

Amount in words

Amount in figures

Bid Prepared By:

Firm Name:

Address:

City, State:

Zip:

By:

Name (Print or Type) (Signature)

Title:

(Print or Type)

Telephone:

Date:

Tax ID No.

ACKNOWLEDGMENT OF THE BIDDER

STATE OF NEW YORK

COUNTY OF _____

} ss:

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the representative of the Above Named Bidder and that he/she signed his/her name thereto by order of the Individual, Partners or Board of Trustees of Named Corporation.

Notary Public

January 10, 2005

Monsignor McClancy Memorial High School

This Section to be Completed by the Contractor If a Partnership

AFFIDAVIT IF A PARTNERSHIP

Company: _____

By: _____

Date: _____

(Signature of Partner)

Title: _____

STATE OF _____, County of _____

as:

_____ being duly sworn,
says:

I am a member of _____
of the above named partnership whose name is subscribed to and which executed the foregoing bid. I reside at _____ I have full knowledge of the
matters pertaining thereto.

(Signature of the person who signed the Bid)

STATE OF _____) ss:

COUNTY OF _____)

On the __ day of _____, in the year 20__, before me personally came _____, to
me known and known to me to be a member of the firm _____; described in and who
executed the foregoing instrument; and he/she duly acknowledged to me that he/she executed the same for and in
behalf of said firm for the uses and purposes mentioned therein.

Notary Public

**If a Partnership, bidder must complete both Affidavit and acknowledgment sections and submit this page
with its Bid.**

January 10, 2005

Monsignor McClancy Memorial High School

This Section to be Completed by Contractor, If an Individual

AFFIDAVIT OF CONTRACTOR, IF AN INDIVIDUAL

By: _____ Date: _____
(Signature of Individual)

Title: _____

STATE OF _____, County of _____
as: _____ being duly sworn,
says:

I am the person who submitted the foregoing bid. I reside at _____
_____ I have full knowledge of the
matters pertaining thereto.

(Signature of the person who signed the Bid)

ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF NEW YORK }
COUNTY OF _____ } ss:

On the ___ day of _____, in the year 20___, before me personally came _____, to
me known and known to me to be the person described in and who executed the foregoing instrument, and he/she
duly acknowledged to me that he/she executed the same.

Notary Public

**If an Individual, bidder must complete both Affidavit and Acknowledgment sections and submit this page
with its Bid.**

January 10, 2005

Monsignor McClancy Memorial High School

This Section to be Completed by Contractor, If a Corporation

AFFIDAVIT OF CONTRACTOR, IF A CORPORATION

By: _____

Date: _____

(Signature of Authorized Officer)

Title: _____

STATE OF _____, County of _____
as: _____

being duly sworn,

says:

I am a member of _____ The Above named corporation whose name is subscribed to and which is executed in the foregoing bid. I reside at _____

I have full knowledge of the matters pertaining thereto.

(Signature of the person who signed the Bid)

ACKNOWLEDGEMENT OF CONTRACTOR, IF A CORPORATION

STATE OF NEW YORK }
COUNTY OF _____ } ss:

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the _____ of the corporation described in and which executed the above instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.

Notary Public

If an a Corporation, bidder must complete both Affidavit and Acknowledgment sections and submit this page with its Bid.

January 10, 2005

Monsignor McClancy Memorial High School

THIS SECTION TO BE COMPLETED BY THE MMMHS

OWNER'S AFFIDAVIT

Bid Accepted by Monsignor McClancy Memorial High School

By:

Date:

(Signature of Authorized Officer)

Title:

ACKNOWLEDGMENT OF Monsignor McClancy Memorial High School

STATE OF _____ }
COUNTY OF _____ } ss:

On the ___ day of _____, in the year 20__, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the _____ of the Monsignor McClancy Memorial High School and that he/she signed his/her name thereto by order of the Board of Trustees of said corporation.

Notary Public

January 10, 2005

Monsignor McClancy Memorial High School

Soundproofing Monsignor McClancy Memorial High School

BIDDER'S IDENTIFICATION AND EMERGENCY PHONE NUMBERS

Please provide the following information:

Principal:

Address:

City, State:

Zip:

Signed By:

Title:

Signature

Name - (Print or Type)

(Print or Type)

Telephone:

Emergency Phone #

January 10, 2005

Monsignor McClancy Memorial High School

FORM OF BID BOND

Monsignor McClancy Memorial High
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

(Bidder's Legal Title)

as principal and _____
(Surety's Legal Title)

as Surety, are hereby held and firmly bound unto the Monsignor McClancy Memorial High School, 71-06 31ST Avenue, East Elmhurst, New York in the penal sum of ten percent of the total bid amount indicated on page 3 of Form #1 as the Base Bid Amount, or in the full and just sum of the difference between the total base bid of the Principal and the total base bid of the Bidder submitting the next lowest bid, whichever sum shall be higher, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Executed this ___ day of _____, 20__.

The condition of the above obligation is such that whereas the Principal has submitted to the Monsignor McClancy Memorial High School, 71-06 31ST Avenue, New York, a certain bid, attached hereto and made a part hereof to enter into a Contract in writing for the Soundproofing of Monsignor McClancy Memorial High School.

NOW, THEREFORE,

- (a) If said bid shall be rejected or in the alternate
- (b) If said bid shall be accepted and the Principal shall, for value received, furnish a Performance and Material Payment bond in the amount of 100% of the Contract Price which shall remain in force to cover the three year guarantee period after the completion of construction. as herein stated for the faithful performance of said Contract by the Principal, this Bid bond shall be terminated..

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and said Surety's bond in no way shall be impaired or affected by any extension of time within which the MMMHS may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS THEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by the proper officers, the day and year first set forth above.

(SEAL)

_____(L.S)
Principal

Surety

(SEAL)

By: _____

January 10, 2005

Monsignor McClancy Memorial High School

ACKNOWLEDGMENT OF SURETY

STATE OF NEW YORK }
COUNTY OF _____ } ss:

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the _____ of the corporation described in and which executed the above instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.

Notary Public

If an a Corporation, bidder must complete both Affidavit and Acknowledgment sections and submit this page with its Bid.

January 10, 2005

Monsignor McClancy Memorial High School

~~This Section to be Completed, if a Partnership~~

AFFIDAVIT IF A PARTNERSHIP

Company: _____

By: _____

Date: _____

(Signature of Partner)

Title: _____

STATE OF _____, County of _____

as:

_____ being duly sworn,

says:

I am a member of _____ of the above named partnership whose name is subscribed to and which executed the foregoing bid. I reside at _____. I have full knowledge of the matters pertaining thereto.

(Signature) _____

STATE OF _____) ss:

COUNTY OF _____)

On the _____ day of _____, in the year 20____, before me personally came _____, to me known and known to me to be a member of the firm _____; described in and who executed the foregoing instrument; and he/she duly acknowledged to me that he/she executed the same for and in behalf of said firm for the uses and purposes mentioned therein.

Notary Public

If a Partnership, bidder must submit this page with its Bid.

January 10, 2005

Monsignor McClancy Memorial High School

~~This Section to be Completed. If an Individual~~

AFFIDAVIT IF AN INDIVIDUAL

By: _____ Date: _____

(Signature of Individual)

Title: _____

STATE OF _____, County of _____
as:

says: _____ being duly sworn,

I am the person who submitted the foregoing bid. I reside at _____

_____ I have full knowledge of the matters pertaining thereto.

(Signature) _____

ACKNOWLEDGMENT, IF AN INDIVIDUAL

STATE OF NEW YORK)
COUNTY OF _____) ss:

On the _____ day of _____, in the year 20____, before me personally came _____ to me known and known to me to be the person described in and who executed the foregoing instrument, and he/she duly acknowledged to me that he/she executed the same.

Notary Public

If an Individual, bidder must submit this page with its Bid.

January 10, 2005

Monsignor McClancy Memorial High School

Monsignor McClancy Memorial High School
71-06 31ST AVENUE
EAST ELMHURST, NY 11370

BIDDER'S NET WORTH PACKAGE

Soundproofing of Monsignor McClancy Memorial High School, East Elmhurst, N.Y.

Description: Aircraft Noise Abatement Project

BIDDERS NET WORTH

(INSERT DATA BELOW - ATTACH ADDITIONAL SHEETS AS NECESSARY)

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January 10, 2005

Monsignor McClancy Memorial High School

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL CONTRACTOR QUALIFICATIONS

Instructions

This form shall be completed by all bidders. It should be completed by an officer who is knowledgeable about the past and present operations of the applicant.

All questions must be answered fully and accurately. If necessary, additional pages should be attached. If changed circumstances require different answers subsequent to the submission of this application, the bidder must promptly notify the Monsignor McClancy Memorial High School in writing of such changes.

(Each person identified in response to question B must file a certification, in the form attached, attesting to the truth of the answers and information submitted.)

GENERAL INFORMATION

1. Empt. Tax Id #: _____
2. Name of Firm: _____
3. Street Address: _____
City, St, Zip _____
4. Phone No: _____ Fax No: _____
5. Previous Address (if less than 5 years at current address)
Street Address: _____
City, St, Zip _____
6. Type of Firm: Corporation () Partnership () Limited ()
General ()
Sole Proprietorship ()
Joint Venture () Names: _____
7. Category of Firm: MBE () Certified by: _____
Date: _____
WBE () Certified by: _____
Date: _____

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Monsignor McClancy Memorial High School

8. Principals and Owners of firm (Directors, partners, officers, and holder's of more than 5% interest):

	PERSON/FIRM #1	PERSON/FIRM #2	PERSON/FIRM #3	PERSON/FIRM #4
NAME				
DATE OF BIRTH				
SS#				
TITLE				
YEARS WITH FIRM				
% OF OWNERSHIP				

If Contractor is owned by another firm, provide Employer I.D.# for that firm

9. Type of business (GC, HVAC, etc.)

10. Under what other current or former names has the firm done business?

NAME	LOCATION	YEARS

11. List of comparable projects completed in last 5 years

Owner and Address	Architect of Record	Date Complete	Contact's Phone Number	Project Cost

(Attach additional pages if necessary)

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Monsignor McClancy Memorial High School

12. List all current projects.

Owner and Address	Architect of Record	Start Date	% Complete	Contact's Phone Number	Project Cost

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:
- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| a. Been cited for violation of Labor Law 220? | () | () |
| b. Been cited by OSHA or other safety violations? | () | () |
| c. Been defaulted on any contract? | () | () |
| d. Been suspended, disqualified or barred from bidding? | () | () |
| e. Been deemed unsatisfactory or a poor performer by any governmental agency? | () | () |
| f. Had a contract terminated? | () | () |
| g. Been denied an award of a contract for any reason? | () | () |

Explain any "Yes" answer(s) for question a - g on the opposite side of this page. Attach additional pages if necessary.

14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:
- | | Yes | No |
|--|-----|-----|
| a. Been the subject of and investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency? | () | () |
| b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument? | () | () |
| c. Been convicted of any felony under state of federal law and/or for any misdemeanor involving business-related crimes? | () | () |

Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

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Monsignor McClancy Memorial High School

15. Within the past ten years, has the firm or any person identified in response to question 8:

- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Intentionally falsified business records? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions? | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Engaged in collusive bidding practices? | <input type="checkbox"/> | <input type="checkbox"/> |

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

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Monsignor McClancy Memorial High School
CERTIFICATION BY CONTRACTOR

I certify that, to the best of my knowledge, information and belief, I have supplied full, complete and truthful information and answers to each question in this application. I acknowledge and recognize that this application is being submitted for the purpose of inducing the Monsignor McClancy Memorial High School to approve me/my firm as contractor. I further acknowledge that the MMMHS may, by means of its own choosing, determine the truth and accuracy of all statements made.

A MATERIAL FALSE STATEMENTS OR OMISSION MADE IN CONNECTION WITH THIS APPLICATION WILL RESULT IN DISAPPROVAL OF THE APPLICANT, THEREBY PRECLUDING IT FROM PERFORMING WORK AS THE SUBCONTRACTOR. IN ADDITION, SUCH FALSE SUBMISSION MAY SUBJECT THE PERSON AND/OR ENTITY MAKING THE FALSE STATEMENT TO CRIMINAL CHARGES, INCLUDING NEW YORK STATE PENAL LAW SECTION 175.35 (OFFERING A FALSE STATEMENT FOR FILING) AND 210.40 (SWORN FALSE STATEMENT) AND/OR TITLE 18 U.S.C. SECTIONS 1001 (FALSE OR FRAUDULENT STATEMENT AND 1341 (MAIL FRAUD).

Subscribe and sworn to before me
this ___ day of ___, 200_

Signature

Print Name

Notary Public

Title

Phone #

Date

(EACH PERSON IDENTIFIED IN RESPONSE TO QUESTION 8 MUST FILE A CERTIFICATION, ATTESTING TO THE TRUTH OF THE ANSWERS AND INFORMATION SUBMITTED.)

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Monsignor McClancy Memorial High School
Monsignor McClancy Memorial High School
71-06 31ST AVENUE
EAST ELMHURST, NY 11370

ADDENDA LIST

Soundproofing of Monsignor McClancy Memorial High School, East Elmhurst, N.Y.

Description: Aircraft Noise Abatement Project

Addenda

Number	Description	Date

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Monsignor McClancy Memorial High School

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL, EAST ELMHURST, NEW YORK

REQUEST FOR SUBCONTRACTOR APPROVAL

I hereby request approval of Monsignor McClancy Memorial High School for the following subcontractors:

1. Plumbing and Gas Fitting Contractor:

Name _____

Tax ID #: _____

Estimated Value of Work: \$ _____

2. HVAC Contractor:

Name

Tax ID #: _____

Estimated Value of Work: \$ _____

3. Electrical Contractor:

Name

Tax ID #: _____

Estimated Value of Work: \$ _____

(Bidders Signature)

(Print Name)

Tax I.D. # _____ (Title) (Phone #) (Date)

* Prime Contractor's Name _____
Estimate \$ _____

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SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL SUBCONTRACTOR APPROVAL APPLICATION

Instructions

This application shall be completed by all subcontractors selected by prime contractors. It should be completed by an officer of the subcontractor who is knowledgeable about the past and present operations of the applicant. The completed form must be returned to the prime contractor to be submitted for its approval of the subcontractor.

All questions must be answered fully and accurately. If necessary, additional pages should be attached. If changed circumstances require different answers subsequent to the submission of this application, the subcontractor must promptly notify the Monsignor McClancy Memorial High School in writing of such changes.

LICENSES:

Trade subcontractors must submit a copy of their licenses for the work they intend to do. No subcontractor will be processed without a copy of the licenses.

(Each person identified in response to question B must file a certification, in the form attached, attesting to the truth of the answers and information submitted.)

* This estimate should be the same as the estimate on the request form.

GENERAL INFORMATION

1. Empt. Tax Id #: _____
2. Name of Firm: _____
3. Street Address: _____
City, St, Zip _____
4. Phone No: _____ Fax No: _____

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5. Previous Address (if less than 5 years at current address)

Street Address:

City, St, Zip

6. Type of Firm:

Corporation ()

Partnership ()

Limited ()
General ()

Sole Proprietorship ()

Joint Venture ()

Names:

7. Category of Firm:

MBE

()

Certified by:
Date:

WBE

()

Certified by:
Date:

8. Principals and Owners of firm (Directors, partners, officers, and holder's of more than 5% interest):

	PERSON/FIRM #1	PERSON/FIRM #2	PERSON/FIRM #3	PERSON/FIRM #4
NAME				
DATE OF BIRTH				
SS#				
TITLE				
YEARS WITH FIRM				
% OF OWNERSHIP				

If Subcontractor is owned by another firm, provide Employer I.D.# for that firm

9. Type of business (GC, HVAC, etc.)

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10. Under what other current of former names has the firm done business?

NAME	LOCATION	YEARS

11. Describe the relationship of the firm to the prime contractor. (E.g. subsidiary, affiliate, etc.):

Specific Information

12. List all current projects.

OWNER	LOCATION	DATE STARTED	% COMPLETED	# EMPLOYEES

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:
- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| a. Been cited for violation of Labor Law 220? | () | () |
| b. Been cited by OSHA or other safety violations? | () | () |
| c. Been defaulted on any contract? | () | () |
| d. Been suspended, disqualified or barred from bidding? | () | () |
| e. Been deemed unsatisfactory or a poor performer by any governmental agency? | () | () |
| f. Had a contract terminated? | () | () |
| g. Been denied an award of a contract for any reason? | () | () |

Explain any "Yes" answer(s) for question a - g on the opposite side of this page. Attach additional pages if necessary.

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14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:

- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Been the subject of and investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Been convicted of any felony under state of federal law and/or for any misdemeanor involving business-related crimes? | <input type="checkbox"/> | <input type="checkbox"/> |

Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

15. Within the past ten years, has the firm or any person identified in response to question 8:

- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Intentionally falsified business records? | <input type="checkbox"/> | <input type="checkbox"/> |

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- c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions?

- d. Engaged in collusive bidding practices?

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

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NONSEGREGATED FACILITIES

NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS:

- a. A certification of Nonsegregated Facilities must be submitted prior to the award of a Federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.
- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. **NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.**

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
CERTIFICATION OF NONSEGREGATED FACILITIES**

The Federally-assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not allow his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor agrees that a breach of his certification is a violation of the equal opportunity clause in his contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and any other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or any other reason. The Federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause, and that he will retain such certifications in his files.

**NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR CERTIFICATION FOR NON
SEGREGATED FACILITIES**

A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

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Monsignor McClancy Memorial High School
SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL EAST ELMHURST,
NEW YORK

STATEMENT FOR WORK PERMIT

I understand that there are asbestos containing materials at Monsignor McClancy Memorial High School in East Elmhurst, N.Y. where I am about to perform work. I have toured the Facility with the building Administrator and have been shown all areas known to have asbestos containing materials present.

I fully understand and agree that at any time during the course of my work, if I or persons or personnel under my direction discover a material which is known or suspected to contain asbestos which interferes with the performance of contract work, I will cease all such work immediately and report this condition to the building administrator. At no time will I in any way disturb, damage, attempt to clean up, or repair materials which are known or suspected to contain asbestos.

I further understand that any disturbance of asbestos containing material which I, or persons under my direction, cause could result in contamination of the building and asbestos exposure to building occupants. Any disturbance of asbestos containing materials or asbestos contamination which occurs due to an action taken by myself, or persons under my direction, is fully and solely my responsibility and I will be directly responsible for the cost of repairing the disturbed asbestos containing material and associated building decontamination to the satisfaction of the building owner.

Contracting Firm:

Print or Type Name:

Print or type Title:

Authorized Signature:

Date:

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Monsignor McClancy Memorial High School
DBE PARTICIPATION PLAN

Instructions: The Apparent Low Bidder shall submit this Form to the Architect.

Contract No:		Work Description:		
Contractor:		
Mailing Address:		Contract Amount:		
.....			
Name Address and Phone Number of DBE Subcontractor (Including Name of Contact Person)	DBE (Indicate DBE)	Description of Work, Services to be provided. Where applicable specify "supply" or "install" or both "supply and install"	Approximate Dollar Amount of Subcontract	DBE % of Total Contract Amount

Signature: _____
Bidder

Date: _____

CHAPTER II

ADJUSTMENTS AND PAYMENTS

1. ADJUSTMENTS TO LUMP SUM.

If any Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced, the Architect shall have full authority on behalf of both parties to make such adjustment by way of reduction in the Lump Sum as he may in his sole discretion deem equitable and reasonable, and in making such adjustment, no allowance to the Contractor shall be made for anticipated profits.

The MMMHS Chief Executive Officer shall have authority to agree in writing with the Contractor for adjustments by way of reduction in the Lump Sum in lieu of those for which provision is heretofore made in this numbered clause.

2. COMPENSATION FOR EXTRA WORK.

The MMMHS Chief Executive Officer shall have the authority to agree in writing with the Contractor upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

If such agreement on compensation is not made, and Extra Work be performed, the Contractor's compensation shall be increased by the following amounts and such amounts only:

- (a) In the case of Extra Work performed by the Contractor personally, an amount equal to the actual net cost in money of the labor and materials required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work with such overhead and profit as the Architect deems reasonable.
- (b) In the case of Extra Work performed by a subcontractor, an amount equal to the actual net cost in money of the labor and materials required for such net cost plus such rental for equipment (other than small tools) required for such Extra Work as the Architect deems reasonable, plus 5% of the sum of the foregoing cost, percentage of cost, and rental.

As used in this numbered clause (and in this clause only):

"Labor" means foremen, surveyors, laborers, mechanics and other employees below the rank of superintendent, exclusive of timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Owner's representative's authority to determine what employees of any category are "required for Extra Work and as to the portion of their time allotted to Extra Work: and "cost of labor" means the wages actually paid to and received by such employees plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages. "Employees" as used above means only the employees of one employer.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

"Work day" in reference to an item of equipment, means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Owner on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Architect on the basis of the following, and to all such payments shall be added ten percent (10%) of such rental costs;

- (1) (a) Hourly rental for those items of equipment listed in the "Green Book" (the publication of the Associated Equipment Distributors of 615 West 22nd Street, Oakbrook, Illinois 60523) shall be 100%

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of the applicable rates as listed in said book, reduced to an hourly basis (see formula below).

- (b) Hourly rental for those items of equipment not listed in the "Green Book" shall be 100% of the applicable rates given in the "Blue Book" (published by Equipment Guide Book Co., 3980 Fabian Way, Palo Alto, California 94303), reduced to an hourly basis (see formula below). The editions of these publications to be used shall be those in effect on the date of the actual rental of the equipment. None of the provisions of the "Green Book" or the "Blue Book" shall be deemed referred to or included in this Contract excepting only the aforesaid rates.
- (c) If no listing of rates for the item of equipment is made in either of the foregoing publications, the Architect shall determine the reasonable rate of rental of the particular item of equipment by such other means as he finds appropriate.
- (2)(a) In instances where the rate appearing in the "Green Book" or the "Blue Book" are utilized, the Architect shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:
 - (b) The rate to be applied for an item of equipment used on a particular Extra Work Order shall be the daily, weekly or monthly rates from the foregoing publications based on the total number of workdays or portions thereof that a particular item of equipment is at the construction site for use by the Contractor or subcontractor. The number of work days in the period for each rate shall be as indicated below:

Three work days or less - daily rate.

More than three work days but not more than fifteen workdays - weekly rate.

More than fifteen work days.

The pro rata portion which one hour bears to the applicable rate shall be determined in accordance with the following formula:

Hourly rate based on daily rental	1/8 (100% x daily rental from "Green Book") or 1/8 (100% x daily rental from "Blue Book") or
Hourly Rate based on weekly rate based	1/40 (100% x weekly rental from "Green Book") or 1/40 (100% x weekly rental from "Blue Book") or
Hourly rate based on monthly rental	1/176 (100% x monthly rental from Green Book) or 1/176 (100% x monthly rental from Blue Book)

- (b) If the Architect should determine that the nature or size of the equipment used by the Contractor in connection with Extra Work is larger or more elaborate, as the case may be, than the size or nature of the minimum equipment determined by the Architect to be suitable for the Extra Work, the reasonable rental will not be based upon the equipment used by the Contractor but will be based upon the smallest or least elaborate equipment determined by the Architect to have been suitable for the performance of the Extra Work.
- (3) If the case of the equipment utilized only for Extra Work: (a) in addition to amounts determined as provided in subparagraphs (1) and (2) above, there will be added to the rental as computed above the taxes on the rental actually paid by the Contractor or subcontractor and the reasonable cost of transporting such equipment to and from the construction site, and (b) notwithstanding the number of hours during which such equipment is utilized, the minimum rental therefore will be for a period of eight hours.

In computing the Contractor's compensation insofar as it is based upon Extra Work, and notwithstanding any provision to the contrary appearing in the Green Book and the Blue Book, no consideration shall be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided to cover items of cost and expense to the Contractor of any type whatsoever, including administration, overhead, taxes (other than those enumerated above), clean-up, consumable including gas and oil, drafting including printing or other reproduction), coordination, field measurements, maintenance, repairs, insurance, profit to the Contractor and small tools.

Whenever any Extra Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor

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shall, at the end of each day submit to the Monsignor McClancy Memorial High School Representative (a) daily time slips showing the name and social security number of each workman employed on such Work the number of hours which he is employed thereon, the character of his' duties, and the wages to be paid to him, (b) a memorandum showing the State and Federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefor, and (d) a memorandum of equipment used in the performance of such Work, together with the rental claimed therefor. Such memoranda and time slips are for the purpose of enabling the Monsignor McClancy Memorial High School Representative to determine the amounts to be paid by the Owner under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Extra Work and shall constitute a waiver by the Contractor of claims for payment for such Work. In the event that the Director and the Contractor shall agree in writing upon a lump sum or other compensation for Extra Work in lieu of compensation as provided in the second paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

3. FINAL PAYMENT

After the rendition of the Certificate of Final Completion and upon receipt from the Contractor of such information as may be required, the Architect shall certify in writing to the Owner and to the Contractor the total compensation earned by the Contractor.

If so required, the Contractor shall thereupon (I) certify to the Owner in writing that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by the clause hereunder entitled "Prevailing Rate of Wage" and(ii) furnish to the Owner a detailed sworn statement of all claims, just or unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe thereafter be made on account of the Work.

Within sixty days after issuance of such certificate of total compensation earned (or within sixty days after receipt of the documents required), the Owner shall pay to the Contractor by check the amount stated in said certificate, less all other payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

The acceptance by the Contractor, or by anyone claiming by or through him, of Final Payment shall be and shall operate as a release to the Owner of all claims and of all liability to the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the Owner and others relating to or arising out of the Contract, including claims arising out of breach of contract and claims based on claims of third persons, excepting only his claims for reimbursement for certain sales taxes as hereinbefore provided. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations in connection with this Contract or the Performance or Payment Bond.

The Contractor's agreement as provided in the immediately preceding paragraph above shall be deemed to be based upon the consideration forming part of this Contract as a whole and not to be gratuitous: but in any event even if deemed gratuitous and without consideration, such agreement as provided in the immediately preceding paragraph above shall nevertheless be effective. Such release shall include all claims, whether or not in litigation and even though still under consideration by the Owner or the Architect. Such release shall be effective notwithstanding any purported reservation of right by the Contractor to preserve such claim. The acceptance of any check designated as "Final Payment" or bearing similar designation shall be conclusively presumed to demonstrate the intent of the Contractor that such payment was intended to be accepted as final, with the consequences provided in this numbered clause, notwithstanding any purported reservation of rights.

The Contractor agrees that he shall not be entitled to, and hereby waives any right he might otherwise have to, and shall not seek any judgement whether under this Contract or otherwise for any such Final Payment or for an amount equivalent thereto or based thereon, or for any part thereof, if such judgement would have the effect of varying, setting aside, disregarding or making inapplicable the terms of this numbered clause or have the effect in any way of entitling the Contractor to accept such Final Payment or an amount equivalent thereto or based thereon or any part thereof other than

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in the same fashion as a voluntary acceptance of a Final Payment subject to all the terms of this Contract including this numbered clause, unless and until the Contractor should obtain a judgement on any claim arising out of or in connection with this Contract (including a claim based on breach of contract) for an amount not included in said Final Payment. In any case in which interest is allowable on the amount of the Final Payment, such interest shall be at the rate of 2% per annum for the period, if any, in which such interest is due.

4. WITHHOLDING OF PAYMENTS.

If (1) the Contractor fails to perform any of his obligations under this contract or any other agreement between the Owner and the Contractor (including his obligation to the Owner to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Owner, or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor is made against the Owner or (3) any subcontractor under this Contract or any other agreement between the Owner and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor or if in the opinion of the Director any of the aforesaid contingencies is likely to arise, then the Owner shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Director may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Director may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Owner to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Owner does not intend to exercise its right to such contingency. Neither the above provisions for the rights of the Owner to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Owner shall create any obligation of any kind to such materialman, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the Rights of the Owner under this numbered clause.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Owner, the Owner shall pay the Contractor interest thereon at the rate of 2% per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

CHAPTER III

PROVISIONS RELATING TO TIME

1. TIME FOR COMPLETION.

The Contractor shall complete the performance of all Work under this Contract as follows:

Monsignor McClancy Memorial High School complex - Complete all Work required within 740 calendar days after receipt of the Notice to Proceed.

The Contractor shall not commence the performance of the Work until the later of the following dates:

- (a) If a Performance and Payment Bond is required, the date of receipt by him or notice from the Owner that the Performance and Payment Bond furnished by him is satisfactory;
- (b) The date of receipt by him of notice from the Owner that the insurance procured by him pursuant to the insurance clause is satisfactory, as evidenced by the certificate to be furnished in accordance with said insurance clause.

The time for completion shall not be extended on account of the time required to furnish the documents referred to in subparagraphs (a) and (b) above, but the Owner shall give notice to the Contractor within ten days after receipt of the Performance and Payment Bond or certificate of insurance as to whether or not such bond or insurance is satisfactory.

The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. The Contractor guarantees that he can and will complete the performance of the Work within the time hereinbefore stipulated or within the time as extended in accordance with the clause hereof entitled "Extensions of Time".

2. EXTENSIONS OF TIME.

The time above provided for the completion of any part of the Contract shall be extended (subject, however, to the provisions of this numbered clause) only if in the opinion of the Architect the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

1. Such cause is beyond the Contractor's control and arises without his fault;
2. Such cause comes into existence after the opening of Proposals on this Contract and neither was nor could have been anticipated by investigation before such opening.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated before the opening of such Proposals on this Contract except to the extent that the actual monthly average temperature varies from a temperature and except to the extent that the actual number of days of precipitation (of 0.1 inch or more) per month exceeds a number equal to two plus the normal number of precipitation per month.

In any case, the variations in temperature and precipitation described in the immediately preceding sentence will be cause for an extension of time only if occurring between the actual time of commencement of the Work at the construction site and the time for completion stipulated in the clause hereof entitled "Time for Completion" (or such time as extended as provided for herein). In the case of portions of months the number of days will be pro-rated by the Architect. Temperature and precipitation shall be as recorded by the U.S. Weather Bureau in its publications, including that entitled "Local Climatological Data with Comparative Data", which is applicable to the area in which the Work is to be performed, and in the case of precipitation, the normal number of days of precipitation (of 0.1 inch or more) per month as abstracted from the aforementioned publications are as follows:

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Month

Monsignor McClancy Memorial High School
Normal Number of days per month on which precipitation exceeds 0.1"

January	7
February	7
March	8
April	7
May	6
June	6
July	5
August	7
September	6
October	6
November	7
December	7

In any event, even though a cause of delay meets all the above conditions, an extension shall be granted only to the extent that (I) the performance of the Work is actually and necessarily delayed and (ii) the effect of such cause cannot be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling), whether before or after the occurrence of the cause of delay, and an extension shall not be granted for a cause of delay which would not have affected the performance of the Contract were it not for the fault of the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include subcontractors and materialmen, whether or not in privity of contract with the Contractor, and employees and others performing any part of the Contract and all the foregoing shall be considered as agents of the Contractor.

The period of any extension of time shall be that necessary to make up the time actually lost, subject to the provisions of this numbered clause, and shall be only for the portion of the Contract actually delayed. The Architect may defer all or part of his decision on an extension may be rescinded or shortened if it subsequently is found that delays can be overcome or reduced by the exercise of reasonable precautions, efforts and measures.

As a condition precedent to an extension of time, the Contractor shall give written notice to the Architect within 48 hours after the time when he knows or should know of any cause which might under any circumstances result in delay for which he claims or may claim an extension of time (including those causes which the Owner is responsible for or has knowledge of), specifically stating that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at the time, the nature and expected duration of the delay and its effect on the various portions of the Contract. Since the possible necessity for an extension of time may materially alter the scheduling, plans and other actions of the Owner, and since, with sufficient opportunity, the Owner might if it so elects attempt to mitigate the effect of a delay for which an extension of time might be claimed, and since merely oral notice may cause disputes as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations and failure of the Contractor to give written notice as above required shall be a conclusive waiver of an extension of time.

It shall in all cases be presumed that no extension, or further extension, of time is due unless the Contractor shall affirmatively demonstrate to the satisfaction of the Architect that it is. To this end the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, the foregoing presumption shall be deemed conclusive.

3. DELAYS TO CONTRACTOR.

As between the Contractor and the Owner, the Contractor assumes the risk of all suspensions of, or delays in performance of the Contract, regardless of the length thereof, arising from all causes whatsoever, whether or not relating to this Contract, including wrongful actions or omissions of the Owner, its Chief executive officer, agents, employees and contractors, except only to the extent, if any, that compensation or an extension of time may be due as expressly provided for elsewhere in this Contract for such suspension or delays, and, subject only to such exception, the Contractor shall bear the burden of all costs, expenses and liabilities which he may incur in connection with such suspensions or delays, and all such suspensions, delays, costs, expenses and liabilities of any nature whatsoever, whether or not provided for

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in this contract, shall conclusively be deemed to have been within the contemplation of the parties.

Notwithstanding any provisions of this Contract, whether relating to time of performance or otherwise, the Owner makes no representation or guaranty as to when the construction site or any part thereof will be available for the performance of the Contract or as to whether conditions at the construction site will be such as to permit the Contract to be performed thereon without interruption or by any particular sequence or method or as to whether the performance of the Contract can be completed by the time required under this Contract or by any other time.

Wherever in connection with this Contract it is required, expressly or otherwise, that the Owner shall perform any act relating to the Contract, including making available or furnishing any real property, materials, or other things, no guaranty is made by the Owner as to the time of such performance and the delay of the Owner in fulfilling such requirement shall not result in liability of any kind on the part of the Owner except only to the extent, if any, that an extension of time or compensation may be due as expressly provided for elsewhere in this Contract.

4. CANCELLATION FOR DELAY.

If in the performance of the Contract or any portion of it shall, in the opinion of the Monsignor McClancy Memorial High School, be materially delayed, whether or not through the fault of the Contractor, by any cause which affects the Contractor's ability to perform the Contract without affecting to the same degree the Owner's own ability to perform it, either directly or through others, the Owner shall have the right at any time during the existence of such delay to cancel this Contract as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Contract arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Owner. In the event of such cancellation, no allowance shall be made for anticipated profits.

5. LIQUIDATED DAMAGES.

Liquidated damages in the amount of five hundred dollars (\$500.00) per day shall be assessed against the Contractor for every calendar day exceeding the calendar days allowed in Section 00900 - Milestone Schedule or times as extended in accordance with the clause entitled "Extensions of Time" of the Specification.

CHAPTER IV

CONDUCT OF CONTRACT

1A. AUTHORITY OF THE MMMHS

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner in which the Owner acting through the Monsignor McClancy Memorial High School chief executive officer, deems best, the MMMHS shall have absolute authority to determine what is or is not necessary or proper for or incidental to the portion thereof specified in the clause hereof entitled "General Agreement" and the Contract Drawings and Specifications shall be deemed merely his present determination on this point. In the exercise of his authority, he shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required of them in their present form, even though of a totally different character from that now required; and to vary, increase and diminish the character, quantity and quality of, or to countermand any Work now or hereafter required. Such variation, increase, diminution or countermanding need not be based on necessity but may be based on convenience.

If at any time it shall be, from the viewpoint of the Owner impractical or undesirable in the judgement of the MMMHS chief executive officer to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Owner, he shall have authority to suspend performance of any part or all of the Contract until such time as he may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Owner, impracticable or undesirable in the judgement of the MMMHS chief executive officer to proceed with or continue the performance of the Contract or any part thereof for reasons beyond the control of the Owner, he shall have authority to cancel this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations arising out of portions already performed, but no allowance shall be made for anticipated profits.

1. AUTHORITY OF THE MMMHS REPRESENTATIVE.

To resolve all disputes and to prevent litigation the parties to this Contract authorize John Ciardullo, acting personally, to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and Claims of a type which are barred by the provisions of this Contract) and his decision shall be conclusive, final and binding on the parties. His decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Contract.

All such questions shall be submitted in writing by the Contractor to the MMMHS Representative, acting personally, for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Owner relating to any such questions the Contractor must allege his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information may be introduced or relied upon in such an action that has not been so presented to the MMMHS Representative personally. Neither the requirements of this paragraph nor the time necessary for compliance therewith, however, shall affect the time when the Contractor's cause of action shall be deemed to have accrued for the purposes of any statute controlling actions against the Owner, and the time of such accrual shall be determined without reference to this paragraph.

In performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the MMMHS Representative and shall perform the Contract to the satisfaction of the MMMHS Representative at such times and places, by such methods and in such manner and sequence as he may require, and the Contract shall at all stages be subject to his inspection. The MMMHS Representative shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Contract Drawings, Specifications and any orders for Extra Work. The Contractor shall employ no equipment, materials, methods or workers to which the MMMHS Representative objects, and shall remove no materials, equipment, or other facilities from the construction site without permission. Upon request, the MMMHS Representative shall confirm in writing any oral order, direction, requirements or determination.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgement, discretion or determination of the MMMHS Representative shall control or in which the Contractor shall be performed to his satisfaction or subject to his inspection, shall not imply that only the matters of a nature similar to those enumerated shall be so governed and performed.

2. NOTICE REQUIREMENTS.

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No claim against the Owner shall be made or asserted in any action or proceeding at law or in equity, and the Contractor shall not be entitled to allowance of such claim, unless the Contractor shall have complied with all requirements relating to the giving of written notice of the information with respect to such claim as provided in this numbered clause. The failure of the Contractor to give such written notice and information as to any claim shall be conclusively deemed to be a waiver by the Contractor of such claim, such written notice and information being conditions precedent to such claim. As used herein "claim" shall include any claim arising out of, under or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractors Proposal and claims of a type which are barred by the provisions of this Contract) for damages, payment or compensation of any nature or for extension of any time for performance of any part of this Contract.

The requirements as to the giving of written notice and information with respect to claims shall be as follows:

1. In the case of any claims for extra work, extension of time for completion, idle salaried workers and equipment, or any other matter for which requirements are set forth elsewhere in this Contract as to notice and information, such requirements shall apply.
2. In the Case of all other types of claim, notice shall have been given to the MMMHS Representative, personally, as soon as practicable, and in any case, within 48 hours, after occurrence of the act, omission, or other circumstance upon which the claim is or will be based, stating as fully as practicable at the time all information relating thereto. Such information shall be supplemented with further information as soon as practicable after it becomes or should become known to the Contractor, including daily records showing all costs which the Contractor may be incurring or all other circumstances which will affect any claim to be made, which records shall be submitted to the MMMHS Representative, personally.

The above requirements for notices and information are for the purpose of enabling the Owner to avoid waste of funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects of circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expense or circumstances as they occur, and the requirements herein for such notice and information are essential to this Contract and are in addition to any notice required by statute with respect to suits against the Owner.

The above referred to notices and information are required whether or not the Owner is aware of the existence of any circumstances which might constitute a basis for a claim and whether or not the MMMHS Representative has indicated it will consider a claim.

No act, omission, or statement of any kind shall be regarded as a waiver of any of the provisions of this numbered clause or may be relied upon as such waiver except only a written statement signed by the chief executive officer of the MMMHS expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more particularly no discussion, negotiations, considerations, correspondence, or requests for information with respect to a claim by any officer, employee or agent of the Owner shall be construed as a waiver of any provision of this numbered clause or as authority or apparent authority to effect such a waiver.

Since merely oral notice or information may cause disputes as to the existence or substance thereof, and since notice, even if written, to other than the Owner's representative above designated to receive it may not be sufficient to come to the attention of the representative of the Owner with the knowledge and responsibility of dealing with the situation only notice and information complying with the express provisions of this numbered clause shall be deemed to fulfill the Contractor's obligation under this Contract.

3. EXTRA WORK ORDERS.

No Extra Work shall be performed except pursuant to written orders of the MMMHS expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, exclusive of Extra Work expressly authorized by the chief executive officer of the MMMHS, the chief executive officer of the MMMHS shall have authority to order any item of Extra Work, if the cost thereof to the Owner together with the cost of all other Extra Work previously ordered and not expressly authorized as aforesaid will not be in the aggregate in excess of the sum specified in the letter of acceptance of the Contractor's Proposal as the limit on such authority to order extra work; provided, however, that Extra Work in excess of such aggregate amount may be ordered by the MMMHS as above provided to the extent expressly authorized in a writing signed by the MMMHS indicating the approval of funds for the Extra Work is available and approved by the MMMHS.

In the absence of such an order signed by the MMMHS, if the MMMHS Representative shall direct, order or require any Work whether orally or in writing, which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith, but shall within 24 hours give written notice thereof to the MMMHS and MMMHS Representative,

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stating why he deemed it to be Extra Work, and shall moreover furnish to the MMMHS Representative time slips and memoranda as required by the clause hereof entitled "Compensation for Extra Work". Said notice, time slips and memoranda are for the purpose of affording to the MMMHS an opportunity to verify the Contractor's claim at the time and (if he desires so to do) to cancel promptly such order, direction or requirement of the MMMHS Representative, of affording the MMMHS Representative an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Owner an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction, order or requirement of the MMMHS Representative does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

4. PERFORMANCE OF EXTRA WORK.

The provisions of this Form of Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

5. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Owner upon delivery at the construction site or upon being especially adapted for use in or as a part of the permanent construction, whichever may first occur, subject however to the Contractor's assumption of risk under the clause hereof entitled "Risks Assumed by Contractor", subparagraph (a).

The Contractor shall promptly furnish to the Owner such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Owner.

6. ASSIGNMENTS AND SUBCONTRACTS.

Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without express consent in writing of the Owner shall be void and of no effect as to the Owner, provided, however, that the Contractor may subcontract portions of the Work to such persons as the MMMHS Representative may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Owner a certification or, if a certification cannot be made, a statement by such a person, partnership or corporation to the same effect as a certification or statement required from the Contractor pursuant to the clauses of the "Information For Bidders" entitled "Certification of No Indictment, Conviction, Suspension, Debarment or Termination" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee". All further subcontracting by any subcontractor shall also be subject to such approval of the MMMHS Representative. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without cost to the Owner, of a surety bond guaranteeing payment by the subcontractors of claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of any part of the Work.

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor of any of his obligations; no subcontract, no approval of any subcontractor and no act or omission of the Owner or the MMMHS Representative shall create any rights in favor of such subcontractor and against the Owner; and as between the Owner and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes be deemed to be agents of the Contractor. Moreover, all subcontracts and all approvals of subcontractors shall be and, regardless of their form, shall be deemed to be conditioned upon performance by the subcontractor in accordance with this Contract; and if any subcontractor shall fail to perform the Contract to the satisfaction of the MMMHS Representative, the MMMHS Representative shall have the absolute right to rescind his approval forthwith and to require the performance of the Contract by the Contractor personally or through other approved

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subcontractors.

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7. CLAIMS OF THIRD PERSONS.

The Contractor undertakes to pay all claims lawfully made against him by subcontractor, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to Cause all subcontractors to pay all such claims lawfully made against them.

8. CERTIFICATES OF PARTIAL COMPLETION.

If at any time prior to the rendition of the Certificate of Final Completion been satisfactorily completed, and if in the judgement of the MMMH construction is not necessary for the operations of the Contractor but w Owner for other purposes, the MMMHS Representative may render to writing to that effect (herein called a Certificate of Partial Completion), may take over and use the portion of the permanent construction describ therefrom.

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The rendition of a Certificate of Partial Completion shall not be constr time to complete the portion of the permanent construction to which it the same in accordance with the terms of this Contract. Moreover, the by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

AFFIRMATIVE ACTION

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9. CERTIFICATE OF FINAL COMPLETION.

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Architect shall render to the Owner and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all work under this Contract, including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Architect, and certifying the date as of which it was so completed.

The rendition of the Certificate of final completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

10. AFFIRMATIVE ACTION PROGRAMS.

The Contractor assures that it will undertake an affirmative action program as required by 14 CRF Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CRF Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this Subpart. The Contractor assures that it will require that its covered sub-organizations provide assurances to the Contractor that they will undertake affirmative action programs and that they will require assurances from their sub-organizations, as required by 14 CRF Part 152, Subpart E, to the same effect.

11. PREVAILING RATE OF WAGE.

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of Wage and supplements for others engaged in the same trade or occupation in New York as determined by the U.S. department of Labor Davis Bacon Wage Determinations or the City of New York Office of the Comptroller Prevailing Wage Schedule whichever is higher.

The provision of this numbered clause are inserted in this Contract for the benefit of such workmen, laborers and mechanics as well as for the benefit of the Owner; and if the Contractor or any subcontractor shall pay or provide any such workmen, laborer or mechanic less than the rates of wages and supplements above described, such workman, laborer or mechanic shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he is entitled under this clause. If such workmen, laborer or mechanic is employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of at least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and

7. CLAIMS OF THIRD PERSONS.

The Contractor undertakes to pay all claims lawfully made against him by subcontractor, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to Cause all subcontractors to pay all such claims lawfully made against them.

8. CERTIFICATES OF PARTIAL COMPLETION.

If at any time prior to the rendition of the Certificate of Final Completion, any portion of the permanent construction has been satisfactorily completed, and if in the judgement of the MMMHS Representative such portion of the permanent construction is not necessary for the operations of the Contractor but will be immediately useful to and is needed by the Owner for other purposes, the MMMHS Representative may render to the Owner and to the Contractor a certificate in writing to that effect (herein called a Certificate of Partial Completion), and thereupon or at any time thereafter the Owner may take over and use the portion of the permanent construction described in such Certificate and exclude the Contractor therefrom.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

9. CERTIFICATE OF FINAL COMPLETION.

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Architect shall render to the Owner and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all work under this Contract, including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Architect, and certifying the date as of which it was so completed.

The rendition of the Certificate of final completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

10. AFFIRMATIVE ACTION PROGRAMS.

The Contractor assures that it will undertake an affirmative action program as required by 14 CRF Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CRF Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this Subpart. The Contractor assures that it will require that its covered sub-organizations provide assurances to the Contractor that they will undertake affirmative action programs and that they will require assurances from their sub-organizations, as required by 14 CRF Part 152, Subpart E, to the same effect.

11. PREVAILING RATE OF WAGE.

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of Wage and supplements for others engaged in the same trade or occupation in New York as determined by the U.S. department of Labor Davis Bacon Wage Determinations or the City of New York Office of the Comptroller Prevailing Wage Schedule whichever is higher.

The provision of this numbered clause are inserted in this Contract for the benefit of such workmen, laborers and mechanics as well as for the benefit of the Owner; and if the Contractor or any subcontractor shall pay or provide any such workmen, laborer or mechanic less than the rates of wages and supplements above described, such workman, laborer or mechanic shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he is entitled under this clause. If such workmen, laborer or mechanic is employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of at least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and

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supplements) such workman, laborer or mechanic shall have a direct right of action against the Contractor. The Owner shall not be a necessary party to any action brought by the any workman, laborer or mechanic to obtain a money judgement against the Contractor or any subcontractor pursuant to this numbered clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates of wages or providing higher supplements than the minimum hereinbefore prescribed; and nothing herein contained shall be construed to constitute a representation or guarantee that the Contractor or any subcontractor can obtain workmen, laborers and mechanics for the minimum hereinbefore prescribed.

12. MINIMUM WAGE RATES.

At the direction of the Federal Aviation Administration, the attention of bidders is directed particularly to the Schedule of Minimum Wage Rates attached to the Contract and made a part hereof.

The minimum wage rates as established by the Secretary of Labor are subject to change at any time before the award of the Contract except that if the change is made within 30 days after the bids are opened, or ninety days after the date of the wage decisions, whichever is earlier, the change is not effective. Such a change is necessary in order to comply with a decision of the U.S. Department of Labor.

13. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
- (b) The Contractor shall send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under clauses (a) through (h) (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negotiation of the Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, sex, color or national origin and that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this Contract, shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commission on Human Rights of such failure or refusal.
- (c) The Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses (a) and (b) and such provisions of the States laws against discrimination as the State Commission for Human Rights shall determine.
- (d) The Contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin.
- (e) The Contractor shall comply with the provisions of Sections 291-299 of the Executive law and Civil Rights Law, shall furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive law, and shall permit access to his books, records and accounts by the State Commission For Human Rights, the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.
- (f) This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State, the Port Authority, or other public authority or agency of the State, as well as the

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Owner, until he has satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor by the Commission and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designed. Such Sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.

- (g) The Contractor shall include the provision of clauses (a) through (f) in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such subcontract or purchase order as the Owner may direct including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction of the Owner, the Contractor shall promptly notify the chief executive officer of the Owner, requesting him to intervene and protect the interests of the Owner.
- (h) The provisions of this numbered clause which refer to the "State Commission for Human Rights", the "Attorney General" and the "Industrial Commissioner" are inserted in this Contract for illustrative purposes only, for the benefit of the Owner, the Contractor shall substitute the applicable State of New York commissions and authorities who shall have a direct right of action against the Contractor to effectuate the intent of this clause.

CHAPTER V

WARRANTIES MADE AND LIABILITY ASSUMED
BY THE CONTRACTOR

1. CONTRACTOR'S WARRANTIES.

The Contractor represents and warrants:

- (a) That he is financially solvent, that he is licensed by the State of New York, experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and if the Contractor be a corporation, that it is authorized to perform this Contract;
- (b) That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examination, analysis, inspection and investigations was adequate;
- (c) That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform it in strict accordance with such provisions and requirements;
- (d) That no officer, agent, consultant or employee of the Owner is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder;
- (e) That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Owner, its officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith; and

Moreover, the Contractor accepts the conditions at the Construction site as they may eventually be found to exist and warrants and represents that he can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at his own cost and expense, anything in this Contract to the contrary notwithstanding.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Owner as to the feasibility of performance of this Contractor any part thereof. Moreover, the Owner does not warrant or represent either by issuance of the Contract Drawings and Specifications or by any provision of this Contract as to time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

The Contractor further represents and warrants that he was given ample opportunity and time and by means of this paragraph was requested by the Owner to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Owner consent to enter into this Contract and without such provisions, the Owner would not have entered into this Contract.

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2. RISKS ASSUMED BY THE CONTRACTOR.

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, the Owner, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Owner subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs (a) through (c) below:

- (a) The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Owner;
- (b) The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Owner on account injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Owner premises, including claims against the Contractor or the Owner for the payment of workers' compensation, whether such claims, fines or penalties are made or assessed and whether such injuries, damage, loss and liability are sustained at any time both before and after the rendition of the Certificate of Final Completion;
- (c) The risk of loss or damage to any property of the Contractor, and of any claims made against the Contractor or the Owner for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Owner premises or the vicinity thereof.

The Contractor shall indemnify the Owner against all claims described in sub-paragraphs (b) and (c) above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State Laws, or any other applicable law. Unless a claim is one which the Contractor is not required to indemnify the Owner against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

The provisions of this numbered clause shall also be for the benefit of the MMMHS's, officers, agents, employees and consultants of the Owner so that they shall have all the rights that they would have under this numbered clause if they were named at each place above at which the Owner is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Owner may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

3. NO THIRD PARTY RIGHTS.

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by the use of the words "Benefit" or "direct right of action".

CHAPTER VI

RIGHTS AND REMEDIES

1. RIGHTS AND REMEDIES OF THE OWNER.

The Owner shall have the following rights in the event the chief executive officer shall deem the Contractor guilty of a breach of any term whatsoever of this Contract

- (a) The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through other contractors.
- (b) The right to cancel this Contract as to any or all of the Work yet to be performed.
- (c) The right to specific performance, an injunction or any other appropriate remedy.
- (d) The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Owner indicating that he cannot or will not perform any one or more of his obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract.

Inasmuch as this Contract is made in reliance upon the Contractor's personal qualifications, the Owner shall also have the rights set forth above in the event the Contractor shall become insolvent or bankrupt or if his affairs are placed in the hands of a receiver, trustee or assignee for the benefit of creditors.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Owner shall not be deemed to limit any other rights or remedies which the Owner would have in the absence of such enumeration; and no exercise by the Owner of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

2. RIGHTS AND REMEDIES OF THE CONTRACTOR.

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Owner, the Contractor expressly agrees that no default, act or omission of the Owner shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the MMMHS Representative shall so direct) to suspend or abandon performance.

3. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR.

In the exercise of its right to take over and complete Work as agent for the Contractor, for which provision is made in the clause hereof entitled "Rights and Remedies of Owner, the Owner shall have the right to take possession of and use or permit the use of any and all plant, materials, equipment and other facilities provided by the Contractor for the purpose of the Work and the Contractor shall not remove any of the same from the site of the Work without express permission. Unless expressly directed to discontinue the performance of all Work, the Contractor shall continue to perform the remainder thereof in such manner as in no way will hinder or interfere with the portions taken over by the Owner.

In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the MMMHS Representative shall separately state the amount of Work performed by the Owner as agent for the Contractor, shall credit the Owner the cost thereof, and shall credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Owner, or vice versa as the case may be. If such difference is in its favor, the Owner may deduct it from the monies due the Contractor, and if such monies be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall be constitute part of the Final Payment.

The exercise by the Owner of its right to take over the work shall not release the Contractor or his sureties from any of his or their obligations or liabilities under this Contract or the Performance or Payment Bond.

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4. NO ESTOPPEL OR WAIVER.

The Owner shall not be precluded or estopped by an acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Architect, or any officer, agent or employee of the Owner, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Owner shall not be precluded or estopped notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with this Contract, and any monies which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Owner, the Architect, or any officer, agent, or employee of the Owner nor any permission or direction to continue with the performance of the Work, nor any performance by the Owner of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the MMMHS, its officers, agents, or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Owner may be entitled because of any breach thereof, excepting only a resolution of its Officer's, providing expressly for such waiver. No cancellation rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any damages to which the Owner may be entitled because of such breach. Moreover, no waiver by the Owner of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

CHAPTER VII

MISCELLANEOUS

1. PROVISIONS OF LAW DEEMED INSERTED.

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion.

2. INVALID CLAUSES.

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

3. NON-LIABILITY OF THE OWNER REPRESENTATIVES.

Neither the MMMHS nor any officer, representative, agent, or employee thereof shall be charged personally by the Contractor with any liability or held liable to him under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach hereof.

4. SERVICE OF NOTICES ON THE CONTRACTOR.

Whenever provision is made in this Contract for the giving of any notice to the Contractor, its deposit in any post office or post office box, enclosed in a postpaid wrapper addressed to the Contractor at his office, or its delivery to his office, shall be sufficient service thereof as of the date of such deposit or delivery. Until further notice to the Owner the Contractor's office will be that stated in his Proposal. Notices may also be served personally upon the Contractor; or if a corporation, upon any officer, director, or managing or general agent; or if a partnership upon any partner.

5. MODIFICATION OF CONTRACT.

No change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be changed therewith or his duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Contract expressly provided for in this Contract shall be effective as so provided.

The authority of any person to order Extra Work or to alter the Contract Drawings and Specifications does not include the power cancel, modify or waive any provision of the Form of Contract.

6. TAX EXEMPTION.

The MMMHS is exempt from payment of state, local taxes, and sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies incorporated into completed Work. These taxes are not to be included in bids. This exception does not apply to tools, machinery, equipment or other property leased by or to the Contractor or to supplies and materials which, even though they are consumed, are not incorporated into the completed Work, and the Contractor and Subcontractors shall be responsible for and pay any and all applicable taxes, including sales and compensation use taxes, on said leased tools, machinery equipment or other property and upon all said unincorporated supplies and materials.

B. The Contractor shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use said certificates or other documentation as required by law, rule or regulation.

7. INSURANCE

A. The insurance required shall be written on a per occurrence basis with a company licensed to do business in the State of New York and otherwise acceptable to the MMMHS for not less than the limits of liability set forth below, and shall include contractual liability endorsements and business interruption insurance. All policies of insurance shall be submitted to the MMMHS, for approval prior to the start of any work.

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- B. Contractor and its subcontractors for work on this project shall obtain and carry the following insurance:
1. Workers Compensation:
Statutory Employer's Liability: \$500,000.
 2. Comprehensive General Liability Insurance:
including contractual liability endorsement and claims for damages because of bodily injury including personal injury, sickness or disease, or death of any of the Contractor's or Subcontractor's employees or any other person and specifically covering all claims. Bodily and Personal Injury: \$1,000,000 Per Occurrence.
 3. Automobile Insurance: covering all contractor's and employees vehicles on site and off site on company business in the amount of 1,000,000 per occurrence.
 4. Excess Umbrella Liability Insurance: covering all of the foregoing in the amount of \$5,000,000.
- C. Contractor shall furnish original or duplicate original policies of insurance to the MMMHS and one copy of insurance certificates for each policy required herein to the MMMHS and any additional insured; specifically set forth evidence of all coverage required to the satisfaction of the MMMHS; and furnish to the MMMHS and all additional insured copies of any endorsements that are subsequently issued. The Monsignor McClancy Memorial High School, shall be additional insured as well as the Architect and the PA/FAA by the endorsements of Contractor's public liability, property damage and automobile liability insurance policies.
- D. All insurance required hereby shall be written, without the inclusion of any defense costs within the limits of liability, without deductible, and shall name the MMMHS its officers, principals, partners agents, officers and employees, the Architect, Engineers, and any additional person or entity having an interest in the site as an additional insured thereunder. If by the terms of an insurance coverage required hereunder, a mandatory deductible is required, in the event of a paid claim, Contractor shall be responsible for the deductible amount.
- E. Contractor shall bear and be liable for all loss or damage which may happen to said Work or materials at any time prior to the to the completion and acceptance by the MMMHS except for loss or damage caused by the negligence of the MMMHS. The responsibility of Contractor for damage to the Work caused by vandalism shall cease on the date of final completion. Contractor shall and will during the progress of the Work protect and secure said Work from damage and injury, and shall and will repair all such damage and injury, if any, and fully complete and deliver said Work and materials to the MMMHS within the time herein provided and according to the terms and provisions of this contract.
- F. Contractor shall ensure that all Subcontractors comply with the insurance provisions provided herein for Contractor. Contractor shall be responsible to determine and enforce extent of insurance required of its Subcontractors.
- G. Contractor shall maintain insurance that will include coverage for Builder's Risk as well as all insurance required by law to maintain including but not limited to Automobile Liability, Worker's Compensation and Disability Insurance.
- H. Contractor shall by its actions or inactions cause any insurance policies to be canceled or permit them to lapse prior to the issuance of the final Certificate of Completion for the Work at the last Project, and all insurance policies shall include clauses to the effect that (i) the policy shall not be canceled, changed or non-renewed or coverage thereunder reduced until (30) thirty days after the MMMHS and all additional insured have received written notice thereof. Written notice shall be sent by registered mail to Contractor and the MMMHS (ii) the act or omission of the named insured or additional insured will not invalidate the policy as to the other additional insured, and (iii) such insurance shall be primary and non-contributory.
- I. Compliance with the foregoing requirements as to insurance shall not relieve Contractor for liability set forth in other provisions of this contract.

CHAPTER VIII

SPECIAL PROVISIONS

1. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS.

These Specifications relate generally to furnishing and installing noise suppression materials including but not limited to windows, glazing, insulation, weather stripping, trim, and accessories required or necessary for a complete installation, as well as all the necessary ventilating equipment, pipe, ducts, duct insulation, gypsum board components or accessories indicated for the Noise Abatement Work at Monsignor McClancy Memorial High School in East Elmhurst, New York.

These Specifications require the doing of all things necessary or proper for or incidental to the matter referred to in the immediately preceding paragraph, as shown on the Contract Drawings in their present form. In addition, all things shown on the Contract Drawings even though not expressly mentioned in these Specifications, all things mentioned in these Specifications even though not shown on the Contract Drawings, and all things not specified either on the Contract Drawings, or in the Specifications but involved in the carrying out of their intent and in complete and proper execution of the matter referred to in the immediately preceding paragraph are required by these Specifications; and the Contractor shall perform the same as though they were specifically delineated, described and mentioned.

In case of a conflict between a requirement contained in the Specifications and a requirement of the Contract Drawings, the MMMHS Representative shall be the sole arbiter of the requirements of the Contract which shall control.

Some Sections of the Specifications make cross references to construction specified in other Sections of the Specifications, including cross references intended to avoid duplication by the bidders in quoting prices and to point out some of the necessity for coordination. Such cross references are not intended to be complete or all inclusive, and the Contractor shall ascertain for himself both the nature and extent of all construction which may be related to that under each Section of the Specifications whether or not expressly referred to.

Some Sections of the Specifications contain a general description of the construction under such Sections. Such description is merely a very general one and is not intended to outline the construction required by the Specifications and Contract Drawings. Accordingly, such description shall be construed as in aid of and supplemental to, but in no case limiting, impairing or decreasing, the requirements elsewhere set forth with respect to the construction to be performed.

The Contractor's compensation for all construction whatsoever referred to in the Specifications and Contract Drawings in their present form, even though the need for certain items of such construction may be contingent upon future occurrences or determinations or upon other circumstances, shall be deemed to be included in the Lump Sum contained in the Form of Contract unless the Specifications or Contract Drawings expressly state that compensation in addition to such price shall be payable for such items of construction. The express statement in some cases to the effect that certain construction shall be without additional cost to the MMMHS not impair the application of this paragraph in other cases.

The distribution of various parts of the construction among the Divisions and Sections of the Specifications or among the Contract Drawings is not intended as a representation of the most effective or logical method of organizing, scheduling or subcontracting the construction, and the Contractor shall ascertain for himself how to do so unless expressly prescribed in this Contract.

In all cases the provisions of the second paragraph of this numbered Section shall control.

2. AVAILABLE PROPERTY.

Subject to the conditions elsewhere herein, those areas to be occupied by the permanent construction will be made available to the Contractor upon the commencement of his first operations at the construction site, together with the areas indicated on Contract Drawings.

The Contractor shall daily clean up the areas made available to him so that they are free at all times of refuse, rubbish, scrap material or debris.

3. OPERATIONS OF OTHERS.

During the time that the Contractor is performing the Contract, other persons will be engaged in other operations on or about the construction site including operations of the MMMHS, as well as vehicular traffic and pedestrians around the perimeter of the school, all of which shall remain uninterrupted.

The Contractor shall so plan and conduct his operations as to work in harmony with others engaged at the construction site and not to delay, endanger or interfere with the operations of others (whether or not specifically mentioned above),

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all to the best interests of Monsignor McClancy Memorial High School, the MMMHS, and the public and as may be directed by the MMMHS Representative.

4. CONTRACTOR'S MEETINGS.

The Contractor shall conduct job progress and coordination meetings with subcontractors in his field office every two weeks, or frequently as job conditions require or the MMMHS Representative may request. The MMMHS Representative shall be notified and, at his option, may attend these meetings. The Contractor shall prepare and distribute minutes to the MMMHS Representative and the subcontractors within forty-eight (48) hours of the day following the meetings.

The Contractor shall attend separate job progress and coordination meetings with the MMMHS Representative every two weeks, or at times otherwise requested by the MMMHS Representative.

5. DELIVERY OF MATERIALS AND RUBBISH REMOVALS.

Delivery of materials and removal of materials or rubbish from the school building shall be made during the hours of 2:30 p.m. to 5:00 p.m. and only through the locations specified below, except as otherwise permitted by the MMMHS Representative.

6. ORDER OF WORK

Work in storerooms, mechanical spaces, and other such spaces not occupied by students or faculty during the hours of Work specified elsewhere, and not limited to restrictions specified in the Order of Work, shall be accomplished at the earliest possible date consistent with the normal progress of the Work.

The Contractor shall take into consideration the fact that the sessions of the school must be continued as usual during progress of the Work. All construction operations affecting normal school operations shall be coordinated with the MMMHS Representative.

The Contractor is responsible for all damage to the existing buildings and adjacent property due to his operations and shall provide and maintain adequate protection against such damage.

The premises shall not be used as a work shop to the detriment of the portion thereof.

Desks, tables, benches and other furniture and equipment shall not be used as workbenches; neither shall materials and furniture be piled thereon without proper protection.

Provide decking on floors, steps, platforms, pavements and roofs where subject to damage from heavy traffic.

Protect doors and door jambs when conveying rubbish and materials.

The Contractor is responsible for all injury to persons due to his operations and shall provide and maintain adequate protection against such injury.

Provide guards, rails, barricades, fences, sidewalk sheds, catch platforms, decking, night lighting and other devices as required by B.O.C.A. Building Code and OSHA as further required to provide adequate protection.

Protect sidewalks and curbs around the premises so that they may be safely used by the public at all times.

Provide barricades around Work areas as required to prevent students and other unauthorized persons from entering therein.

Exterior openings in the buildings' envelopes relating to the Work shall not be left unprotected. The Contractor shall construct weatherproof barriers to prevent infiltration of water and illegal entry.

When the moving of furniture, shades, clocks, pictures, maps, plaster casts and other articles or fixtures is made necessary in the performance of the Work the removing, resetting and relocating together with the necessary repairing, shall be carefully done as a part of the Work of this contract. All removed work shall be protected.

There shall be no interruptions to normal building services during the occupancy of the building by students or faculty, unless otherwise permitted by the High School Principal.

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7. CONDITIONS AND PRECAUTIONS.

No vehicles of the Contractor, his subcontractors nor his employees will be permitted to park in or on School property, except for construction vehicles which will be permitted to park at the construction site during the times when the Work is being performed.

Material or construction which must be left in place between working periods shall be securely fastened in a manner approved by the MMMHS Representative so as not to be a hazard.

The Contractor shall take all precautions necessary for protection of persons, traffic, and property resulting from concrete or plaster fragments, dust and debris from concrete or plaster removal, abrasive blasting or other operations, and shall erect tarpaulins or other protective enclosures as required and approved by the MMMHS Representative.

The Contractor shall provide sound suppression devices on gasoline and diesel powered construction equipment and on pneumatic tools as required to maintain noise exposures below the limits specified in Section 1926.52 of the Safety and Health Standards of the U.S. Department of Labor, Occupations Safety and Health Administration, as approved by the MMMHS Representative. The Contractor shall maintain the sound suppression devices in good working condition throughout the length of their use and adjustments and repairs shall be made by him as required to maintain the noise level, as approved by the MMMHS Representative.

No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the Work and shall take such precautions as will accomplish such end, without undue interference with the public or the operations of the Schools.

8. CONTRACT DRAWINGS.

The Contract Drawings which accompany and form a part of these Specifications bear the general title "The Soundproofing - Monsignor McClancy Memorial High School Complex, East Elmhurst, New York" and are separately numbered and entitled as follows:

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL DRAWING LIST

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GENERAL

- T1.01 GENERAL NOTES, ABBREVIATIONS, SYMBOLS AND DRAWING LIST
- T1.02 GENERAL NOTES

LANDSCAPE DRAWINGS

- L1.00 EXISTING SITE PLAN
- L1.01 PHASE I CONSTRUCTION PLAN
- L1.02 PHASE II CONSTRUCTION PLAN
- L1.03 SITE DETAILS
- L1.04 EXTERIOR EGRESS STAIR
- L1.05 CHILLERS FENCING AND CONCRETE PAD

ARCHITECTURAL DRAWINGS

- A1.01 BASEMENT AND FIRST FLOOR REMOVAL PLANS
- A1.02 SECOND AND THIRD FLOOR REMOVAL PLANS
- A1.03 PARTIAL ROOF REMOVAL PLAN, DETAILS AND MALL CEILING REMOVAL DETAILS
- A1.04 PIPE CHASE REMOVAL DETAILS
- A1.05 PIPE CHASE REMOVAL DETAILS
- A1.06 FIRST FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.07 FIRST FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.08 SECOND FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.09 SECOND FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.10 SECOND FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.11 THIRD FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.12 THIRD FLOOR INTERIOR REMOVAL ELEVATIONS
- A1.13 THIRD FLOOR INTERIOR REMOVAL ELEVATIONS

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- A2.01 BASEMENT AND FIRST FLOOR PLANS
- A2.02 SECOND AND THIRD FLOOR PLANS
- A2.03 ROOF PLAN
- A2.04 FIRST AND SECOND FLOOR REFLECTED CEILING PLANS
- A2.05 REFLECTED CEILING PLANS & Mall CLASSROOM ACOUSTIC CEILING DETAILS
- A2.06 MULTIPURPOSE ROOM ACOUSTIC CEILING DETAILS
- A2/07 SUSPENDED ACOUSTICAL CEILING DETAILS
- A2.08 GYPSUM BOARD SOFFIT CEILING DETAILS
- A2.09 GYPSUM BOARD SOFFIT CEILING DETAILS
- A2.10 DUCT & MECHANICAL EQUIPMENT CURB DETAIL

- A3.01 31ST AVENUE ELEVATION
- A3.02 ATHLETIC FIELD ELEVATION
- A3.03 EXTERIOR ELEVATIONS
- A3.04 EXTERIOR MALL ELEVATIONS
- A3.05 BUILDING SECTIONS
- A3.06 FIRST FLOOR ROOM ELEVATIONS
- A3.07 FIRST FLOOR ROOM ELEVATIONS
- A3.08 SECOND FLOOR ROOM ELEVATIONS
- A3.09 SECOND FLOOR ROOM ELEVATIONS
- A3.10 SECOND FLOOR ROOM ELEVATIONS
- A3.11 THIRD FLOOR ROOM ELEVATIONS
- A3.12 THIRD FLOOR ROOM ELEVATIONS
- A3.13 THIRD FLOOR ROOM ELEVATIONS

- A4.01 WINDOW ELEVATIONS, WINDOW AND LOUVER SCHEDULE
- A4.02 WINDOW ELEVATIONS
- A4.03 WINDOW REMOVALS
- A4.04 WINDOW REPLACEMENTS

- A5.01 MALL CLASSROOM DOOR REMOVALS - ELEVATIONS & DETAILS
- A5.02 DOOR REPLACEMENT ELEVATIONS, DETAILS AND DOOR SCHEDULE
- A5.03 DOOR REPLACEMENT DETAILS

- A6.01 VERTICAL PIPE CHASE PLANS
- A6.02 HORIZONTAL PIPE CHASE DETAILS
- A6.03 HORIZONTAL PIPE CHASE AND UNIT VENTILATOR DETAILS
- A6.04 TYPICAL MASONRY DUCT CHASE AT MULTIPURPOSE ROOM

- A7.01 ELEC/MECH ROOM ADDITION PART PLANS AND DETAILS
- A8.02 ELEC/MECH ROOM ADDITION ELEVATIONS AND SECTIONS
- A7.03 ELEC/MECH ROOM ADDITION STAIR DETAILS
- A7.04 ELEC/MECH ROOM ADDITION ROOF AND PARAPET DETAILS

- A8.01 CLASSROOM UNIT #3 PLANS
- A8.02 CLASSROOM UNIT #3 ELEVATIONS
- A8.03 CLASSROOM UNIT #3 SECTIONS, AND SECTION DETAILS
- A8.04 STAGE AREA SECTIONS AT CLASSROOM UNIT #3
- A8.05 CLASSROOM UNIT #3 DETAILS

- S1.01 STRUCTURAL NOTES, SYMBOLS AND ABBREVIATIONS
- S1.02 ELEC/MECH ROOM ADDITION STRUCTURAL FOUNDATION PLANS AND DETAILS
- S1.03 ELEC/MECH ROOM ADDITION STRUCTURAL FRAMING PLANS AND DETAILS
- S1.04 MULTIPURPOSE ROOM PARTIAL STRUCTURAL FRAMING PLAN
- S1.05 STRUCTURAL STEEL DETAILS
- S1.06 STRUCTURAL STEEL DETAILS

ELECTRICAL DRAWINGS

- E0.01 SYMBOL LIST, ABBREVIATIONS AND GENERAL NOTES
- E2.01 BASEMENT AND FIRST FLOOR PLANS
- E2.02 SECOND AND THIRD FLOOR PLANS
- E2.03 ROOF PLANS AND STAIR BULKHEAD PLANS
- E2.04 LIGHTING PLANS (REFLECTED CEILING)

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- E6.01 SINGLE LINE DIAGRAMS AND SCHEDULES
- E6.02 SINGLE LINE DIAGRAM FIRE ALARM SYSTEM
- E6.03 SITE PLAN & ELECTRIC SERVICE ROOM LAYOUT

MECHANICAL DRAWINGS

- M0.01 HVAC GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
- M1.00 HVAC BASEMENT FLOOR REMOVAL PLANS
- M1.01 HVAC BASEMENT AND FIRST FLOOR REMOVAL PLANS
- M1.02 HVAC SECOND AND THIRD FLOOR REMOVAL PLANS
- M1.03 HVAC ROOF PLAN REMOVAL PLANS
- M2.00 HVAC BASEMENT FLOOR PLAN
- M2.01 HVAC BASEMENT AND FIRST FLOOR PLANS
- M2.02 HVAC PART FIRST FLOOR PLAN
- M2.03 HVAC SECOND AND THIRD FLOOR PLANS
- M2.04 HVAC ROOF AND PART SITE PLANS
- M2.05 HVAC M.E.R. PLAN
- M2.06 CHILLED WATER/HOT WATER RISER DIAGRAM
- M2.07 HVAC FLOW DIAGRAMS
- M2.08 HVAC PIPE SHAFT DETAILS
- M2.09 HVAC SECTIONS AND ELEVATIONS
- M2.10 HVAC SCHEDULES
- M2.11 HVAC SCHEDULES
- M2.12 HVAC DETAILS I
- M2.13 HVAC DETAILS II
- M2.14 HVAC DETAILS III
- M2.15 HVAC DETAILS IV

PLUMBING DRAWINGS

- P0.01 PLUMBING SYMBOLS, ABBREVIATIONS, NOTES AND DETAILS
- P2.01 PLUMBING BASEMENT AND FIRST FLOOR PLANS
- P2.02 PLUMBING SECOND FLOOR PLAN
- P2.03 PLUMBING PART 1ST FLOOR PLAN, PART 2ND FLOOR/ROOF PLAN

The Contract Drawings do not show all of the details of the Work and are intended only to illustrate the character and extent of the work to be performed. Accordingly, they may be supplemented during the performance of the Work by the MMMHS Representative or by the Contractor subject to the approval of the MMMHS Representative, to the extent necessary to further illustrate the Work.

An indication on the Contract Drawings of the existence, nature or location of any utilities, structures, obstructions, conditions, or materials does not constitute a representation as to the conclusions to be drawn therefrom nor a representation that no others exist in addition to those shown, even in the same location: nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

After the Contract has been executed, the Contractor will be furnished six copies of the Specifications and Contract Drawings without charge.

9. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES.

The Contractor shall make all working drawings or shop drawings which may be required in addition to the Contract Drawings or in addition to any other drawings which the MMMHS Representative may issue in supplementing the Contract Drawings. As used in this Contract, the terms "working drawings" and "shop drawings" are used interchangeably.

the specific requirements elsewhere set forth in the Specifications for furnishing working drawings for any particular portion of the Contract shall not limit the obligation of the Contractor to furnish working drawings for any other portion when so required by the MMMHS Representative.

In preparing the working drawings, the Contractor shall adopt a sheet of any reasonable size which best suits his needs, but having adopted such size, all sheets thereafter of a similar nature be of the same size as that adopted. Each drawing shall have a margin on the top, bottom and right hand-side of one-half inch and on the left-hand side of one and one-half inches.

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Approval of drawings or catalogue cuts which are inconsistent with the requirements of the Contract Drawings and Specifications shall not be deemed to waive or change such requirements or to relieve the Contractor of his obligations to perform such requirements, unless the MMMHS Representative shall expressly and specifically state that he is waiving or changing such requirements, such statements to be effective only if in a writing separate from the approval, identifying the requirements being waived or changed.

The Contractor shall submit a schedule of the dates on which he will furnish such working drawings and catalog cuts in accordance with instructions transmitted with the MMMHS's acceptance of the Proposal. The completed schedule shall be delivered to the MMMHS Representative for his approval within ten days after receipt by the Contractor of the acceptance of the Proposal.

All drawings, data, and other papers of any type whatsoever, whether in the form of writing, figures, or delineations, which are prepared in connection with this Contract and submitted to the MMMHS shall become the property of the MMMHS.

10. SUBSTITUTIONS.

Where a brand name is specified or mentioned herein or called for or mentioned on the Contract Drawings and the phrases "similar and equal to" or "approved equal" are used in connection therewith, substitutions for the brands or makes specifically named may nevertheless be made only in accordance with the Section hereof entitled "Materials and Labor" and Section 01630 of the Contract Specifications.

11. MATERIALS AND LABOR.

Materials and labor (workmanship) shall in every respect be in accordance with the best modern practice and whenever the Contract Drawings, Specifications or directions of the MMMHS Representative admit of a doubt as to what is permissible or fail to note the quality of any construction, the interpretation which calls for the best quality is to be followed. Materials to be installed as part of the permanent construction shall be new materials except as may be otherwise herein specifically required. Materials and workmanship shall be free from defects of any kind.

Wherever on the Contract Drawings or in the Specifications a particular brand or make of material or equipment is shown or specified (and whether or not with the words "or approved equal", "similar and equal to" or words of similar import), any other brand or make which, in the sole opinion of the MMMHS Representative, is equal to that shown or specified may be substituted (except where specifically stated otherwise), but only after being submitted to and expressly approved by the MMMHS Representative. Notwithstanding such approval, however, the Contractor assumes the risk such other brand or make is not equal to that shown or specified and if at any time the substitute shall appear not to be so equal he shall replace the substitute and reimburse the MMMHS for any loss occurring on account of the substitute failing to be so equal. Such submission to the MMMHS Representative shall be made only by including the requested substitution in the list of materials required to be submitted to the MMMHS Representative in accordance with the Section hereof entitled "Inspections and Rejections" within forty five calendar days after the receipt of the acceptance of the Contractor's Proposal. After the approval of said list, no substitutions will be permitted, except that a brand or make named in the Specifications may be submitted for approval in lieu of a brand or make on said list. Any such submission shall not imply or impose on the MMMHS Representative, any obligation whatsoever to discuss, disclose or justify the reasons for his opinion, approval or rejection. Furthermore, the approval of any other brand or make shall not in any way entitle the Contractor to additional compensation therefore, but the MMMHS Representative may make such reduction in the Contractor's compensation as may be equitably warranted because of such approval in lieu of the standard.

The construction called for by the Contract Drawings and Specifications may be adapted for a particular brand or make of material or equipment. Therefore, if any construction not required by the Contract Drawings or Specifications in their present form is necessary or desirable because of the use of another brand or make of material or equipment (even though such other brand or make is approved by the MMMHS Representative or is mentioned in the Contract Drawings or the Specifications and stated to be acceptable), such construction shall be furnished or performed by the Contractor at his expense and subject to the approval of the MMMHS Representative.

In case of a discrepancy between a description or requirement in the Contract Drawings and Specifications for any material or equipment and a catalogue number or other designation for the same material or equipment (even though stated to be acceptable), the description or requirements shall control.

In various paragraphs of these specifications, references may be made to certain standard or tentative specifications or requirements of various organizations. Unless otherwise stated, these references are to be construed as referring to the specifications and requirements in effect on the date set for opening bids upon the present Contract.

The right to use all patented materials, compositions of matter, manufactures, apparatus, appliances, processes of

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manufacture or types of construction required in connection with this Contract shall be obtained by the Contractor without separate compensation whether the same is patented before, during or after the performance of the Contract.

The Contractor shall indemnify the MMMHS, the architect, Port Authority and FAA against and save it harmless from all loss and expense incurred in the defense, settlement or satisfaction of any claims in the nature of patent infringement arising out of or in connection with the MMMHS use, in accordance with the preceding paragraph of this numbered clause, of such patentable subject matter or patented material, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction. If requested by the MMMHS and if notified promptly in writing of any such claim, the Contractor shall conduct all negotiations with respect to and defend such claim without expense to the MMMHS.

12. INSPECTIONS AND REJECTIONS.

All work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the MMMHS Representative, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the MMMHS Representative or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture or methods of construction will or may be so inspected. The MMMHS Representative shall be the judge of the quality and suitability of the Work, construction, processes of manufacture or methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the MMMHS Representative.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the MMMHS Representative may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the MMMHS Representative may designate, the Contractor shall secure for the MMMHS Representative and his Inspectors free access to all parts of such factories or plants and shall furnish to the MMMHS Representative three copies of purchase orders, two copies of mill shipping statements, and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days notice to the MMMHS Representative of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the MMMHS Representative shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

13. MANUFACTURER'S CERTIFICATIONS.

Where materials and equipment are required by these Specifications to conform to certain standard or tentative specifications or requirements of any organizations, including American Society for Testing and Materials, American National Standards Institute, Association Rules for Grading Lumber, Federal Specifications, National Electrical Manufacturers Association, American Association of State Highway and Transportation Officials, American Water Works Association and the International Municipal Signal Association, the Contractor shall furnish to the MMMHS Representative the manufacturer's written certification that each of the materials or equipment conforms to the foregoing standard or tentative specifications. The certification shall be delivered to the MMMHS Representative prior to the installation of the materials to which it refers. Such certifications shall not be binding on or conclusive on the MMMHS and may be rejected at any time by the MMMHS Representative if incorrect, improper or otherwise unsatisfactory in his opinion.

14. NO RELEASE OF CONTRACTOR.

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Owner not the Contractor. Any approval of such things shall be construed merely to mean that at that time the MMMHS Representative knows of no good reason for objecting thereto. No such provision for testing or

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inspection, no omission of testing or inspection, and no approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty, obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

15. ERRORS AND DISCREPANCIES.

If, in the performance of the Contract, the Contractor discovers any errors or omissions in the Contract Drawings or Specifications, or in the marks, lines and elevations furnished by the Owner in the construction undertaken and executed by him, he shall immediately notify the MMMHS Representative and the MMMHS Representative shall promptly verify the same.

If with the Knowledge of such error or omission prior to the correction thereof, the Contractor proceeds with any construction affected thereby, he shall do so at his own risk and the construction so done shall not be considered construction done under and in performance of this Contract unless and until approved and accepted.

16. ACCIDENT AND FIRST AID PROVISIONS.

The Contractor shall promptly report in writing to the MMMHS Representative and to the Owner all accidents whatsoever arising out of or in connection with the performance of the Contract, whether on or adjacent to the construction site, which result in death, injuries, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damage is caused, the accident shall be reported immediately by telephone to both the Owner and MMMHS Representative or their respective representatives.

The Contractor shall provide at the construction site such equipment and medical facilities as are necessary to supply first aid service in case of accident, to any who may be injured in the progress of the Contract. He shall have standing arrangements for the removal and hospital treatment of any person who may be injured while engaged in the performance of the Contract.

If any claim is made by a third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the Owner and the MMMHS Representative, giving full details of the claim.

17. SAFETY AND SANITARY PROVISIONS.

In the performance of the Contract, the Contractor shall exercise every precaution to prevent injury to persons or damage to property.

He shall, at his own expense, place such watchmen, design such barricades, fences and railings, give such warnings, display such lights, signals and signs, exercise such precaution against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper, or as may be directed.

The Contractor shall employ only such persons as are physically fit and are free from contagious or communicable diseases.

The Contractor shall provide and maintain all necessary toilet and washroom facilities for the use of his workers and those of his subcontractors. Such facility shall be located as directed by the MMMHS Representative within the Contractor's area as indicated on the Contract Drawings. No other toilet or washroom shall be used. The toilet and washroom facility shall be cleaned and maintained by the Contractor as follows:

1. Clean Daily.
2. Wash when required, at least once every week.
3. Replace burned out light bulbs.
4. Furnish and maintain toilet paper and towels as directed.
5. Should any damage or defacement occur, make repairs and take corrective measures promptly as directed by the MMMHS Representative.

He shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyances to occupants of the school, nearby property and the general public will be reduced to a minimum.

The bringing of intoxicating substances onto the construction site and the use and consumption of intoxicating substances at the construction site are prohibited. It shall be the responsibility of the Contractor to insure that all

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employees of the Contractor and of all sub-contractors, materialmen and any other persons under contract to or under the control of the Contractor shall comply with the provisions of this paragraph.

The Contractor shall daily clean up all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. Before the Certificate of Final-Completion of Work will be issued, the Contractor shall remove all surplus materials, falsework, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and shall put the construction site in a neat, orderly condition.

In the event the Contractor encounters at the construction site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material, the Contractor shall immediately stop work in the area affected and report the condition in writing to the MMMHS Representative. Work in the affected area shall not thereafter be resumed by the Contractor except upon written order to that effect from the MMMHS Representative.

Within 15 days of the acceptance of his Proposal, the Contractor shall submit to the MMMHS Representative, for his review and approval, the Contractor's Safety Program which shall comply with all applicable Federal, State, Municipal, local and departmental laws and shall include, among other things, the designation by the Contractor of a qualified person to administer such Safety Program.

18. FIRE PROTECTION.

All reasonable precautions for fire protection shall be exercised during the performance of the Contract. An adequate approved system for promptly extinguishing fires shall be provided at all times. Smoking is not permitted within the school buildings at any time.

Fire alarm signals, equipment and water lines shall be continually inspected, accessible and ready for instant use. The operation of each school's fire alarm telegraph, interior fire alarm system, gongs, bells and telephones shall not be interfered with. When these systems are taken off line, the contractor shall pay for restarting, resetting, and or any other charges resulting from the shut down.

East Elmhurst Fire Department Regulations shall govern the storage and use of flammable materials. Flammable materials and fire producing equipment shall not be left about the premises in locations accessible to students.

Except where the MMMHS Representative permits the storage of flammable materials in approved containers, the Contractor is not permitted to store any petroleum products or any other flammable materials on the construction site. During interruptions of the Work flammable mixtures shall be stored in designated locations only or removed entirely from the site.

Contractors using open flame or spark producing tools or equipment such as heating kettles on roofs, blow torches and welding rods shall provide fire guards to maintain a fire watch over the operation of these items at all times when in use.

19. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS.

The Contractor shall furnish to the MMMHS Representative at the end of each day, a memorandum showing for that day (a) the construction performed, (b) The equipment used, (c) a statement of any unusual happening that occurred, and (d) the number of workers in each trade classification that were employed. Such memorandum shall not be deemed to be a substitute for the notices, time slips, memoranda or other data required under the clauses of the Form of Contract relating to compensation for Extra Work.

20. LAWS AND ORDINANCES.

The Contractor shall comply with all the provisions of Federal, State, City, local and departmental laws, ordinances, rules, regulations and orders which would affect the Contract and the performance thereof. The Contractor shall apply for and pay for all and any permits required by law or by the preceding sentence.

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21. IDENTIFICATION.

No person will be permitted on or about the construction site without a pass, permit, or identification badge as required in the provisions of the Division 1 of these specifications and as approved by the MMMHS Representative. The Contractor shall provide such passes, permits or identification badges for his employees, sub-contractors and material persons whenever necessary. Identification badges shall be worn in a conspicuous and clearly visible position by all employees of the Contractor whenever they are working at the construction site.

22. SIGNS.

No advertisement or sign, other than the name and address of the Contractor, will be permitted on any fences, temporary structures or elsewhere on the construction site and such advertisement will be permitted only upon the condition that it is first approved by the MMMHS Representative. In any event, the advertisement shall not exceed two feet by four feet in overall dimensions.

23. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE.

At a readily accessible point on or near the construction site, the Contractor shall maintain a field office provided with a telephone.

During the performance of any Work at the construction site, the Contractor shall have a representative thereat who shall be authorized by the Contractor to receive and put into effect promptly all orders, directions and instructions from the MMMHS Representative. The Contractor's representative shall be provided, at all times, with a conformed copy of this Contract and a set of the Contract Drawings.

Orders and directions may be given orally by the MMMHS Representative and shall be received and promptly obeyed by the Contractor or his representative or any superintendent, foreman or other employee of the Contractor who may have charge of the particular part of the Work in relation to which the orders or directions are given. A confirmation in writing of such orders or directions will be given by the MMMHS Representative when so requested by the Contractor.

24. SURVEYS.

The Contractor shall furnish to the MMMHS Representative without additional compensation therefor, any and all information and data regarding points, lines, grades, elevations and other survey information established by the Contractor or required by the MMMHS Representative during the performance of the Contract.

25. TEMPORARY STRUCTURES.

The Contractor shall design, furnish and construct all barricades, fences, staging, falsework, scaffolding and other temporary structures required in the performance of the Contract, whether or not of the type enumerated. All such temporary structures shall be of adequate strength for the purposes for which they are constructed and the Contractor shall maintain them in satisfactory condition. Although the designs for such structures are to be prepared by the Contractor, they shall nevertheless be submitted to the MMMHS Representative for his approval before being used. Neither such approval, however, nor any requirements of the MMMHS Representative, the Specifications or the Contract Drawings shall relieve the Contractor of his responsibility for the design, construction and use of the temporary structures or from any obligations and risks imposed on him under this Contract, and any such approval or requirements shall be deemed merely to relate to minimum standards and not to indicate that the temporary structures are adequate or that they meet the Contractor's obligations under this Contract. Where required such structures shall be painted either an approved dark color paint and shall be repainted whenever necessary during the period that the Contract is being performed.

Upon completion of all other Work, under this Contract, the temporary structures shall be removed from the construction site and disposed of by the Contractor.

26. UTILITY SERVICES.

Except for water and electricity usage as described elsewhere in Division 1 the Contractor shall make arrangements for securing at his own expense any other services which may be required for the performance of the Contract.

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27. FINAL INSPECTION.

When, in the opinion of the Contractor, the Construction is completed and ready for Final Inspection, he shall so notify the MMMHS Representative in writing and the MMMHS Representative will give said construction (including any portions with respect to which Certificates of Partial Completion have been issued) a minute and thorough inspection. Before any Certificate of Completion will be issued, any defects or omissions noted on this inspection must be corrected by the Contractor.

28. GUARANTEES.

The Specifications may provide for certain guarantees of portions of the permanent construction. These guarantees are intended for the greater assurance of the Owner and not as a substitute for rights which the Owner might otherwise have. Although such guarantees shall be enforceable as provided, neither any requirement of this Contract with respect to guarantees by the Contractor nor any guarantee given to the Contractor or Owner by any manufacturer shall be deemed to be a limitation upon any rights which the Owner would have, either expressed or implied, in the absence of such guarantees.

All work on this project shall be guaranteed by the Contractor for a period of not less than three years from the date of final completion except for items specifically stated otherwise elsewhere in the Contract Documents

29. PROGRESS SCHEDULE AND ANALYSIS OF BID.

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a progress schedule for the approval of the MMMHS Representative. The progress schedule shall show the dates for the commencement and completion of the different portions of the Contract. After the approval of the Schedule the Contractor shall maintain and periodically update it at intervals determined by the MMMHS Representative. No changes shall be made therein without the written approval of the MMMHS Representative. Approval of any progress schedule shall not limit, affect or impair the Contractor of his obligation to complete the Contract by the time(s) required in the Form of Contract, even though the schedule approved may be inconsistent with such completion, and in accordance with all other provisions of the Contract, nor shall it constitute a representation by the Owner that the Contractor will be able to proceed or complete in accordance with the schedule.

The MMMHS Representative shall have the right at any time when in his judgement the Work is not proceeding in accordance with the approved progress schedule, or at any time it is likely that the Work may not be completed by the time(s) required in the Form of Contract even though the Contractor is proceeding in accordance with the approved progress schedule, to order the Contractor, without additional compensation, to employ additional shifts, to increase the number of workers employed, to use additional plant or equipment, or to take such other steps as may be required to assure the completion of the various operations within the times allotted therefor in the approved schedule or by the aforesaid completion time(s).

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a detailed analysis of the bid including a trade payment breakdown of all items included in the Work and required time and material costs including overhead and profit for payment purposes. This breakdown shall be submitted to the MMMHS Representative for approval. The Contractor shall revise the breakdown as directed by the MMMHS Representative and accept it as approved for payment purposes only.

30. ASBESTOS

It has been determined that some asbestos bearing materials are present in the public school complex structure. All asbestos affecting the work has been removed or encapsulated. The Contractor shall not enter rooms in which no work is to be performed, nor disturb or remove any asbestos containing material from any areas of the structures, nor include any cost for asbestos removal in the Bid Proposal for the Work.

The Contractor shall not deviate from dimensions nor details indicated in the Contract Drawings. Deviations from the above dimensions or details which result in the disturbance of known asbestos related materials will require that such materials shall be removed in accordance with all local and State Laws at the sole expense of the Contractor. In addition the Contractor shall indemnify the MMMHS from any and all actions resulting from such disturbance.

The Contractor shall review the available information concerning asbestos including the AHERA report performed by the MMMHS and the Contract Drawings and submit the attached form certifying the same with the bid documents. This Contract does not include the removal of any asbestos, asbestos insulation or asbestos containing material of any kind.

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APPENDIX

FAA REQUIREMENTS

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005

John Ciardullo Associates
221 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer

Disadvantaged Business Enterprises

- (1.) The requirements for the Disadvantaged Business Enterprises (DBE) program are set forth in Department of Transportation Regulation, 49 CFR Parts 23 and 26, "Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule" which is attached as Exhibit B and is incorporated into this contract by reference.
- (2.) The current PA overall goal for DBE participation in federally assisted contracts is 14.3%. This goal is to be met by use of two strategies: 2% through Race-neutral means and 12.3% through Race-conscious means. These goals are in effect until September 30, 2000 and are subject to annual review and adjustment as appropriate. Therefore the MMMHS must contact the PA to obtain the pertinent DBE goals before executing any consultant and/or construction contracts after that date.
- (3.) This regulation applies to all contracts that include any federal funds. Therefore the MMMHS agrees to include these clauses in all contracts for this project and to enforce such clauses. With regard to paragraph (4.)(b.) (below) the MMMHS agrees to pay each contractor within 7 days of receipt of payment from the Port Authority and to pay over retainage as also specified in paragraph (4.) (b.).
- (4.) The MMMHS agrees to include the following clauses (printed in *Italics*) in all contracts and subcontracts:
 - (a.) *The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract and shall carry out the applicable requirements of Department of Transportation Regulation, 49 CFR Parts 23 and 26, "Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule" (49 CFR Part 26) in the award and administration of DOT assisted contracts. This regulation is incorporated into this contract by reference. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as The Port Authority deems appropriate. This provision shall likewise apply to each subcontractor at each tier.*
 - (b.) *The contractor agrees to pay each subcontractor on this project for satisfactory performance of its subcontract no later than seven (7) days from the receipt of each payment received from the MMMHS or within such later period as is provided in the subcontract.. The contractor agrees further to pay over retainage payments to each subcontractor within fourteen (14) days, or within such later period as is provided in the subcontract, after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Port Authority of New York and New Jersey (PAJ).*
 - (c.) *The Department of Transportation Regulation, (49 CFR parts 23 and 26) Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule, (CFR 49Part 26) is incorporated into this contract by reference.*
 - (d.) *The current PA overall goal for DBE participation in federally assisted contracts is 14.3%. This goal is to be met by use of two strategies: 2% through Race-*

neutral means and 12.3% through Race-conscious means. Race-neutral means are described in CFR 49 Part 23 & 26, Paragraph 26.51. The Race-conscious goal is a contract goal. These goals are in effect until revised notification and are subject to annual review and adjustment as appropriate. Therefore the pertinent DBE goals must be obtained from the PA before executing any consultant and/or construction contracts.

- (e.) The obligation of the contractor is to make good faith efforts to meet the Race-conscious or contract goal. The contractor can demonstrate that it has done so by meeting the contract goal or documenting good faith efforts. See Exhibit B, CFR 49 Part 26, Paragraph 26.53 and Appendix A of for descriptions and discussions of good faith efforts. The PA is responsible for determining whether a contractor that has not met the contract goals has documented sufficient good faith efforts to be regarded as responsible.*
- (f.) Assistance is available from the PA Office of Business and Job Opportunity (OBJO) to identify DBE firms and to answer any questions related to the preparation and submission of the DBE Participation Plan. In addition, the PA maintains a computerized directory identifying all firms certified as DBEs. The directory lists the firm's name, certification status, address, responsible officer/owner, telephone number and specialty trade. This Directory is revised annually to ensure data accuracy and integrity. Information pertaining to this directory can be obtained through telephone requests to The Port Authority of NY & NJ, Office of Business and Job Opportunity, Newark Legal and Communications Center, One Riverfront Plaza, Newark, NJ 0719 (973) 565-5527. An Internet version of this Directory is currently under development. When completed it will be integrated into the PA web page for easy access.*
- (g.) Contractors are directed to CFR 49 Part 23 & 26, Paragraph 26.55 "How is DBE participation counted toward goals?" Sub-paragraph (e) which states that 100% of the cost of materials or supplies obtained from a DBE manufacturer may be counted toward the DBE goals but only 60% of the cost of materials or supplies purchased from a DBE regular dealer may be counted toward the goals. More detailed information may be found in the regulation.*

A Unified Certification Program for each state will be put into effect by March 4, 2002. This program is described in CFR 49 Part 23 & 26, Paragraph 26.81.

FEDERAL LAW REQUIREMENTS FOR BID SOLICITATIONS

SECTION 100

100-01 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246, AS AMENDED).

A. The following is to be made a part of all solicitations for bids on all federally assisted construction contracts or subcontracts in excess of \$10,000.00.

B. The offeror's or bidder's attention is called to the "Equal Opportunity Clause" (Section 100-04) and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" (Section 100-06) set forth herein.

C. The goals for minority and female participation, expressed in percentage terms FOR THE CONTRACTOR'S WORKFORCE on all construction work in a covered area, are as follows:

Goals for minority participation

(INSERT APPROPRIATE GOAL FROM PAGES 40 to 42)

Goals for female participation

6.9%

22.6%

1. These goals are applicable to all the contractor's CONSTRUCTION WORKFORCE (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

2. The contractor's compliance with the executive order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor goals shall be a violation of

ATTACHMENT IV-6 (2)

the contract, the executive order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

D. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract, and the geographical area in which the contract is to be performed.

E. As used in this notice and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas, where the contract is to be performed giving the state, county and city, if any).

F. The Department of Labor has eliminated all imposed EEO plans and the Philadelphia Plan as a means of complying with Executive Order 11246. Hometown Plans can still be used; however, signatories are required to submit goals and timetables for the utilization of women to the Director, Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C.

100-02 CERTIFICATION OF NONSEGREGATED FACILITIES. All bidders will be required to submit with their bids a Certification of Nonsegregated Employee Facilities, including an agreement to get a similar certification from proposed subcontractors. These certifications will be required prior to award of contract.

(SEE CERTIFICATION FORM ON NEXT PAGE)

CONTRACTOR'S CERTIFICATION OF NONSEGREGATED FACILITIES

The federally assisted construction contractor certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit employees to perform services at any location, under its control, where segregated facilities are maintained. The federally assisted construction contractor certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform services at any location, under its control where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the equal opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating area, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the equal opportunity clause and that he will retain such certifications in his files.

The information above is true and complete to the best of my knowledge.

Name and Title (Please type)

Date

Signature

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

100-03 REPORTS.

A. Contractors/Subcontractors with 50 or more employees and Contracts over \$50,000.00. All contractors and subcontractors performing on federally assisted projects are required to file annually (on or before March 31) complete and accurate reports on SF 100 (Employee Information Report, EEO-1) to the Joint Reporting Committee. The first report is due within 30 days after award unless such report was filed within the preceding 12-month period.

Standard Form 100 is normally furnished based on a mailing list, but can be obtained from the Joint Reporting Committee, P.O. Box 2236, Norfolk, Virginia 20501.

B. Contractors/Subcontractors with Contracts over \$10,000.00.

As indicated in paragraph E of the EEO Clause, monthly Employment Utilization Reports, CC 257 (previously SF 257) will be submitted to the OFCCP, at the following addresses:

For downstate New York and New Jersey:

Mr. Harold M. Busch
District Director, OFCCP/ESA
U.S. Department of Labor
26 Federal Plaza, Rm. 36-116
New York, N.Y. 10278

For Upstate New York:

Mr. Garland Sweeney
District Director, OFCCP/ESA
U.S. Department of Labor
Jackson Building, Rm. 609
220 Delaware Avenue
Buffalo, N.Y. 14202

100-04 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE. The following is included IN ENTIRETY in all federally funded construction contracts over \$10,000:

During the performance of this contract, the contractor agrees as follows:

A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex or nation origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or

termination, rates of pay or other compensation; and selection for training, including apprenticeship. The contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices (Attached as 100-05) setting forth the provisions of this nondiscrimination clause.

B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

C. The contractor will send, to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice (Attached as 100-05) advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The contractor will comply with all provisions of Executive Order 11246, as amended, of September 24, 1965, and the rules, regulations, and relevant orders of the Secretary of Labor.

E. The contractor will furnish all information and reports required by Executive Order 11246, as amended, of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Comptroller General of the United States, Department of Transportation, FAA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, as amended, September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provide by law.

G. The contractor will include the portion of the sentence immediately preceding paragraph A and the provisions of

ATTACHMENT IV-6 (6)

paragraphs A through C in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the FAA may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the FAA, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

H. Contractors and subcontractors may satisfy the requirements of Paragraph B of the referenced EEO clause by complying with any of the following:

1. Stating in the Invitations for Bids that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin, or
2. Including appropriate insignia in display or other advertising as prescribed by the Department of Labor, or
3. Using a single advertisement grouped with other advertisements under a caption which clearly states that all employers in the group assure all qualified applicants will have equal consideration for employment without regard to race, color, religion, sex, or national origin, or
4. Using the phrase "an equal opportunity employer" in a single advertisement in clearly distinguishable type.

SECTION 100-05 NOTICES TO BE POSTED
PER PARAGRAPHS A AND C OF THE EEO CLAUSE.

EQUAL EMPLOYMENT OPPORTUNITY IS THE LAW - DISCRIMINATION IS
PROHIBITED BY THE CIVIL RIGHTS ACT OF 1964 AND BY EXECUTIVE
ORDER NO. 11246

Title VI of the Civil Rights Act of 1964 - Administered by:

THE EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

Prohibits discrimination because of Race, Color, Religion,
Sex, or National Origin by Employers with 75 or more
employees, by Labor Organizations with a hiring hall of 75
or more members, by Employment Agencies, and by Joint Labor-
Management Committees for Apprenticeship or Training. After
July 1, 1967, employees and labor organizations with 50 or
more employees or members will be covered; after July 1,
1968, those with 25 or more will be covered.

ANY PERSON

Who believes he or she has been discriminated against

SHOULD CONTACT

THE EQUAL EMPLOYMENT OPPORTUNITY COMMISSION
1800 G Street NW. Washington, D.C. 20506

Executive Order No. 11246 - Administered by:

THE OFFICE OF FEDERAL CONTRACT COMPLIANCE

Prohibits discrimination because of Race, Color, Religion,
Sex or National Origin, and requires affirmative action to
ensure equality of opportunity in all aspects of employment.

By all Federal Government Contractors and Subcontractors,
and by Contractors Performing Work Under a Federally
Assisted Construction Contract, regardless of the number of
employees in either case.

ANY PERSON

Who believes he or she has been discriminated against

SHOULD CONTACT

THE OFFICE OF FEDERAL CONTRACT COMPLIANCE
U.S. Department of Labor, Washington, D.C. 20210

100-06 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246,
AS AMENDED)

The following specifications are made a part of all federally assisted construction contracts or subcontracts over \$10,000.00 AND included in all invitations for bids:

A. As used in these specifications:

1. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
2. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
3. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
4. "Minority" includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
 - (c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, and the Indian subcontinent, or the Pacific Islands); and
 - (d) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

8. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set

forth in the solicitations from which this contract resulted.

C. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

D. The contractor shall implement the specific affirmative action standards provided in paragraphs G.1 to G.16 of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply to the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any OFCCP office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

E. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, as amended, or the regulations promulgated pursuant thereto.

F. In order for the nonworking training hours of apprenticeship and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the

contractor during the training period and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

G. The contractor shall take specific affirmative actions to ensure EEO. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain in a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.
4. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or

woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under G.2 above.

6. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractors and subcontractors with whom the contractor does or anticipates doing business.

9. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and

training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and test to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

11. Validate all test and other selection requirements where there is an obligation to do so under 41 CFR PART 60-3.

12. Conduct, at least annually, an inventory and evaluation, at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

H. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their

affirmative action obligations (G.1 to G.16). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under G.1 to G.16 of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

I. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide EEO and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the contractor may be in violation of the executive order if a particular group is employed in a substantially disparate number (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the executive order if a specific minority group of women is underutilized).

J. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

K. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246, as amended.

L. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and in its implementing regulations, by the OFCCP. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

M. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative

action steps, at least as extensive as those standards prescribed in paragraph G of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the executive order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

N. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

O. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

100-07 TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 NONDISCRIMINATION IN FEDERALLY ASSISTED PROGRAMS OF THE DEPARTMENT OF TRANSPORTATION. During the performance of this contract, the contractor, for itself, its assigns and successors in interest (hereinafter referred to as the contractor) agrees as follows:

A. Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, DOT) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereafter, Regulations), which are herein incorporated by reference and made a part of this contract.

B. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors,

including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

D. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the sponsor or the FAA as appropriate, and shall set forth what efforts it has made to obtain the information.

E. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

1. Withholding of payments to the contractor under the contract until the contractor complies, and/or
2. Cancellation, termination, or suspension of the contract, in whole or in part.

F. Incorporation of Provisions. The contractor shall include the provisions of paragraphs A and E in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for

noncompliance. Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

G. Breach of Contract Terms - Sanctions. Any violation or breach of the terms of this contract on the part of the contractor/ subcontractor may result in the suspension or termination of this contract or such other action which may be necessary to enforce the rights of the parties of this agreement.

100-08 STANDARD REQUIREMENTS FOR AIRPORT IMPROVEMENT PROGRAM CONTRACTS. The following is included in all federally assisted construction contracts:

A. AIP Project. The work in this contract is included in AIP Grant Nos. _____ which is being undertaken and accomplished by (Sponsor's Name) in accordance with the terms and conditions of a grant agreement between the (Sponsor's Name), hereinafter referred to as the Sponsor, and the United States, under the Airport and Airway Improvement Act of 1982 (AAIA) (P.L. 97-248, 49 U.S.C. 2201 et seq) and Part 152 of the Federal Aviation Regulations (FAR) (14 CFR Part 152), or its successor regulation, pursuant to which the United States has agreed to pay a certain percentage of that Act. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

B. Consent to Assignment. The contractor shall obtain the prior written consent of the sponsor to any proposed assignment of any interest in or part of this contract.

C. Veteran's Preference. In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to veterans of the Viet Nam era and disabled veterans. However, this preference may be given only where the individuals are available and qualified to perform the work to which the employment relates.

D. FAA Inspection and Review. The contractor shall allow any authorized representative of the FAA to inspect

and review any work or materials used in the performance of this contract..

E. Inspection Records. The contractor shall maintain an acceptable cost accounting system. The sponsor, the FAA, and the Comptroller General of the United States shall have access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts, and transcriptions. The contractor shall maintain all required records for three years after the sponsor makes final payment and all other pending matters are closed.

F. Rights to Inventions - Materials. All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the recipient of the Federal grant under which this contract is executed.

G. Disadvantaged Business Enterprises. It is the policy of the Department of Transportation that disadvantaged business enterprises shall have the maximum opportunity to participate in the performance of this contract.

1. The contractor agrees to ensure that disadvantaged business enterprises have the maximum opportunity to participate in the performance of subcontracts. In this regard the contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that disadvantaged business enterprises have the maximum opportunity to compete for and perform subcontracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this contract.

100-09 CLEAN AIR AND WATER POLLUTION CONTROL REQUIREMENTS.

Contractors and subcontractors must agree for any contract or subcontract exceeding \$100,000.00:

A. That any facility to be used in the performance of the contract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

B. That it will comply with all the requirements of Section 306 of the Clean Air Act, Section 508 of the Clean Water Act, Executive Order 11738, Environmental Protection Agency Regulation (40 CFR Part 15) and all regulations issued thereunder;

C. That it will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be utilized for performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities; and

D. That it will include or cause to be included in any contract or subcontract which exceeds \$100,000.00 the aforementioned criteria and requirements.

100-10 BONDING/INSURANCE. The following clauses are included in all federally assisted construction contracts for bids and/or contracts in excess of \$100,000.00:

A. The contractor agrees to furnish a performance bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to secure fulfillment of all contractor's obligations under such contract.

B. The contractor agrees to furnish a payment bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to assure payment as required by law of all persons supplying labor and materials in the execution of the work provided for in the contract.

100-11 DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS.

Disadvantaged Business Enterprises (DBE) requirements are applicable to each general aviation airport sponsor receiving grant funds in excess of \$250,000; each non-hub airport sponsor (including commuters) receiving grant funds in excess of \$400,000; each large, medium, small hub airport sponsor receiving a grant in excess of \$500,000.

Since the contract to be awarded under this advertised bid falls into the above category, the bid is subject to the following DBE requirements:

A. The successful bidder shall make a good faith effort to use DBE subcontractors and to replace a DBE subcontractor that is unable to perform successfully with another DBE subcontractor. There shall be no substitution of any subcontractors without the prior approval of the sponsor in order to ensure that the substitute firm is an eligible DBE.

B. Definitions

1. A disadvantaged business enterprise is a small business concern:

(a) Which is at least 51% owned by one or more

socially or economically disadvantaged individuals, or, in the case of any publicly owned business, at least 51% of the stock of which is owned by one or more socially and economically disadvantaged individuals; and

(b) Whose management and daily business operations are controlled by one or more socially and economically disadvantaged individuals who own it.

2. Small business concern means a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto except that a small business concern shall not include any concern or group of concerns controlled by the same socially and economically disadvantaged individual or individuals which has annual average gross receipts in excess of \$14 million over the previous three fiscal years.

3. Socially and economically disadvantaged individuals means those individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are Women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, or Asian-Indian Americans and any other minorities or individuals found to be disadvantaged by the Small Business Administration pursuant to Section 8(a) of the Small Business Act. Recipients shall make a rebuttable presumption that individuals in the following groups are socially and economically disadvantaged. Recipients also may determine, on a case-by-case basis, that individuals who are not a member of one of the following groups are socially and economically disadvantaged:

(a) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

(b) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(c) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

- (d) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust Territories of the Pacific, and the Northern Marianas; and
- (e) "Asian-Indian Americans," which includes persons whose origins are from India, Pakistan, and Bangladesh.

C. Bidding Requirements. Each Bidder is required to submit DBE participation information and, as a condition of contract award, must meet the DBE goal or demonstrate to the Airport Sponsor that it made good faith efforts to reach the goal.

The bidder shall make good faith efforts, as defined in Appendix A of 49 CFR Part 23, Regulations of the Office of the Secretary of Transportation, to subcontract (3) of the dollar value of the prime contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE). In the event that the bidder for this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met. Individuals who are rebuttably presumed to be socially and economically disadvantaged include Women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. Each Bidder will be required to submit within the bid information concerning the DBE's that will participate in this contract. The information will include: (1) the name and address of each DBE; (2) a description of the work to be performed by each named firm; (3) the dollar value of the contract; and (4) a copy of the DBE Certificate. If the bidder fails to achieve the contract goal stated herein, it shall provide documentation with the bid demonstrating that it made good faith efforts in attempting to do so. A bid that fails to meet these requirements will be considered non-responsive.

D. Procedures to Confirm Good Faith Efforts. If the apparent low bidder, who is otherwise responsive and responsible, cannot meet the goal, he must show that he has made good faith efforts to this end through:

1. Attendance at the pre-bid meeting;
2. Copies of advertisement(s) in trade association newsletters and minority-owned media;
3. A report with a detailed statement of efforts made to locate and negotiate with DBE's, including

information on:

- (a) Efforts made to select portions of the work proposed to be performed by DBE's in order to increase the likelihood of achieving the stated goal;
- (b) Each DBE contacted, but which the bidder considers to be unqualified to perform the work;
- (c) Each DBE contacted, but which the bidder considers to be unavailable; and
- (d) Which organizations that represent or provide assistance to subcontractors were contacted.

The stated percentage goal may be waived if the aforementioned good faith efforts to reach the goal have been made. However, a bidder or proposer's failure to meet the goal or to show meaningful good faith efforts to reach the goal may be grounds for finding the bid non-responsive.

E. To insure that any substitute firm is an eligible DBE, the Contractor shall not substitute subcontractors without the prior approval of the Owner.

F. The Contractor shall establish and maintain records and submit reports, as required and requested, which will identify the efforts and achievements made to meet DBE subcontract goals and other DBE affirmative action efforts.

100-12 FOREIGN TRADE RESTRICTIONS.

This clause is included in all solicitations, contracts, and subcontracts resulting from projects funded under the AIP.

The contractor or subcontractor, by submission of a bid and/or execution of a contract, certifies that it:

- a. Is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. Has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.

c. Has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

100-13 SECRETARY OF LABOR REQUIREMENTS.

A(1) Minimum Wages

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in subparagraphs 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employers payroll records accurately set forth the time spent in each classification in which the work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) Except with respect to helpers as defined in 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(ii)(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(ii)(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer within the 30-day period that additional time is necessary.

(ii)(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(B) or (C) of this paragraph shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the

contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

A(2) Withholding. The Federal Aviation Administration shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers employed by the contractor or any subcontractor for the full amount of wages required by the contracts. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

A(3) Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor

has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(CB) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (Sponsor's Name). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph 5.5(a)(J)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(ii)(B) Each payroll submitted shall be accompanied by a "Statement of Compliance" signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under subparagraph 5.5(2)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period had been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not

less than the applicable wage rates and fringe benefits or case equivalents for the classification of work performed, as specified in the applicable wage determination.

(ii)(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance required by paragraph (a)(3)(ii)(B) of this section.

(ii)(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal Aviation Administration may, after written notice to the contractor, sponsor, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

A(4) Apprentices, Trainees and Helpers.

(i) Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the

registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Bureau of Apprenticeship and Training or a State Apprenticeship Agency recognized by the Bureau, withdraws approval, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees, except as provided in 29 CFR 5:16, will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be

paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 10.

(iv) Helpers. Helpers will be permitted to work on a project if the helper classification is specified on an applicable wage determination or is approved pursuant to the conformance procedure set forth in subparagraph 5.5(a)(1)(ii). The allowable ratio of helpers to journeymen employed by the contractor or subcontractor on the job site shall not be greater than two helpers for every three journeymen (in other words, not more than 40 percent of the total number of journeymen and helpers in each contractor's or in each subcontractor's own work force employed on the job site). Any worker listed on a payroll at a helper wage rate, who is not a helper as defined in 29 CFR 2.5(n)(4), shall be paid not less than the applicable wage rate on the wage determination for classification of work actually performed. In addition, any helper performing work on the job site in excess of the ratio permitted shall be paid not less than the applicable journeyman's (or laborer's, where appropriate) wage rate on the wage determination for the work actually performed.

A(5) Compliance with Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

A(6) Subcontracts. The contractor or subcontractor shall

insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

A(7) Contract Termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

A(8) Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and related acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

A(9) Disputes Concerning Labor Standards: Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

A(10) Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(A)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

See Certification Form Next Page

CONTRACTOR'S CERTIFICATION OF ELIGIBILITY

The bidder certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this bid that it will include this clause without modification in all lower tier transactions, solicitations, bids, proposals, contracts, and subcontracts. Where the bidder/offer/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

That, the information above is true and complete to the best of my knowledge.

Name and Title (please print)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001

B(1) Contract Work Hours and Safety Standards Act.

(i) Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(ii) Violation; Liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (i) of this clause, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (i) of this paragraph, in the sum of \$10 for each calendar day for which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of overtime wages required by the clause set forth in subparagraph (i) of this clause.

(iii) Withholding for unpaid wages and liquidated damages. The (Sponsor's Name) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (ii) of this paragraph.

(iv) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (i) through (iv) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier contracts. The prime contractor shall be responsible for compliance by any subcontractor or lower

tier subcontractor with the clauses set forth in subparagraphs (i) through (iv) of this paragraph.

B(2) Contracts subject only to Contract Work Hours and Safety Standards Act.

(i) The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

(ii) The records to be maintained under paragraph (i) above shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

100-14 BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS (JAN 1991).

A. The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) steel produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs B.1 or B.2 shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

J. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

B. The successful bidder will be required to assure that only domestic steel manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, except those:

1. That the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;

2. That the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

3. That inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

C. The Contractor shall deliver only domestic steel and manufactured products under this contract as defined below:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) those produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

D. The Contractor agrees that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, as defined below:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1)

those produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of components. This means the costs of production of the components, exclusive of final assembly labor costs.

E. List of Supplies/Materials that the U.S. Government Has Determined Are Not Produced In the United States In Sufficient and Reasonably Available Quantities And of Sufficient Quality (Jan. 1991)

Acetylene, black.	Diamonds, industrial, stones and abrasives.
Agar, bulk.	Emetine, bulk.
Anise.	Ergot, crude.
Antimony, as metal or oxide.	Erthrityl tetranitrate.
Asbestos, amosite, chrysolite, and crocidolite.	Fair linen, altar.
Bananas.	Fibers of the following types: abaca, abace, agave, coir, flax, jute, jute burlaps, palmyra and sisal.
Bauxite.	Goat and kidskins.
Beef, corned, canned.	Graphic, natural, crystalline, crucible grade.
Beef extract.	Handsewing needles.
Bephenium Hydroxynapthoate.	Hemp yarn.
Bismuth.	Hog bristles for brushes.
Books, trade, text, technical, or scientific; newspapers, pamphlets; magazines; periodicals; printed briefs and films; not printed in the United States and for which domestics editions are not available.	Hyoscine, bulk.
Brazil nuts, unroasted.	Ipecac, root.
Cadmium, ores and flue dust.	Iodine, crude.
Calcium Cyanamide.	Kaurigum.
Capers.	Lac.
Cashew nuts.	Leather, sheepskin, hair type.
Castor beans and castor oil.	Lavender oil.
	Manganese.
	Menthol, natural bulk.
	Mica.

Chalk, English
 Chestnuts.
 Chicle.
 Chrome ore or chromite.
 Cinchona bark.
 Cobalt, in cathodes,
 rondelles, or other primary
 ore and metal forms.
 Cocoa beans.
 Coconut and coconut meat,
 unsweetened, in shredded
 desiccated or similarly
 prepared form.
 Coffee, raw or green bean.
 Colchicine alkaloid, raw.
 Copra.
 Cork, wood or bark and waste.
 Cover glass, microscope
 slide.
 Cryolite, natural.
 Dammar gum.

Olives (green), pitted or
 unpitted, or stuffed, in
 bulk.
 Opium, crude.
 Oranges, mandarin; canned
 Petroleum, crude oil,
 unfinished oils, and finished
 products (see definitions
 below)
 Pine needle oil.
 Platinum and related group
 metals, refined, as sponge,
 powder, ingots, or cast
 bars.
 Pyrethrum flowers.
 Quartz crystals.
 Quebracho.
 Quinidine.
 Quinine.
 Rabbit fur felt.
 Radium salts, source and
 special nuclear materials.
 Rosettes.
 Rubber, crude and latex.
 Rutile.
 Santonin, crude.
 Secretin.
 Shellac.
 Silk, raw and unmanufactured.

Microprocessor chips (brought
 onto a construction site as
 separate units for
 incorporation into building
 systems during construction
 or repair and alteration of
 real property.)
 Nickel, primary, in ingots,
 pigs, shots, cathodes, or
 similar forms; nickel oxide
 and nickel salts.
 Nitroguanidine (also known as
 picrite).
 Nux vomica crude.
 Oiticica o l.
 Olive oil.

Tungsten.
 Vanilla beans.
 Venom, cobra.
 Wax, canauba.
 Woods; logs, veneer, and
 lumber of the following
 species: Alaskan yellow
 cedar, angelique, balsa,
 ekki, greenhart, lignum
 vitae, mahogany, and teak.
 Yarn, 50 Denier rayon.

Spare and replacement parts for equipment of foreign manufacture, and for which domestic parts are not available.

Spices and herbs, in bulk.

Sugars, raw.

Swords and scabbards.

Talc, block, steatite.

Tantalum.

Tapioca flour and cassava.

Tartar, crude; tartaric acid and cream of tartar in bulk.

Tea in bulk.

Thread, metallic (gold).

Thyme oil.

Tin in bars, blocks, and pigs.

Tripolidine hydrochloride.

Petroleum terms are used as follows:

"Crude oil" means crude petroleum, as it is produced at the wellhead, and liquids (under atmospheric conditions) that have been recovered from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir and that are not natural gas products.

"Finished products" means any one or more of the following petroleum oils, or a mixture or combination of these oils, to be used without further processing except blending by mechanical means:

(A) "Asphalt" - a solid or semi-solid cementitious material that (1) gradually liquefies when heated, (2) has bitumens as its predominating constituents, and (3) is obtained in refining crude oil.

(B) "Fuel oil" - a liquid or liquefiable petroleum product burned for lighting or for the generation of heat or power and derived directly or indirectly from crude oil, such as kerosene, range oil, distillate fuel oils, gas oil, diesel fuel, topped crude oil, or residues.

(C) "Gasoline" - a refined petroleum distillate that, by its consumption, is suitable for use as a carburant in internal combustion engines.

(D) "Jet fuel" - a refined petroleum distillate used to fuel jet propulsion engines.

(E) "Liquefied gases" - hydrocarbon gases recovered from natural gas or produced from petroleum refining and kept under pressure to maintain a liquid state at ambient temperatures.

(F) "Lubricating oil" - a refined petroleum distillate or specially treated petroleum residue used to lessen friction between surfaces.

(G) "Naphtha" - a refined petroleum distillate falling within a distillation range overlapping the higher gasoline and the lower kerosenes.

(H) "Natural gas products" - liquids (under atmospheric conditions) including natural gasoline, that -

(1) are recovered by a process of absorption, adsorption, compression, refrigeration, cycling, or a combination of these processes, from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir, and

(2) when recovered and without processing in a refinery, definitions of products contained in subdivision (B), (C), and (G) above.

(I) "Residual fuel oil" - a topped crude oil or viscous residuum that, as obtained in refining or after blending with other fuel oil, meets or is the equivalent of MILSPEC Mil-F-859 for Navy Special Fuel Oil and any more viscous fuel oil, such as No. 5 or Bunker C.

"Unfinished Oils" means one or more of the petroleum oils listed under "Finished products" above, or a mixture or combination of these oils, that are to be further processed other than by blending by mechanical means.

BUY AMERICAN CERTIFICATE (JAN 1991)

By submitting a bid under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid, the offeror certifies that steel and each manufactured product, is produced in the United States (as defined in the clause Buy American - Steel and Manufactured Products or Buy American - Steel and Manufactured Products for Construction Contracts) and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Lists of articles, materials, and supplies excepted from this provision are included in Section 100-14 E.

PRODUCT

COUNTRY OF ORIGIN

STATE OF NEW YORK

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
5780	Nassau - Suffolk Nassau Co. Suffolk Co.	5.8
5600	New York, NY - NJ Bronx Co. Kings Co. New York Co. Putnam Co. Queens Co. Richmond Co. Rockland Co. Westchester Co.	22.6
6460	Poughkeepsie Dutchess Co.	6.4
0160	Albany - Schenectady - Troy Albany Co. Schenectady Co. Troy Co. Montgomery Co. Rensselaer Co. Saratoga Co.	3.2
8160	Syracuse - Utica Madison Co. Onondagua Co. Oswego Co.	3.8
8680	Utica - Rome Herkimer Co. Oneida Co.	2.1
6840	Rochester Livingston Co. Monroe Co. Ontario Co. Olean Co. Wayne Co.	5.3
1280	Buffalo Erie Co. Niagara Co.	7.7
0960	Binghamton - Elmira Broome Co. Tioga Co.	1.1

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
2335	Elmira Chemung Co.	2.2
	Non - SMSA Counties Orange Co. Sullivan Co. Ulster Co.	17.0
	Non - SMSA Counties Genesee Co. Seneca Co. Yates Co.	5.9
	Non - SMSA Counties Allegany Co. Cattaraugus Co. Chautauqua Co. Wyoming Co.	6.3
	Non - SMSA Counties Clinton Co. Columbia Co. Essex Co. Fulton Co. Green Co. Hamilton Co. Warren Co. Washington Co. Schoharie Co.	2.6
	Non - SMSA Counties Cayuga Co. Cortland Co. Franklin Co. Jefferson Co. Lewis Co. St. Lawrence Co.	2.5

STATE OF NEW JERSEY

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
3840	Jersey City Hudson Co.	12.8
4410	Long Branch - Asbury Park Monmouth Co.	9.5
5460	New Brunswick - Perth Amboy - Sayreville Middlesex Co.	5.8
5600	New York, NY - NJ Bergen Co.	22.6
5640	Newark Essex Co. Morris Co. Somerset Co. Union Co.	17.3
6040	Paterson - Clifton Passaic Co. Paramus Co.	12.9
0240	Allentown-Bethlehem-Easton, PA - NJ Warren Co.	1.6
0560	Atlantic City Atlantic Co.	18.2
6160	Philadelphia, PA - NJ Burlington Co. Camden Co. Gloucester Co.	17.3
8480	Trenton Mercer Co.	16.4
8760	Vineland - Bridgeton Camden Co.	16.0
9160	Wilmington, DE - NJ - MD Salem Co.	12.3
	Non - SMSA Counties Hunterdon Co. Ocean Co. Sussex Co.	17.0

49 CFR PART 23
PARTICIPATION BY MINORITY
BUSINESS ENTERPRISE IN
DEPARTMENT OF
TRANSPORTATION
PROGRAMS

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005

John Ciardullo Associates
211 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer

federal register

Tuesday
February 2, 1999

**SCHOOL SOUNDPROOFING AGREEMENT
EXHIBIT B**

Part II

**Department of
Transportation**

Office of the Secretary

49 CFR Parts 23 and 26

**Participation by Disadvantaged Business
Enterprises in Department of
Transportation Programs; Final Rule**

**NOTE: REVISIONS PUBLISHED JUNE 28, 1999
HAVE BEEN ADDED TO TEXT.**

[See Federal Register pages 34569 & 34570 at end of exhibit.]

DEPARTMENT OF TRANSPORTATION**Office of the Secretary****49 CFR Parts 23 and 26**

[Docket OST-97-2550; Notice 97-5]

RIN 2105-AB92

Participation by Disadvantaged Business Enterprises in Department of Transportation Programs**AGENCY:** Office of the Secretary, DOT.**ACTION:** Final rule.

SUMMARY: This final rule revises the Department of Transportation's regulations for its disadvantaged business enterprise (DBE) program. The DBE program is intended to remedy past and current discrimination against disadvantaged business enterprises, ensure a "level playing field" and foster equal opportunity in DOT-assisted contracts, improve the flexibility and efficiency of the DBE program, and reduce burdens on small businesses. This final rule replaces the former DBE regulation, which now contains only the rules for the separate DBE program for airport concessions, with a new regulation. The new regulation reflects President Clinton's policy to mend, not end, affirmative action programs. It modifies the Department's DBE program in light of developments in case law requiring "narrow tailoring" of such programs and last year's Congressional debate concerning the continuation of the DBE program. It responds to comments on the Department's December 1992 notice of proposed rulemaking (NPRM) and its May 1997 supplemental notice of proposed rulemaking (SNPRM).

DATES: This rule is effective March 4, 1999. Comments on Paperwork Reduction Act matters should be received by April 5, 1999; however, late-filed comments will be considered to the extent practicable.

ADDRESSES: Persons wishing to comment on Paperwork Reduction Act matters (see discussion at end of preamble) should send comments to Docket Clerk, Docket No. OST-97-2550, Department of Transportation, 400 7th Street, SW., Room 4107, Washington, DC 20590. We emphasize that the docket is open only with respect to Paperwork Reduction Act matters, and the Department is not accepting comments on other aspects of the regulation. We request that, in order to minimize burdens on the docket clerk's staff, commenters send three copies of their comments to the docket. Commenters wishing to have their

submissions acknowledged should include a stamped, self-addressed postcard with their comments. The docket clerk will date stamp the postcard and return it to the commenter. Comments will be available for inspection at the above address from 10 a.m. to 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Robert C. Ashby, Deputy Assistant General Counsel for Regulation and Enforcement, Department of Transportation, 400 7th Street, SW., Room 10424, Washington, DC 20590, phone numbers (202) 366-9306 (voice), (202) 366-9313 (fax), (202) 755-7687 (TDD), bob.ashby@ost.dot.gov (email); or David J. Goldberg, Office of Environmental, Civil Rights and General Law, Department of Transportation, 400 7th Street, SW., Room 5432, Washington, DC 20590, phone number (202) 366-8023 (voice), (202) 366-8536 (fax).

SUPPLEMENTARY INFORMATION:**Background**

The Department has the important responsibility of ensuring that firms competing for DOT-assisted contracts are not disadvantaged by unlawful discrimination. For eighteen years, the Department's most important tool for meeting this responsibility has been its Disadvantaged Business Enterprise (DBE) program. This program began in 1980. Originally, the program was a minority/women's business enterprise program established by regulation under the authority of Title VI of the Civil Rights Act of 1964 and other nondiscrimination statutes that apply to DOT financial assistance programs. See 49 CFR part 23.

In 1983, Congress enacted, and President Reagan signed, the first statutory DBE provision. This statute applied primarily to small firms owned and controlled by minorities in the Department's highway and transit programs. Firms owned and controlled by women, and the Department's airport program, remained under the original 1980 regulatory provisions. In 1987, Congress enacted, and President Reagan signed, statutes expanding the program to airports and to women-owned firms. In 1991 (for highway and transit programs) and 1992 (for airport programs), Congress enacted, and President Bush signed, statutes reauthorizing the expanded DBE program.

After each statutory amendment, and at other times to resolve program issues, the Department amended part 23. The result has been that part 23 has become

a patchwork quilt of a regulation. In addition, years of interpretation by various grantees and different DOT offices has created confusion and inconsistency in program administration. These problems, particularly in the area of certification, were criticized in General Accounting Office reports. The Department's desire to improve program administration and make the rule a more unified whole led to our publication of a December 1992 notice of proposed rulemaking (NPRM).

The Department received about 600 comments on this NPRM. The Department carefully reviewed these comments and, by early 1995, had prepared a draft final rule responding to them. However, in light of the Supreme Court's June 1995 decision in *Adarand v. Peña* and the Administration's review of affirmative action programs, the Department conducted further review of the DBE program. As a result, rather than issuing a final rule, we issued a supplemental notice of proposed rulemaking (SNPRM) in May 1997. This SNPRM incorporated responses to the comments on the 1992 NPRM and proposed further changes in the program, primarily in response to the "narrow tailoring" requirements of *Adarand*. We received about 300 comments on the SNPRM. The Department has carefully considered these comments, and the final rule responds to them. The final rule also specifically complies with the requirements that the courts have established for a narrowly tailored affirmative action program.

At the same time that the Department was working on this final rule, Congress once again considered reauthorization of the DBE program. In both the House and the Senate, opponents of affirmative action sponsored amendments that would have effectively ended the program. In both cases, bipartisan majorities defeated the amendments. The final highway/transit authorization legislation, known as the Transportation Equity Act for the 21st Century (TEA-21), retains the DBE program. In shaping this final rule, the Department has listened carefully to what both supporters and opponents of the program have said in Congressional debates.

Key Points of the Final Rule

This discussion reviews and responds to the SNPRM comments and the Congressional debates on certain key issues. Congressional debate references are to the *Congressional Record* for March 5 and 6, 1998, for the Senate debate and April 1, 1998, for the House debate, unless otherwise noted.

1. Quotas and Set-Asides

SNPRM Comments: Most comments on this issue came from non-DBE contractors, who argued that the program was a *de facto* quota program. Many of these contractors said that recipients insisted that they meet numerical goals regardless of other considerations, and that the recipients did not take showings of good faith efforts seriously. Some non-DBE contractor organizations argued, in addition, that the program was a quota program because it was based on a statute that had a 10 percent target for the use of businesses defined by a racial classification.

Congressional Debate: Opponents of the DBE program generally asserted that it created quotas or set-asides. Senator McConnell described the entire program, particularly the provision that "not less than 10 percent" of authorized funds go to DBEs, as

* * * a \$17.3 billion quota. In other words, if the government decides that you are the preferred race and gender, then you are able to compete for \$17.3 billion of taxpayer-funded highway contracts. But, if you are the wrong race and gender, then—too bad—you can't compete for that \$17 billion pot. (S1936).

The "not less than 10 percent" language also led opponents, such as Senator Ashcroft, to label the program a "set-aside," (S1405), a term also employed in testimony provided by a law professor from California who said that the statute "imposes a set-aside that's required regardless of the availability of race-neutral solutions." (S1407). Senator Gorton said that the DBE statute provides that "those not defined as disadvantaged in our society are absolutely barred and prohibited from getting certain governmental contracts." (S1415).

On the other hand, supporters of the program were adamant that it was not a quota program. Senator Baucus argued that the program, as implemented by DOT, allows substantial flexibility to recipients and contractors. Recipients could have an overall goal other than 10 percent under current rules, he pointed out. Senator Kerry of Massachusetts added that what the statute does is to "set a national goal. And it is appropriate in this country to set national goals for what we will do to try to break down the walls of discrimination." * * * (S1408). He also alluded to the flexibility of the Secretary to permit overall goals of less than 10 percent. Senator Robb stated:

I want to stress at the outset that this program is not a "quota program," as some have suggested. There is a great difference

[between] an aspirational goal and a rigid numerical requirement. Quotas utilize rigid numerical requirements as a means of implementing a program. The DBE program uses aspirational goals. (S1425).

With respect to individual contract goals, Senator Baucus said, "once a goal is established for a contract, each contractor must make a good-faith effort to meet the goal—not mathematically required, not quota required, but a good faith effort to meet it." (S1402). Senator Baucus pointed to provisions of the SNPRM concerning overall goals, means of meeting them, and good-faith efforts as further narrowly tailoring the program. The SNPRM confirms, he said, that "contract goals are not binding. If a contractor makes good faith efforts to find qualified women or minority-owned subcontractors, but fails to meet the goal, there is no penalty." (S1403). Senator Robb added that "Contract goals are not operated as quotas because they require that the prime contractor make 'good faith efforts' to find DBEs. If a prime contractor cannot find qualified and competitive DBEs, the goal can be waived." (S1425).

One of the Senators who addressed the quota/set-aside issue in the most detail was Senator Domenici. He concluded that "I do not agree that this minority business program we have in this ISTEA bill before us is a program that mandates quotas and mandates set-asides." (S1426). He made this statement, in part, on the basis of March 5, 1998, letter to him signed by Secretary of Transportation Rodney Slater and Attorney General Janet Reno. In relevant part, this letter (which Senator Domenici inserted into the record) read as follows:

The 10 percent figure contained in the statute is not a mandatory set aside or rigid quota. First, the statute explicitly provides that the Secretary of Transportation may waive the goal for any reason * * * Second, in no way is the 10 percent figure imposed on any state or locality * * * Moreover, state agencies are permitted to waive goals when achievement on a particular contract or even for a specific year is not possible. The DBE program does not set aside a certain percentage of contracts or dollars for a specific set of contractors. Nor does the DBE program require recipients to use set-asides. The DBE program is a goals program which encourages participation without imposing rigid requirements of any type. Neither the Department's current nor proposed regulations permit the use of quotas. The DBE program does not use any rigid numerical requirements that would mandate a fixed number of dollars or contracts for DBEs. (S1427).

The debate in the House proceeded in similar terms. Opponents of the DBE program, such as Representative

Roukema (H2000), Representative Cox (H2004) and Speaker Gingrich (H2009) said the legislation constituted a quota, while proponents, such as Representatives Tauscher (H2001), Poshard (H2003), Bontor (H2004) and Menendez (H2004) said the program did not involve quotas or set-asides.

DOT Response: The DOT DBE program is not a quota or set-aside program, and it is not intended to operate as one. To make this point unmistakably clear, the Department has added explicitly worded new or amended provisions to the rule.

Section 26.41 makes clear that the 10 percent statutory goal contained in ISTEA and TEA-21 is an aspirational goal at the national level. It does not set any funds aside for any person or group. It does not require any recipient or contractor to have 10 percent (or any other percentage) DBE goals or participation. Unlike former part 23, it does not require recipients to take any special administrative steps (e.g., providing a special justification to DOT) if their annual overall goal is less than 10 percent. Recipients must set goals consistent with their own circumstances (see § 26.45). There is no direct link between the national 10 percent aspirational goal and the way a recipient operates its program. The Department will use the 10 percent goal as a means of evaluating the overall performance of the DBE program nationwide. For example, if nationwide DBE participation were to drop precipitously, the Department would reevaluate its efforts to ensure nondiscriminatory access to DOT-assisted contracting opportunities.

Section 26.43 states flatly that recipients are prohibited from using quotas under any circumstances. The section also prohibits set-asides except in the most extreme circumstances where no other approach could be expected to redress egregious discrimination. Section 26.45 makes clear that in setting overall goals, recipients aspire to achieving only the amount of DBE participation that would be obtained in a nondiscriminatory market. Recipients are not to simply pick a number representing a policy objective or responding to any particular constituency.

Section 26.53 also outlines what bidders must do to be responsive and responsible on DOT-assisted contracts having contract goals. They must make good faith efforts to meet these goals. Bidders can meet this requirement either by having enough DBE participation to meet the goal or by documenting good faith efforts, even if those efforts did not actually achieve the

goal. These means of meeting contract goal requirements are fully equivalent. Recipients are prohibited from denying a contract to a bidder simply because it did not obtain enough DBE participation to meet the goal. Recipients must seriously consider bidders' documentation of good faith efforts. To make certain that bidders' showings are taken seriously, the rule requires recipients to offer administrative reconsideration to bidders whose good faith efforts showings are initially rejected.

These provisions leave no room for doubt: there is no place for quotas in the DOT DBE program. In the Department's oversight, we will take care to ensure that recipients implement the program consistent with the intent of Congress and these regulatory prohibitions.

2. Sanctions for Recipients Who Fail To Meet Overall Goals

SNPRM Comments: The issue of sanctions for recipients who fail to meet overall goals was not a subject of comments on the SNPRM. Since the Department has never imposed such sanctions, this absence of comment is not surprising.

Congressional Debate: DBE program opponents asserted, in connection with their argument that the DBE program is a quota program, that the Department could impose sanctions for failure to meet goals. "The goals have requirements and the real threat of sanctions," Senator McConnell said. (S1488). Citing a provision of a Federal Highway Administration (FHWA) manual saying that if "a state has violated or failed to comply with Federal laws or * * * regulations," FHWA could withhold Federal funding, Senator McConnell said.

In other words, there are sanctions. The same threats appear in * * * the Federal transportation regulations * * *. When the Federal government is wielding that kind of weapon from on high, it does not have to punish them. A 10 percent quota is still a quota, even if the States always comply and no one is formally punished. (Id.)

Defenders of the DBE program pointed out that the Department had never punished a recipient for failing to meet an overall goal (e.g., Rep. Tauscher, H2001; Senator Boxer, S1433). Senator Domenici asked Secretary Slater and Attorney General Reno whether there are sanctions, penalties, or fines that may be (or ever have been) imposed on a recipient who does not meet DBE program goals. He entered the following reply in the record:

No state has ever been sanctioned by DOT for not meeting its goals. Nothing in the

statute or regulations imposes sanctions on any state recipient that has attempted in good faith, but failed, to meet its self-imposed goals. (S1427).

Senator Lieberman added that if states fail to meet their own goals, "there is no Federal sanction or enforcement mechanism." (S1493).

DOT Response: The Department has never sanctioned a recipient for failing to meet an overall goal. We do not intend to do so. To eliminate any confusion, we have added a new provision (§ 26.47) that explicitly states that a recipient cannot be penalized, or treated by the Department as being in noncompliance with the rule, simply because its DBE participation falls short of its overall goal. For example, if a recipient's overall goal is 12 percent, and its participation is 8 percent, the Department cannot and will not penalize the recipient simply because its actual DBE participation rate was less than its goal.

Overall goals are not quotas, and the Department does not sanction recipients because their participation levels fall short of their overall goals. Of course, if a recipient does not have a DBE program, does not set a DBE goal, does not implement its DBE program in good faith, or discriminates in the way it operates its program, it can be found in noncompliance. But its noncompliance would never be having failed to "make a number."

3. Economic Disadvantage

SNPRM Comments: Some commenters favored eliminating the presumption of economic disadvantage, saying that applicants should have to prove their economic disadvantage. Other commenters favored obtaining additional financial information from applicants so that, even if the presumption remained in force, recipients would have a better idea of whether applicants really were disadvantaged. The question of the standard for determining disadvantage generated substantial comment, with some commenters favoring, and others objecting to, the proposed use of a personal net worth standard to assist recipients in determining whether an applicant was economically disadvantaged. There was also disagreement among commenters concerning the level at which such a standard should be set (e.g., \$750,000, or something higher or lower). These comments, and the Department's response to them, are further discussed in the section-by-section analysis for § 26.67.

Congressional Debate: The Congress debated the topic of who is regarded as

economically disadvantaged under the statute. DBE opponents, including Senators Ashcroft (S1405) and McConnell (S1418) and Representative Cox (H2004), asserted that outrageously rich people could be eligible to participate as DBEs, frequently using the Sultan of Brunei as an example. The basic thrust of their argument was that if the program does not exclude wealthy members of the designated groups—meaning those who are not, in fact, disadvantaged—then it is "overinclusive" and therefore not narrowly tailored. Senator McConnell added that, because the Department's SNPRM did not include a specific dollar amount for a cap on personal net worth, it would not be effective. (S1486). On the other hand, DBE program supporters cited the SNPRM's proposed net worth cap as an effective device to stop wealthy people from participating in the program. These included Minority Leader Daschle (with a reference to a letter from the Associate Attorney General, S1413), Senator Baucus (S1414, S1423), Senator Lieberman (S1493), Senator Boxer (S1433), and Senator Moseley-Braun, who responded to the Sultan of Brunei example by noting that the program was directed primarily at U.S. citizens (S1420).

DOT Response: The final rule (§ 26.67) specifically imposes a personal net worth cap of \$750,000. This means that, regardless of race, gender or the size of their business, any individual whose personal net worth exceeds \$750,000 is not considered economically disadvantaged and is not eligible for the DBE program. The provision also makes it much easier for recipients to determine whether an individual's net worth exceeds the cap. Applicants will have to submit a statement of personal net worth and supporting documentation to the recipient with their applications. If the information shows net worth above the cap, the recipient would rebut the presumption based on the information in the application itself and the individual would not be eligible for the program. In such a case, it would not be necessary for a third party to challenge the economic disadvantage of an applicant in order to rebut the presumption. While there have been very few documented cases of wealthy individuals seeking to take advantage of the Department's program, the revised provisions of part 26 virtually eliminate even the possibility of this type of abuse.

4. Social Disadvantage

SNPRM Comments: A few commenters suggested that the

presumption of social disadvantage, as well as that of economic disadvantage, be eliminated, so that applicants would have to demonstrate both elements of disadvantage. Any presumption of disadvantage tied to a racial classification, in the view of some of these commenters, undermined the constitutionality of the program. Other commenters noted that persons who are not members of the presumptively disadvantaged groups can be eligible and, in some cases, suggested that the criteria for evaluating such applications be clarified.

Congressional Debate: The presumption of social disadvantage drew fire from DBE program opponents because it was allegedly overinclusive. For example, Senator McConnell produced a map illustrating the over 100 countries of origin leading to inclusion in one of the presumed socially disadvantaged groups, pointing out that people from some countries (e.g., Pakistan) are presumed to be socially disadvantaged while those from other countries (e.g., Poland) are not. (S1418). Senator McConnell said that there was no basis for selecting this definition over any other. (Id.) Senator Hatch also listed the countries from which Asian-Pacific Americans and Subcontinent Asian-Americans can originate, suggesting that it was inappropriate to create "all kinds of special interest groups who are vying for these programs." (S1411).

DBE proponents responded that discrimination against minorities and women in general, and against specific minorities in particular (e.g., African Americans) was very real and formed a basis for the presumption of social disadvantage (see discussion below concerning the existence of discrimination). Senator Baucus also noted that this presumption could be overcome. (S1402).

Opponents also charged that the presumption of social disadvantage was underinclusive; that is, "you underinclude people who have a right to be included in the bid process." (Senator McConnell, S1399). The people who are not included who have a right to be, in the view of opponents, are white males (e.g., Senator Sessions' reference to testimony from Adarand Constructors' owner, S1400). Senator Kennedy disagreed with this assertion, saying

Of course, this program doesn't just help women and minorities. It extends a helping hand to firms owned by white males, as well. They can be certified to [participate] if they prove that they have been disadvantaged. Just ask Randy Pech—owner of the Adarand

Construction Firm—because he is currently seeking certification. (S1482).

Senator Domenici was interested in the same question, and entered into the record the following response from Secretary Slater and Attorney General Reno:

Any individual owning a business may demonstrate that he is socially and economically disadvantaged, even if that individual is not a woman or a minority. Both the current and proposed regulations provide detailed guidance to recipients to assist them in making individual determinations of disadvantaged status. And, in fact, businesses owned by white males have qualified for DBE status. (S1427).

DOT Response: By having passed the DBE statutory provision, after lengthy and specific debate, Congress has once again determined that members of the designated groups should be presumed socially disadvantaged. All of these groups are specifically incorporated by reference in the legislation that Congress debated and approved. This presumption (i.e., a determination that it is not necessary for group members to prove individually that they have been the subject of discrimination or disadvantage) is based on the understanding of Members of Congress about the discrimination that members of these groups have faced. The presumption is rebuttable in the DOT program. If a recipient or third party determines that there is a reasonable basis for concluding that an individual from one of the designated groups is not socially disadvantaged, it can pursue a proceeding under § 26.87 to remove the presumption. Likewise, a white male, or anyone else who is not presumed to be disadvantaged, can make an individual showing of social and economic disadvantage and participate in the program on the same basis as any other disadvantaged individual (see § 26.67).

5. The "Low-Bid System"

SNPRM Comments: Non-DBE contractors expressed concern that a variety of provisions under the program and the SNPRM adversely affected the low-bid system, including contract goals, evaluation credits, and good faith efforts guidance concerning prime contractors' handling of subcontractor prices and consideration of other bidders' success in meeting goals.

Congressional Debate: Opponents of the DBE program assert that the program results in white male contractors not receiving contracts they would otherwise expect to receive. Senator Sessions cited the statement of the Adarand company to this effect. (S1400). Senator Ashcroft said that "if two bids come in from two

subcontractors, one owned by a white male and the other by a racial minority, and the bids are the same, or even close, the job will go to the minority-owned company, not the low bidder." (S1405). Senator Gorton inserted into the record letters from a Spokane subcontractor asserting that, in a number of cases, it had lost subcontracts to DBE firms despite having a lower quote. (S1415-16). Representative Roukema also cited examples of firms who made similar assertions. (H2000).

In contrast, DBE program proponents argued that the program was about leveling the playing field for DBEs. Senator Moseley-Braun cited letters from her constituents for the point that

* * * the DBE program is not about taking away contracts from qualified male-owned businesses and handing them over to unqualified female-owned firms. The program is not about denying contracts to Caucasian low bidders in favor of higher bids that happen to have been submitted by Hispanics or African Americans or Asians or women. (S1420).

Without such a program, her constituents' letters said, they would lose the chance to compete. (Id.). Citing testimony from a Judiciary Committee hearing, Senator Kennedy noted that it was the experience of some DBEs that white male prime contractors had accepted higher bids from other firms to avoid working with DBEs. (S1430).

Why would a general contractor accept a higher bid? It doesn't make sense unless you remember that the traditional business network doesn't include women or minorities * * * [A woman business owner testified] that some general contractors would rather lose money than deal with female contractors. (Id.)

DOT Response: For the most part, statutory low-bid requirements exist only at the prime contracting level. That is, state and local governments, in awarding prime contracts, must select the low bidder in many procurements (there may be exceptions in some types of purchases). Nothing in this regulation requires, under any circumstances, a recipient to accept a higher bid for a prime contract from a DBE when a non-DBE has presented a lower bid. This rule does not interfere with recipients' implementation of state and local low-bid legislation.

The selection of subcontractors by a prime contractor is typically not subject to any low-bid requirements under state or local law. Prime contractors have unfettered discretion to select any subcontractor they wish. Price is clearly a key factor, but nothing legally compels a prime contractor to hire the subcontractor who makes the lowest quote. Other factors, such as the prime

contractor's familiarity and experience with a subcontractor, the quality of a subcontractor's work, the word-of-mouth reputation of the subcontractor in the prime contracting community, or the prime's comfort or discomfort with dealing with a particular subcontractor can be as or more important than price in some situations. It is in this context that § 26.53 requires that prime contractors make good faith efforts to achieve DBE contract goals. The rule does not require that recipients ignore price or quality, let alone obtain a certain amount of DBE participation without regard to other considerations. The good faith efforts requirements are intended to ensure that prime contractors cannot simply refuse to consider qualified, competitive DBE subcontractors. At the same time, the good faith efforts waiver of contract goals serves as a safeguard to ensure that prime contractors will not be forced into accepting an unreasonable or excessive quote from a DBE subcontractor.

6. Constitutionality

SNPRM Comments: Non-DBE contractors and their groups argued that the SNPRM proposals, particularly with respect to overall goals and the use of race-conscious measures, failed to meet the *Adarand* narrow tailoring test. Many of these commenters said that the overall goals were suspect because they did not adequately consider the capacity of DBEs to perform contracts and *Adarand* requires that race-conscious measures may be used only after a recipient has demonstrated that race-neutral means have failed. The use of presumptions based on racial classifications was viewed as intrinsically unconstitutional by these commenters, many of whom cited the language of Judge Kane's decision in the *Adarand* remand to this effect. Some commenters also contended that, absent recipient-specific findings of compelling need, the program could not be constitutional. They said that existing information alleging compelling interest—such as various disparity studies or information compiled by the Department of Justice—was inadequate to meet the compelling interest test. DBEs and recipients who commented defended the constitutionality of the program, often citing experience with discrimination in the marketplace and contending that the SNPRM succeeded in narrowly tailoring the program.

Congressional Debate: Proponents and opponents of the DBE program extensively debated the constitutionality of the DBE statutory provision and the entire DBE program. Generally, opponents argued that the

Supreme Court and District Court decisions in *Adarand* rendered the program unconstitutional, while proponents said that the decisions did not have that effect.

Proponents and opponents of the DBE program agreed that the Supreme Court's *Adarand* decision established a two-part test for the constitutionality of a program that uses a racial classification. The program must be based on a compelling governmental interest and be narrowly tailored to further that interest (e.g., Senator McConnell, S1396; Senator Baucus, S1403). Opponents relied on the finding of a Colorado district court on remand that the program was not narrowly tailored and was thus unconstitutional (Senator McConnell, S 1396; Senator Ashcroft, S1405). Proponents replied that the remand decision represented the views of only one district court (Senator Baucus, S1403), that it failed to properly apply the reasoning of the Supreme Court decision with respect to narrow tailoring (Senator Domenici, S1425), and that the Department's forthcoming regulations would ensure that the program was narrowly tailored (see discussion below).

A. Compelling Interest

(1) **Existence of Discrimination.** Proponents (and some opponents) of the DBE provision said that discrimination and/or disadvantage with respect to minorities and/or women persists. In the House, these included Representative Roukema (H2000-01), Representative Norton (H2003), Representative Poshard (H2003), Representative Menendez (H2004), Representative Davis of Illinois (H2005), Representative Boswell (H2005), Representative Lampson (H2006), Representative Kennedy (H2006), Representative Jackson-Lee (H2006), Representative Edwards (H2007), Representative Andrews (H2007), Representative Rodriguez (H2008), Representative Towns (H2010), Representative Dixon (H2010), and Representative Millender-McDonald (H2011). DBE opponents typically remained silent on this point, neither affirming nor denying the existence of discrimination against women and minorities.

There was a similar pattern in the Senate debates. Opponents typically did not address the present existence of discrimination or disadvantage with respect to minorities and women or its continuing effects, spoke of such discrimination as something that existed in the past (Senator Sessions, S1399; Senator Hatch, S1411), or asserted that race-based disadvantage or

discrimination no longer exists (Senator Ashcroft, S1406).

The Senators who said that such discrimination persists included Senator Baucus (S1403, S1413, S1496), Senator Warner (S1403), Senator Kerry (S1408), Senator Wellstone (S1410), Senator Moseley-Braun (S1419-20), Senator Robb (S1422); Senator Brownback (S1423-24), Senator Domenici (S1425-26), Senator Kennedy (S1429-30, S1482), Senator Specter (S1485), Senator McCain (S1489), Senator Lautenberg (S1490), Senator Durbin (S1491), Senator Daschle (S1492), Senator Lieberman (S1493), Senator Bingaman (S1494), Senator Murray (S1495), and Senator Dorgan (S1495).

(2) **Evidence of discrimination or disadvantage.** In comments on the passage of the TEA-21 conference report in the Senate, Senator Chafee noted a Colorado Department of Transportation disparity study that found a disproportionately small number of women- and minority-owned contractors participating in that state's highway construction industry. More than 99 percent of contracts went to firms owned by white men.

(Congressional Record, May 22, 1998; S5413). In the House discussion of the conference report, Representative Norton presented an extensive summary of relevant evidence of discrimination forming the basis for a compelling need for the DBE program. (H3957).

Throughout the debate, the Members who affirmed the existence of discrimination and/or disadvantage asserted a number of factual bases for concluding that the DBE program was necessary. This information is largely drawn from the Senate debate; the briefer House debate contains less detail.

Senator Baucus cited disparities between the earnings of women and men and between the percentage of small businesses women own and the percentage of Federal procurement dollars they receive. He also noted that minorities make up 20 percent of the population, own 9 percent of construction businesses, and get only 4 percent of construction receipts. (S1403). Finally, Senator Baucus, via a letter from the Associate Attorney General, cited to numerous Congressional findings concerning the effects of discrimination in the construction industry and in DOT-assisted programs. (S1413).

Senator Kerry added that women own 9.2 percent of the nation's construction firms but their companies earn only about half of what is earned by male-owned firms. (S1409). Senator Robb

commented that the evidence of racially based disadvantage is "compelling and disturbing." He continued, stating that, "White-owned construction firms receive 50 times as many loan dollars as African-American owned firms that have identical equity." (S1422). Senator Kennedy said that the playing field for women and minorities and other victims of discrimination was still not level. Job discrimination against minorities and the "glass ceiling" for women still persisted, he said, adding that "Nowhere is the deck stacked more heavily against women and minorities than in the construction industry." (S1429). He cited a number of instances in which minority or female contractors encountered overt discrimination in trying to get work. (S1429-30).

Senator Lautenberg said that, for transportation-related contracts, minority-owned firms get only 61 cents for every dollar of work that white male-owned businesses receive. The comparable figure for women-owned firms was 48 cents. He also mentioned that "women-owned businesses have a lower rate of loan delinquency, yet still have far greater difficulty in obtaining loans." (S1490). He then spoke of the continuing effects of past discrimination:

Jim Crow laws were wiped off the books over 30 years ago. However, their pernicious effects on the construction industry remain. Transportation construction has historically relied on the old boy network which, until the last decade, was almost exclusively a white, old boy network. * * * This is an industry that relies heavily on business friendships and relationships established decades, sometimes generations, ago—years before minority-owned firms were even allowed to compete. (Id.)

Senator Durbin referred to recent studies concerning job bias against minorities and women. (S1491). Senator Lieberman referred generally to previous Congressional committee findings and testimony concerning still-existing barriers to full participation for minorities and women. (S1493). He also cited the May 1996 Department of Justice survey of discrimination and its effects in business and contracting. He referred to a recent study in Denver showing that African Americans were 3 times, and Hispanics 1.5 times, more likely than whites to be rejected for business loans. Senator Daschle summed up by saying, "[i]here is clearly a compelling interest in addressing the pervasive discrimination that has characterized the highway construction industry." (S1492).

Throughout the portion of the debate described above, many of the Members stressed that goal-based programs like

the DBE program were the only effective way to combat the continuing effects of discrimination.

Senator Baucus cited the experience of Michigan, in which DBE participation in the state-funded portion of the highway program fell to zero in a nine-month period after the state terminated its DBE program, while the Federal DBE program in Michigan was able to maintain 12.7 percent participation. (S1404). Senator Kerry also raised the Michigan example, and went on to cite similar sharp decreases in DBE participation when Louisiana, Hillsborough County, Florida, and San Jose, California, eliminated affirmative action programs covering state- and locally-funded programs. Senator Kerry asked rhetorically:

* * * is that just the economy of our country speaking, an economy at one moment that is capable of having 12 percent and at another moment, where they lose the incentive to do so, to drop down to zero, to drop down by 99 percent, to drop down by 80 percent, to have .4 at the State level while at the Federal level there are 12 percent? You could not have a more compelling interest if you tried. * * * (S1409-10).

Senator Moseley-Braun added the examples of Arizona, Arkansas, Rhode Island, and Delaware to the jurisdictions cited by other members where state-funded projects without a DBE program have significantly less DBE participation than Federally funded projects subject to the DBE program. She added, "Where there are no DBE programs, women- and minority-owned small businesses are shut out of highway construction." (S1420-21). Senator Kennedy added Nebraska, Missouri, Tampa and Philadelphia to the list of jurisdictions that experienced precipitous drops in DBE participation after goals programs ended. (S1429-30; S1482). He also cited comments from DBE companies that goal programs were needed to surmount discrimination-related barriers. (S1482). Senator Domenici repeated many of the same points as previous DBE proponents concerning the basis for concluding that the program was needed (S1426), as did Senator Kempthorne. (S1494).

Senator Robb emphasized that the DBE program was essential to combating discrimination and ensuring economic opportunity, explicitly linking the fall-off in DBE participation to continuing discrimination:

Where DBE programs at the State level have been eliminated, participation by qualified women and qualified minorities in government transportation contracts has plummeted. There is no way to know whether this discrimination is intentional or subconscious, but the effect is the same. This

experience demonstrates the sad but inescapable truth that, when it comes to providing economic opportunities to women and minorities, passivity equals inequality. (S1422).

3. *Narrow tailoring.*—DBE proponents cited the Department's proposed DBE rule as the vehicle that would ensure that the DBE program would be narrowly tailored. They cited features of the SNPRM including a new mechanism for calculation of overall goals, giving priority to race-neutral measures in meeting goals, a greater emphasis on good faith efforts, DBE diversification, added flexibility for recipients, net worth provisions, ability to challenge presumptions of social and economic disadvantage, and flexibility in goal-setting. In comments on the Senate consideration of the TEA-21 conference report, Senator Baucus concluded by saying:

As I explained in my statements during the debate on the McConnell amendment * * * the program is narrowly tailored, both under the current and the new regulations, which emphasize flexible goals tied to the capacity of firms in the local market, the use of race-neutral measures, and the appropriate use of waivers for good faith efforts. (Congressional Record, May 22, 1998; S5414).

Following Senator Baucus' remarks, Senator Chafee, Chairman of the committee of jurisdiction, requested that he be associated with Senator Baucus' remarks on constitutionality. (S5414).

DBE opponents denied that regulatory change could result in a narrowly tailored program. Senator Smith said "The administration's attempt to comply with the Court's decision by fiddling around with the DOT regulations does not meet the constitutional litmus test." (S1398). The most frequent argument against the efficacy of regulatory change was that a racial classification is inherently unable to be narrowly tailored. (Senator Sessions, S1399-1400; Senator Ashcroft, S1407).

DOT Response: The 1998 debate over DBE legislation was the most thorough in which Congress has engaged since the beginning of the program. The record of this debate clearly supports the Department's view that there is a compelling governmental interest in remedying discrimination and its effects in DOT-assisted contracting. Congress clearly determined that real, pervasive, and injurious discrimination exists. Congress backed up that determination with reference to a wide range of factual material, including private and public contracting, DOT-assisted and state- and locally-funded programs and the financing of the contracting industry. By retaining the DBE statutory provisions

against this factual background. Congress clearly found that there was a compelling governmental interest in having the program.

The courts, including the court in the *Adarand Constructors Inc. v. Peña*, 965 F.Supp. 1556 (D. Colo., 1997) and the court in *In re: Sherbrooke Sodding*, 6-96-CV-41 (D. Minn. 1998), agree that Congress has the power to legislate on a nationwide basis to address nationwide problems. Congress has a unique role as the national legislature to look at the whole of the United States for the basis to find a compelling governmental interest supporting the use of race-based remedies. Congress is not required to make particularized findings of discrimination in individual localities to which a nationwide program may apply. Nor is Congress required to find that the Federal government itself has discriminated before applying a race-conscious remedy. (Id. at 1573).

Having reviewed the extensive evidence of discrimination and its relationship to DOT-assisted contracting, the District Court in *Adarand* determined that current and previous DBE provisions were a "considered response by Congress to the effects of discrimination on the ability of minorities to participate in the mainstream of federal contracting." (Id. at 1576). The court stated that "Congress has a strong basis in evidence for enacting the challenged statutes, which thus serve a 'compelling governmental interest.'" (Id. at 1577). The extensive Congressional debate and information supporting the enactment of the 1998 DBE provision significantly strengthens the existing basis for declaring that this program serves a compelling governmental interest.

The basis for District Court's view that the program at issue in *Adarand* is unconstitutional is stated most clearly in the following passage:

Contrary to the [Supreme] Court's pronouncement that strict scrutiny is not 'fatal in fact,' I find it difficult to envisage a race-based classification that is narrowly tailored. By its very nature, such [a] program is both underinclusive and overinclusive. (Id. at 1580).

By underinclusive, the court said it meant that caucasians and members of non-designated minority groups are excluded. By overinclusive, it said it meant that all the members of the designated groups are presumed to be economically and/or socially disadvantaged, without Congress having inquired whether a particular entity seeking a racial preference has suffered from the effects of past discrimination (citing the Supreme Court's *Croson*

decision, which concerned the powers of state and local governments to use race-based remedies). (Id.)

As Senator Domenici pointed out (S1425), the key words in the District Court's opinion are "Contrary to the [Supreme] Court's pronouncement. * * * The District Court's analysis departs markedly from the controlling decision of the Supreme Court on this issue (*Adarand v. Peña*, 515 U.S. 200 (1995)). The Supreme Court's language with which the District Court disagreed is the following:

Finally, we wish to dispel the notion that strict scrutiny is "strict in theory, but fatal in fact." [citation omitted] The unhappy persistence of both the practice and the lingering effects of racial discrimination against minority groups in this country is an unfortunate reality, and government is not disqualified from acting in response to it * * * When race-based action is necessary to further a compelling interest, such action is within constitutional constraints if it satisfies the "narrow tailoring" test this Court has set out in previous cases. (515 U.S. at 237).

The Supreme Court evidently considers the "not fatal in fact" language to have continuing vitality, having cited it in a subsequent case (*U.S. v. Virginia*, 518 U.S. 515, note 6 (1996)).

Under the District Court's analysis, Congress could never use a race-based classification, no matter how compelling the need, because any such classification would intrinsically fail to be narrowly tailored. This approach effectively moots the determination of whether there is a compelling governmental interest. The Supreme Court's approach, by contrast, permits a racial classification to be used, given the existence of a compelling interest, if it is narrowly tailored.

What is the test for narrow tailoring? As set forth in *United States v. Paradise*, 480 U.S. 149, 171 (1987), the test includes several factors: "the necessity for relief and the efficacy of alternative remedies; the flexibility and duration of the relief, including the availability of waiver provisions; the relationship of the goals to the relevant labor market; and the impact of the relief on the rights of third parties." In *Adarand*, the Supreme Court specifically invited inquiry into whether there was any consideration of the use of race-neutral means to increase minority business participation (related to the efficacy of alternative remedies) and whether the program was appropriately limited so that it will not last longer than the discrimination it is designed to eliminate (related to the duration of relief). (515 U.S. at 238).

This final rule successfully addresses each element of this test:

- *The necessity of relief.* Throughout the debate on the compelling governmental interest, the bipartisan majority of both houses of Congress repeatedly described the necessity of the DBE program's goal-based approach to remedying the effects of discrimination in DOT-assisted contracting. The most significant evidence demonstrating the necessity of a goal-oriented program is the evidence cited of the fall-off in DBE participation in state contracting when goal-oriented programs end, compared to participation rates in the Federal DBE program.

- *Efficacy of alternative remedies.* This element of the narrow tailoring standard is related to the Supreme Court's inquiry concerning race-neutral programs. Under § 26.51 of this rule, recipients are required to meet the maximum feasible portion of their overall goals by using race-neutral measures. Recipients are not required to have contract goals on each contract. Instead, they are instructed to use contract goals only for any portion of their overall goal they cannot meet through race-neutral measures. Contract goals are intended as a safety net to be used when race-neutral means are not effective to ensure that a recipient can achieve "level playing field." Moreover, the regulations provide that recipients must reduce the use of contract goals when other means are sufficient to meet their overall goals. This ensures that race-conscious relief is used only to the extent necessary and is replaced by race-neutral as quickly as possible.

- *Flexibility of relief.* Flexibility is built into the program in a variety of ways. Recipients set their own goals, based on local market conditions; their goals are not imposed by the federal government nor do recipients have to tie them to any uniform national percentage. (§ 26.45). Recipients also choose their own method for goal setting and can choose to base the goal on the evidence that they believe best reflects their market conditions. (§ 26.45). Recipients have broad discretion to choose whether or not to use a goal on any given contract, and if they do choose to use a contract goal, they are free to set it at any level they believe is appropriate for the type and location of the specific work involved. (§ 26.51). The rule also ensures flexibility for contractors by requiring that any contract goal be waived entirely for a prime contractor that demonstrates that it made good faith efforts but was still unable to meet the goal. (§ 26.53). The rule also allows recipients that believe they can achieve equal opportunity for DBEs through different approaches to get waivers releasing

them from almost any of the specific requirements of the rule. (§ 26.103). Recipients can also get exemptions from the rule if they have unique circumstances that make complying with the rule impractical. (§ 26.103).

- *Duration of relief.* The TEA-21 DBE program will end in 2004 unless reauthorized by the Congress. In each successive reauthorization bill for the surface transportation and airport programs, Congress will have the opportunity to examine the current state of transportation contracting and determine whether the DBE program statutes are still necessary to remedy the continuing effects of discrimination. In addition, the duration of relief for individuals and firms are limited by the personal net worth threshold and business size caps. When an individual's personal wealth grows beyond the threshold, he or she will lose the presumption of disadvantage. (§ 26.67). Similarly, when a firm's receipts grows beyond the small business size standards, it loses its eligibility to participate in the program. (§ 26.65). Finally, to ensure that race-conscious remedies are not used any longer than absolutely necessary, § 26.51 requires recipients to reduce the use of contract goals and rely on race-neutral measures to the extent that they are effective.

- *Relationship of goals to the relevant market.* The overall goal setting provisions of § 26.45 require that recipient set overall goals based on demonstrable evidence of the relative availability of ready, willing and able DBEs in the areas from which each recipient obtains contractors. These provisions ensure that there is as close a fit as possible between the goals set by each recipient and the realities of its relevant market. When a recipient sets contract goals, § 26.51 provides that these goals are to be set realistically in relation to the availability of DBEs for the type and location of work involved.

- *Impact of relief on the rights of third parties.* The legitimate interests of third parties (e.g., prime contractors, non-DBE subcontractors) are only minimally impacted by the DBE program, since the program is aimed at replicating a market in which there are no effects of discrimination and the program affects only a relatively small percentage of total federal-aid funds. The design of the overall and contract goal provisions ensures that the use of race-conscious remedies having the potential to affect the interests of third parties is limited to the extent necessary to counter the effects of discrimination. Individual prime contractors are further protected from suffering any undue

burdens by § 26.51, which prevents a prime contractor from losing a contract if it made good faith efforts but was still unable to meet a goal. Non-DBE firms are also protected by § 26.33, which directs recipients to take appropriate steps to address areas of overconcentration of DBE firms in certain types of work that could unduly burden non-DBE firms seeking the same type of work.

- *Inclusion of appropriate beneficiaries.* The certification provisions of Subparts D and E, and particularly the social and economic disadvantage provisions of § 26.67, ensure that only firms owned and controlled by individuals who are in fact socially and economically disadvantaged can participate in the program. Eligibility provisions guard against overinclusiveness by ensuring that individuals with too great net worth are not presumed disadvantaged and by permitting the recipient—on its own initiative or as the result of a complaint—to follow procedures to rebut the presumption of social and/or economic disadvantage. They guard against underinclusiveness by permitting any business owner, including a white male, to demonstrate social and economic disadvantage on an individual basis.

Section-by-Section Analysis

Section 26.1 What Are the Objectives of This Part?

There were relatively few comments on this section of the SNPRM, most of which agreed with the proposed language. We have adopted the suggestion of some commenters that specific reference be made to the role of the DBE program in helping DBEs overcome barriers (e.g., access to capital and bonding) to equal participation. We have also added a specific reference to the role of the program in creating a level playing field on which DBEs can compete fairly for DOT-assisted contracts. Some non-DBE contractors urged that language be added to explicitly oppose "reverse discrimination." The rule clearly states that nondiscrimination is the program's first objective and the Department reiterates here that it opposes unlawful discrimination of any kind.

Section 26.3 To Whom Does This Part Apply?

This provision is unchanged from the SNPRM, except for references to the new TEA-21 statutory provisions. A few commenters wanted this provision to apply to Federal Railroad Administration (FRA) programs, as did

the original version of former part 23. However, FRA does not have specific statutory authority for a DBE program parallel to the TEA-21 language. One commenter asked if the language saying that DBE requirements do not apply to contracts without any DOT funding is inconsistent with Federal Transit Administration (FTA) guidance on applicability. While the structure of the FTA program is such that FTA funds are commingled with local funds in many transit authority contracts (e.g., any contract involving FTA operating assistance funds), to which DBE requirements would apply, a contract which is funded entirely with local funds—and without any Federal funds—would not be subject to requirements under this rule.

Section 26.5 What Do The Terms Used in This Part Mean?

There were relatively few comments on the definitions proposed in the SNPRM. One commenter wanted to substitute the term "historically underutilized business" for DBE. Given the continued use of the DBE term in Congressional consideration of the program, the continued use of the "socially and economically disadvantaged individuals" language in the statute, and the familiarity of concerned parties with the DBE term, we do not believe changing the term would be a good idea.

A few commenters asked for additional definitions or elaboration of existing definitions (e.g., "form of arrangement," "financial assistance program," "commercially useful function"). These terms are either already defined sufficiently or are best understood in context of the operational sections in which they are embedded, and abstract definitions in this section would not add much to anyone's ability to make the program work well. Consequently, we are not adding them. Otherwise the final rule adopts the SNPRM proposals for definitions with only minor editorial changes.

The Department has added, for the sake of clarity and consistency with other Federal programs, definitions of the terms Alaskan native, Alaskan native corporation (ANC), Indian tribe, immediate family member, Native Hawaiian, Native Hawaiian organization, principal place of business, primary industry classification, and tribally-owned concern. These definitions are taken from the SBA's new small disadvantaged business program regulation (13 CFR § 124.3). The definitions of the designated groups included in the definition of "socially

and economically disadvantaged individual" also derive from the SBA regulations, as the Department's DBE statutes require. We believe these will be useful terms of art in implementing the DBE program.

A few commenters requested definitions for the terms "race-conscious" and "race-neutral," and we have provided definitions. A race-conscious program is one that focuses on, and provides benefits only for, DBEs. The use of contract goals is the primary example of a race-conscious measure in the DBE program. A race-neutral program is one that, while benefiting DBEs, is not solely focused on DBE firms. For example, small business outreach programs, technical assistance programs, and prompt payment clauses can assist a wide variety of small businesses, not just DBEs.

Section 26.7 What Discriminatory Actions Are Forbidden?

One commenter wanted to add prohibitions of discrimination based on age, disability and religion. The Department is not doing so, because discrimination on these grounds is already prohibited by other statutes (e.g., the Americans with Disabilities Act with respect to disability). Also, statutes which form the basis for this rule focus on race, color, national origin, and sex. Congress determined that remedial action focused on these areas is necessary. These grounds for discrimination are also most relevant to problems in the DBE program that have been alleged to exist (e.g., disparate treatment of DBE certification applicants by race or sex). Some opponents of the program said that the DBE program discriminates against non-DBEs. However, the Department believes that the program is constitutional and does not violate equal protection requirements. A reference to DOT Title VI regulations has been deleted as unnecessary; otherwise, this provision is the same as in the SNPRM.

Section 26.9 How Does the Department Issue Guidance and Interpretations Under This Part?

Commenters, most of whom were recipients, focused on two issues in this section. First, a majority of the comments favored the "coordination mechanism" concept for ensuring consistent DOT guidance and interpretations. The few that disagreed with this approach did so out of a concern that the mechanism would add delays to the process. These commenters favored additional training

or an 800 number hot line to speed up the process.

We believe that proper coordination of interpretations and guidance is vital to the successful implementation of this rule. As the preambles to the 1992 and 1997 proposed rules mentioned, inconsistent implementation of part 23 has been a continuing problem, which has been criticized by a General Accounting Office report and which has created unnecessary difficulty for recipients, contractors, and the Department itself. A process for ensuring that the Department speaks with one voice on DBE implementation matters, and for letting the public know when DOT has spoken, will greatly improve the service we give our customers.

We do not believe this coordination process will result in significant delays in providing guidance. Nor will it inhibit the ability of DOT staff and customers to communicate with one another. For example, the process does not apply to informal advice provided by staff to recipients or contractors over the phone or in a letter or e-mail. It does maintain, however, the important distinction between informal staff assistance on one hand and a binding institutional position on the other.

For clarity in the process, we have modified the language of the rule text to make clear that interpretations and guidance are binding, official Departmental positions if the Secretary signs them or if the document includes a statement that they have been reviewed and approved by the General Counsel. The General Counsel will consult fully with all concerned offices as part of this review process.

We intend to post significant guidance documents and interpretations on the Department's web site to make them widely and quickly available. As some commenters suggested, we are also continuing to consider forming an advisory committee (or working group of an existing committee) to facilitate customer input into DBE program matters. This is separate from the coordination mechanism, however, which is an internal DOT process.

The rule's provisions regarding exemptions and waivers, previously found in the SNPRM's § 26.9 (c) and (d), are now included as a separate section at § 26.15.

Section 26.11 What Records do Recipients Keep and Report?

The Department asked, in the SNPRM, whether it would be advisable to have one standard reporting form for information about the DBE program. Currently, each operating

administration (OA) has its own reporting form and requirements. Virtually all the commenters that addressed this issue favored a single, DOT-wide reporting form. Commenters also had a wide variety of suggestions for what data should be reported, formats, and retention periods.

The Department is adopting the suggestion of having a single reporting form, which we believe will reduce administrative burdens for recipients, particularly those who receive funds from more than one OA. Because we do not want to delay the issuance of this rule while a form is being developed, we are reserving the date on which this single form requirement will go into effect. We will take comments on the specifics of reporting into account and consult with interested parties as we devise the form, which will be published subsequently in Appendix B to this rule. The Appendix will also address the issues of reporting frequency and record retention periods. Meanwhile, recipients will continue to report as directed by the concerned OA(s), using existing reporting forms.

The rule is also adding a requirement that recipients develop and maintain a "bidders" list. The bidders list is intended to be a count of all firms that are participating, or attempting to participate, on DOT-assisted contracts. The list must include all firms that bid on prime contracts or bid or quote subcontracts on DOT-assisted projects, including both DBEs and non-DBEs. Bidders lists appear to be a promising method for accurately determining the availability of DBE and non-DBE firms and the Department believes that developing bidders data will be useful for recipients. Creating and maintaining a bidders list will give recipients another valuable way to measure the relative availability of ready, willing and able DBEs when setting their overall goals. (See § 26.45). We realize that identifying subcontractors, particularly non-DBEs and all subcontractors that were unsuccessful in their attempts to obtain contracts, may well be a difficult task for many recipients. Mindful of that potential burden, the rule will not impose any procedural requirements for how the data is collected. Recipients are free to choose whether or not they wish to gather this data through their existing bidding and reporting processes. Recipients are encouraged to make use of all of the data already available to them and all methods of reporting and communication with their contracting community that they already have in place. In addition, the Department suggests that recipients consider using a widely publicized public notice or a

widely disseminated survey to encourage all firms that have bid or quoted contracts to make themselves known to recipients.

Once recipients have created the list of bidders, they will have to supplement that information with the age of each firm (since establishment) and the annual gross receipts of the firm (or an average of its annual gross receipts). Recipients can gather this additional information by sending a questionnaire to the firms on the list, or by any other means that the recipient believes will yield reliable information. The recipient's plan for how to create and maintain the list and gather the required information must be included in its DBE program.

Section 26.13 What Assurances Must Recipients and Contractors Make?

There were few comments on this section. Most of these supported the proposal. One comment suggested specific mention of prompt payment, but in view of the substantive requirements on this subject, we do not believe such a mention is needed. Some commenters favored requiring additional public participation as part of the assurance for recipients. Again, given substantive provisions of this rule concerning public participation, we do not believe that repetition here is needed. One commenter said that incorporating the requirements of part 26 in the contract was confusing, since many provisions of part 26 apply only to recipients. We have rewritten the assurance for contractors in response to this concern, specifying that contractors are responsible only for carrying out the requirements of part 26 that apply to them.

Section 26.15 How Can Recipients Apply for Exemptions or Waivers?

There has been some confusion as to this rule's distinction between exemption and waiver. Put simply, exemptions are for unique situations that are most likely not to be either generally applicable to all recipients or to have been contemplated in the rulemaking process. If such a situation occurs and it makes it impractical for a particular recipient to comply with a provision of part 26, the recipient should apply for an exemption from that provision. The waiver provision, by contrast, is not designed for extraordinary circumstances where a recipient may not be able to comply with part 26. Waiver is for a situation where a recipient believes that it can better accomplish the objectives of the DBE program through means other than the specific provisions of part 26.

There were a number of comments about the proposed program waiver provision. Most commenters on this issue favored the proposal, believing it could add flexibility to the way recipients implement the DBE program. A few commenters were concerned that too liberal use of the waiver provision might undermine the goals of the rule.

The Department believes that the waiver provision is an important aspect of the DBE program. The provision ensures that the Department and a recipient can work together to respond to any unique local circumstances. Recipients are encouraged to carefully review the circumstances in their own jurisdictions to determine what mechanisms are best suited to achieving compliance with the overall objectives of the DBE program. If a recipient believes it is appropriate to operate its program differently from the way that a provision of Subpart B or C provides, including, but not limited to, any provisions regarding administrative requirements, overall or contract goals, good faith efforts or counting provisions, it can apply for a waiver. For example, waiver requests could pertain to such subjects as the use of a race-conscious measure other than a contract goal, different ways of counting DBE participation in certain industries, use of separate overall or contract goals to address demonstrated discrimination against specific categories of socially and economically disadvantaged individuals, the use or wording of assurances, differences in information collection requirements and methods, etc.

The Department will, of course, carefully review any applications for waivers to make sure that innovative state or local programs are able to meet the objectives of the statutes and regulation. Decisions on waiver requests are made by the Secretary. This authority has not been delegated to other officials. The waiver provision, which the Department believes will help assist recipients to "narrowly tailor" the program to state and local circumstances and ensure nondiscrimination, remains in the final rule.

Section 26.21 Who Must Have a DBE Program?

The only substantive comment concerning this provision asked that Federal Railroad Administration (FRA) programs be included. The Department is not including FRA programs under this rule because FRA does not have a specific DBE program statute parallel to those covering the Federal Aviation Administration (FAA), FTA, and

FHWA. FRA could consider issuing a rule similar to part 26 under its own, separate statutory authority. The Department shortened paragraph (b)(1) to make it easier to understand. Within 180 days of the effective date of this rule, all recipients with existing programs must submit revised programs to the relevant OA for approval. The only changes from existing programs that recipients would have to make are changes needed to accommodate differences between former part 23 and part 26. Future new recipients would, of course, submit a DBE program as part of the approval process for financial assistance.

Section 26.23 What Is the Requirement for a Policy Statement?

Section 26.25 What Is the Requirement for a Liaison Officer?

Section 26.27 What Efforts Must Recipients Make Concerning DBE Financial Institutions?

There were no substantive comments concerning §§ 26.23–26.27, and the Department is adopting them as proposed.

Section 26.29 What Prompt Payment Mechanisms Must Recipients Have?

There was substantial comment on the issue of prompt payment. A majority of commenters supported the concept of prompt payment provisions. Some recipients pointed out that they already had prompt payment provisions on the books. DBEs generally supported mandating prompt payment provisions though they, as well as other commenters, recognized that slow payment is a problem affecting many subcontractors, not just DBEs. Some of these comments suggested making prompt payment requirements applicable to subcontracts in general, not just DBE subcontracts. Some recipients were concerned about getting in the middle of disputes between prime contractors and subcontractors. Some commenters wanted the Department to mandate prompt payment provisions, while others preferred that their use by recipients remain optional.

Having considered the variety of views expressed on this subject, the Department believes that prompt payment provisions are an important race-neutral mechanism that can benefit DBEs and all other small businesses. Under part 26, all recipients must include a provision in their contracts requiring prime contractors to make prompt payments to their subcontractors, DBE and non-DBE alike. It is clear that DBE subcontractors are significantly—and, to the extent that

they tend to be smaller than non-DBEs, disproportionately—affected by late payments from prime contractors. Lack of prompt payment constitutes a very real barrier to the ability of DBEs to compete in the marketplace. It is appropriate for the Department to require recipients to take reasonable steps to deal with this barrier. We recognize that delayed payments do not affect only DBE contractors; a prompt payment requirement applying to all subcontracts is an excellent example of a race-neutral measure that will assist DBEs, and we are therefore requiring that recipients' prompt payment mechanisms apply to all subcontracts on Federally-assisted contracts.

Paragraph (a) of this section requires recipients to put into their DBE programs a requirement for a prompt payment contract clause. This clause would appear in every prime contract on which there are subcontracting possibilities, and it would obligate the prime contractor to pay subcontractors within a given number of days from the receipt of each payment the recipient makes to the prime contractor. Payment is required only for satisfactory completion of the subcontractor's work. The clause would also apply to the return of retainage from the prime to the subcontractor. Retainage would have to be returned within a given number of days from the time the subcontractor's work had been satisfactorily completed, even if the prime contract had not yet been completed. A majority of commenters on the retainage issue favored a requirement of this kind.

The number of days involved would be selected by the recipient, subject to OA approval as part of the recipient's DBE program. In approving these time frames, the OAs will consider whether they are realistic and sufficiently brief to ensure genuinely prompt payment. Recipients who already operate under prompt payment statutes may use their existing authority in implementing this requirement. It may be necessary to add to existing contract clauses in some cases (e.g., if existing prompt payment requirements do not cover retainage).

Paragraph (b) lists a series of additional measures that the regulation authorizes, but does not require, recipients to use. These include alternative dispute resolution, holding of payments to primes until subcontractors are paid, and other mechanisms that the recipient may devise. All these mechanisms could be made part of the recipient's DBE programs.

Section 26.31 What Requirements Pertain to the DBE Directory?

Recipients maintain directories listing certified DBEs. The issue most discussed by commenters on this section was whether the directory should include material concerning the qualifications of the firm to do various sorts of work. For example, has the firm been pre-qualified by the recipient? Can it do creditable work? What kinds of work does the firm prefer to do? Some commenters also asked that the directory should list the geographical areas in which the firm is willing to work. Other commenters opposed the idea of including this kind of information in the directory.

The Department believes that the directory and the certification process are closely intertwined. The primary purpose of the directory is to show the results of the certification process. Consequently, the directory should list all firms that the recipient has certified, along with basic identifying information for the firm. Since certification under this rule pertains to the various kinds of work a firm's disadvantaged owners can control, it is important to list those kinds of work in the directory. For example, if a firm seeks to work in fields A, B, and C, but the recipient has determined that its disadvantaged owners can control its operations only with respect to A and B, then the directory would recite that the firm is certified to perform work as a DBE in fields A and B.

The focus of the directory is intended to be eligibility. A directory is a list of firms that have been certified as eligible DBEs, with sufficient identifying information to permit interested firms to contact the DBEs. We do not intend to turn a recipient's directory into a comprehensive business resource manual. For example, information about firms' qualifications, geographical preferences for work, performance track record, capitalization, etc. are not required to be part of the directory. Some commenters favored including one or more of these elements, but we are concerned that other business information—however useful in its own right—could clutter up the directory and dilute its focus on certification.

Section 26.33 What Steps Must a Recipient Take to Address Overconcentration of DBEs in Certain Types of Work?

For some time, the Department has heard allegations that DBEs are overconcentrated in certain fields of highway construction work (e.g., guardrail, fencing, landscaping, traffic

control, striping). The concern expressed is that there are so many DBEs in these areas that non-DBEs are frozen out of the opportunity to work. In an attempt to respond to these concerns, the SNPRM asked for comment on a series of options for "diversification" mechanisms, various incentives and disincentives designed to shift DBE participation to other types of work.

The Department received a great deal of comment on these proposals, almost all of it negative. There were few comments suggesting that overconcentration was a serious problem, and many comments said that the alleged problem was not real. Some FTA and FAA recipients said that if there was a problem with overconcentration, it was limited to the highway construction program. As a general matter, recipients said that the proposed mechanisms were costly, cumbersome, and too prescriptive.

Prime contractors opposed the provisions because they would make it more difficult for them to find DBEs with which to meet their goals, while DBEs opposed them because they felt the provisions would penalize success and force them out of areas of business in which they were experienced. Many commenters suggested using outreach or business development plans as ways of assisting DBEs to move into additional areas of work.

The Department does not have data from commenters or other sources to support a finding that "overconcentration" is a serious, nationwide problem. However, as part of the narrow tailoring of the DBE program, we believe it would be useful to give recipients the authority to address overconcentration problems where they may occur. In keeping with the increased flexibility that this rule provides recipients, we give recipients discretion to identify situations where overconcentration is unduly burdening non-DBE firms. If a recipient finds an area of overconcentration, it would have to devise means of addressing the problem that work in their local situations. Possible means of dealing with the problem could include assisting prime contractors to find DBEs in non-traditional fields or varying the use of contract goals to lessen any burden on particular types of non-DBE specialty contractors. While recipients would have to obtain DOT approval of determinations of overconcentration and measures for dealing with them, the Department is not prescribing any specific mechanisms for doing so.

Section 26.35 What Role do Business Development and Mentor-Protégé Programs Have in the DBE Program?

In the SNPRM, both mentor-protégé programs and business development programs (BDPs) were cast as tools to use for diversification. They still may be used for that purpose, as noted in § 26.33. However, the Department believes that they may have a broader application, and their use in the final rule is not limited to diversification purposes. BDPs, in particular, are good examples of race-neutral methods recipients can use to promote the participation of DBEs and other small businesses in their contracting programs.

There were few comments on these provisions. Recipients wanted flexibility, and suggested that these kinds of programs should be optional. Their comments said that such programs were resource-intensive, and that Federal financial assistance for them would be welcome. One contractors' organization offered its own mentor-protégé plan as a model. A few comments voiced suspicion of mentor-protégé plans, on the basis that they allowed fronts and frauds into the program.

The final rule makes the use of BDPs and mentor-protégé programs optional for recipients. An operating administration can direct a particular recipient to institute a BDP, but BDPs are not mandatory across the board. The operating administration would negotiate with the recipient before mandating a BDP.

One feature added to this provision allows recipients to establish a kind of mini-graduation requirement for firms that voluntarily participate in BDPs. One of the purposes of a BDP is to equip DBE firms to compete in the market outside the DBE program. Therefore, a recipient could ask BDP participants to agree—as a condition of receiving BDP assistance—to agree to leave the DBE program after a certain number of years, or after certain business development objectives had been achieved.

Standing alone, mentor-protégé programs are not an adequate substitute for the DBE program. While they can be an important tool to help selected firms, they cannot be counted on to level the playing field for DBEs in general. An effective mentor-protégé program requires close monitoring to guard against abuse, which further limits the number of DBEs they can assist. Even with these limits, a mentor-protégé program that has safeguards to prevent large non-DBE firms from circumventing the DBE program can be a useful

component of a recipient's overall strategy to ensure equal opportunities for DBEs.

The final rule includes safeguards intended to prevent the misuse of mentor-protégé programs. Only firms that a recipient has already certified as DBEs (necessarily including a determination that they are independent firms) can participate as protégés. This is intended to preclude non-DBE firms from creating captive DBE firms to serve as protégés. A non-DBE mentor firm cannot get credit for more than half its goal on any contract by using its own protégé. Moreover, a non-DBE mentor firm cannot get DBE credit for using its own protégé on more than every other contract performed by the protégé. That is, if Mentor Firm X uses Protégé Firm Y to perform a subcontract, X cannot get DBE credit for using Y on another subcontract until Y had first worked on an intervening prime contract or subcontract with a different prime contractor.

To make mentor-protégé relationships feasible, the rule provides that mentors and protégés are not treated as affiliates of one another for size determination purposes. Mentor-protégé programs and BDPs must be approved by the concerned operating administration before they take effect. Recipients who already have such programs in place would make them part of their revised DBE programs sent to the concerned OA within 180 days of the effective date of part 26.

Section 26.37 What Are a Recipient's Responsibilities for Monitoring the Performance of Other Program Participants?

The few comments on this section asked for more detail and clarification. In the interest of flexibility, the Department is reluctant to be prescriptive in the matter of monitoring and enforcement mechanisms. What we are looking for is a strong and effective set of monitoring and compliance provisions in each recipient's DBE program. These mechanisms could be most anything available to the recipient under Federal, state, or local law (e.g., liquidated damages provisions, responsibility determinations, suspension and debarment rules, etc.)

One of the main purposes of these provisions is to make sure that DBEs actually perform work committed to them at contract award. The results that recipients must measure consist of payments actually made to DBEs, not just promises at the award stage. Credit toward goals can be awarded only when payments (including, for example, the return of retainage payments) are

actually made to DBEs. Under the final rule, recipients would keep a running tally of the extent to which, on each contract, performance had matched promises. Prime contractors whose performance fell short of original commitments would be subject to the compliance mechanisms the recipient had made applicable.

Section 26.41 What Is the Role of the Statutory 10 Percent Goal in This Program?

This is a new section, intended to explain what role the 10 percent statutory goal plays in the DBE program. Under former part 23, the 10 percent figure derived from the statute had a role in the setting of overall goals by recipients. For example, if recipients had a goal of less than 10 percent, the rule required them to make a special justification.

This section makes clear that the 10 percent goal is an aspirational goal that applies to the Department of Transportation on a national level, not to individual recipients. It is a goal that the Department can use to evaluate its overall national success in achieving the objectives that Congress has established for this program. However, the national 10 percent goal is not tied to recipients' goal-setting decisions. Recipients set goals based on what will achieve a level playing field for DBEs in their own programs, without regard to the national goal. Recipients are not required to set their overall or contract goals at 10 percent or any other particular level. Recipients are no longer required to make a special justification if their overall goals are less than 10 percent.

As discussed in connection with the Congressional debate on the TEA-21 DBE provision, Congress viewed flexibility concerning the statutory 10 percent goal as an important feature of narrow tailoring and made clear that it was setting a national goal, not a goal for any individual recipient. The Department wants to ensure that state and local programs have sufficient flexibility to implement their programs in a narrowly tailored way. This section is part of the Department's effort toward that end.

Section 26.43 Can Recipients Use Quotas or Set-Asides as Part of This Program?

The DBE program has often been labeled as a "quota" or "set-aside" program, especially, though not exclusively, by its opponents. This label is, and always has been, incorrect. Fifteen years ago, in the preamble to the Department's first rule implementing a DBE statute, the Department carefully

specified that neither quotas nor set-asides were required (see 48 FR 33437-38; July 21, 1983). This remains true today. However, in light of *Adarand* and this year's Congressional debates on the DBE statutes, we believe this point deserves additional emphasis. This regulation prohibits quotas under any circumstances and makes clear that set-asides can only be used as a means of last resort for redressing egregious discrimination.

A number of non-DBE contractors and their organizations continued to assert, in comments on the SNPRM, that the DBE program operates as a quota program. This section makes clear that recipients cannot use quotas on DOT-assisted contracts under any circumstances. A quota is a simple numerical requirement that a recipient or contractor must meet, without consideration of other factors. For example, if a recipient sets a 12 percent goal on a particular contract and refuses to award the contract to any bidder who does not have 12 percent DBE participation, either refusing to look at showings of good faith efforts or arbitrarily disregarding them, then the recipient has used a quota. The Department's regulations have never endorsed this practice. The issue of good faith efforts is discussed further below in connection with § 26.51.

A set-aside is a very specific tool. A contracting agency sets a contract aside for DBEs if it permits no one but DBEs to compete for the contract. Firms other than DBEs are not eligible to bid. The Department's DBE program has never required the use of set-asides and has allowed recipients to use set-asides only under very limited circumstances.

Under the SNPRM, a recipient could use a set-aside on a DOT-assisted contract only if other methods of meeting overall goals were demonstrated to be unavailing and the recipient had legal authority independent of part 26. Comments were divided concerning the use of set-asides. A number of non-DBE contractors opposed the use of set-asides, some of them saying that set-asides might be something they could live with if their use were balanced by the elimination of DBE contract goals on other contracts in the same field. Some recipients and DBEs said, however, that set-asides were a useful tool to achieve goals, particularly for start-up contractors or small contracts.

The Department has carefully reviewed these comments and continues to believe that set-asides should not be used in the DBE program unless they are absolutely necessary to address a specific problem when no other means

would suffice. If a recipient has been unable to remedy the effects of egregious discrimination through other means, it may, as a last resort, make limited use of set-asides to the extent necessary to resolve the problem.

Section 26.45 How Do Recipients Set Overall Goals?

Since its inception, the recipient's overall goal has been the heart of the DBE program. Responding to *Adarand*, DOT clarified the theory and purpose of the overall goal in the SNPRM. In the proposed rule, the Department made clear that the purpose of the overall goal—and, in fact, the DBE program as a whole—is to achieve a "level playing field" for DBEs seeking to participate in federal-aid transportation contracting. To reach a level playing field, recipients need to examine their programs and their markets and determine the amount of participation they would expect DBEs to achieve in the absence of discrimination and the effects of past discrimination. The focus of the goal section of the SNPRM was to propose ways to measure what a level playing field would look like and to seek input on the availability of data to make such a measurement.

The Proposed Rule and Comments

The Department proposed several options that recipients might use for setting overall goals, including three alternative formulas for measuring the availability of ready, willing and able DBEs in local markets. The specific formulas will be discussed below, but generally, they each called for setting a goal that reflected the percentage of locally available firms that were DBEs (i.e. dividing the number of DBEs by the number of all businesses). On all of the alternatives, the SNPRM sought comments on both the feasibility and practical value of the options, as well as the prospects for combining any of the approaches and the question of whether to mandate a single approach or allow each recipient to choose amongst the options. We invited commenters to propose changes to any of the details of the options or to devise entirely new ones. Finally, we asked commenters for their input on the availability of reliable data for use with each of the options.

Hundreds of commenters of all types—including DBEs and non-DBEs, prime and subcontractors, state and local recipients, industry and interest groups and private individuals—responded with a wealth of feedback, opinions and data. It is an understatement to say that there was no consensus among commenters as to the best way to set overall goals. Support for

the proposed options was almost evenly spread over the choices presented, with many commenters firmly against all of the options. Still more suggested that the current, non-formulaic method was the best way to ensure the flexibility to respond to local market conditions. Similarly, among those who expressed an opinion, commenters were split between the propriety of choosing a single "best" method and imposing it on all recipients and allowing recipients to choose amongst all the options. One of the few universal themes in the goal-setting comments was the problem of the availability of reliable data on the number of DBE and non-DBE contractors.

There were a few common threads that different groups of commenters tended to apply to all of the formulas. Among recipients, many comments focused on the lack of data about non-DBE contractors, especially subcontractors. Recipients often noted that they would not have the information needed for the denominator of any of the formulas (i.e. the total number of available businesses). Non-DBE contractors—and industry groups representing them—generally believed that there should be a capacity measure built into any goal setting mechanism. Finally, DBEs—and their industry associations—were concerned that all of the formulas would create goals based only on the current number of DBEs, locking in the effects of past discrimination by ignoring the fact that the lack of opportunities in the past has suppressed the number of DBE firms available today.

Under the proposed rule's Alternative 1, recipients would calculate the percentage of DBE firms in their directories among all firms available to work on their DOT-assisted contracts. Under Alternative 2, recipients would calculate the percentage of all minority- and women-owned firms in certain SIC codes in their areas among all firms in these SIC codes in the same areas. Under Alternative 3, recipients would calculate a percentage based on the average number of DBE firms that had worked on their DOT-assisted contracts in recent years divided by the average number of all firms that had worked on their DOT-assisted contracts in the same period. The SNPRM also proposed that recipients could use other means, such as disparity studies or goals developed by other recipients serving the same area, as a basis for their goals.

Each of the three proposed alternatives received some support, though this was often the rather tepid endorsement of commenters who felt that one or another alternative was the

best of a bad lot. Non-DBE contractors often claimed that the alternatives would unfairly increase goals, while DBE contractors often claimed that the same proposals would unfairly decrease goals.

Commenters said that data for determining the denominators of the equations in Alternatives 1 and 2, as well as the numerator in Alternative 2, did not exist and that it would be a major, time-consuming job to begin to obtain the data. Adaptation of existing information from other sources (e.g., Census data) was said to have significant statistical difficulties. The difficulty of getting data on out-of-state firms was emphasized in some comments.

Commenters looked on the alternatives as cumbersome, creating unreasonable administrative burdens, and as producing statistical results that were skewed in various ways. The use of DBE directories as the source of the numerator in Alternative 1 was criticized on the basis that directories may contain firms that never actually participate in DOT-assisted contracts. It was suggested that the number of firms bidding rather than the number of firms certified would be a more reliable guide, but it was also pointed out that, because subcontractors seldom formally bid for work, this data would be hard to obtain. Some commenters proposed adding overall population statistics to the mix.

A significant number of commenters—primarily non-DBE contractors, but including some recipients and other commenters as well—emphasized the need to take "capacity" into account. Most popular among these comments was using a capacity version of Alternative 3. These comments did not propose a method of determining the capacity of the firms contracting with the recipient.

The Final Rule

In view of the complexity and importance of the goal setting process and the many issues raised by commenters, the Department has decided to adopt a two step process for goal setting. The process is intended to provide the maximum flexibility for recipients while ensuring that goals are based on the availability of ready, willing and able DBEs in each recipient's relevant market. The Department believes that this approach is critical to meeting our constitutional obligation to ensure that the program is narrowly tailored to remedy the effects of discrimination. The first step of the process will be to create a baseline figure for the relative availability of ready, willing and able DBEs in each

recipient's market. The second step will be to make adjustments from the base figure, relying on an examination of additional evidence, past experience, local expertise and anticipated changes in DOT-assisted contracting over the coming year.

Step 1: Determining a Base Figure for the Overall Goal

The base figure is intended to be a measurement of the current percentage of ready, willing and able businesses that are DBEs. Ensuring that this figure is based on demonstrable evidence of each recipient's relevant market conditions will help to ensure that the program remains narrowly tailored. To be explicit, recipients cannot simply use the 10 percent national goal, their goal from the previous year, or their DBE participation level from the previous year as their base figure. Instead, all recipients must take an actual measurement of their marketplace, using the best evidence they have available, and derive a base figure that is as fair and accurate a representation as possible of the percentage of available businesses that are DBEs.

There are many different ways to measure the contracting market and assess the relative availability of DBEs. As discussed above, the SNPRM proposed three alternate formulas to measure relative availability, none of which were particularly popular with commenters. In this final rule, the Department is placing primary emphasis on the principles underlying the measurement, mandating only that a measurement of the relative availability of DBEs be made on the basis of demonstrable evidence of relevant market conditions, rather than requiring that any particular procedure or formula be used. The final rule contains a number of examples of how to create a base figure which recipients are free to adopt in their entirety or to use as guidelines for how to devise their own measurement.

There are several reasons we have taken this approach. First, the Department is aware of the differences in available data in various markets across the nation. The flexibility inherent in this approach will ensure that all recipients can use the procedure to set a reasonable goal and allow each recipient to use the best data available to it. As discussed in another section, this rule will also provide for the development of more standard data for future goal setting. Second, for many recipients, setting goals in this way will be a new exercise. By fixing only the basic principle, but allowing the methodology to change, recipients will

have the opportunity to fine tune the process each year as their experience grows and the data available to them improve. Finally, the rule makes sure that every recipient will have at least one reasonable and practical goal setting method available to them.

The first example for setting a base figure relies on data sources that are immediately available to all recipients: their DBE directories, and a Census Bureau database that DOT and the Census Bureau will make available to all recipients that wish to use it. This example has its roots in the first two goal setting formulas proposed in the SNPRM. Recipients would first assess the number of ready, willing and able DBEs based on their own directories. For some recipients this will be as simple as counting the number of firms in their directory. For others, particularly those using directories maintained by other agencies, the directories will have to be "filtered" for firms involved in transportation contracting. The resulting number of DBEs would become the numerator. The denominator would then be derived from the Census Bureau's County Business Pattern (CBP) database. We will provide user-friendly electronic access to the database via the internet to allow recipients to input the geographic area and SIC codes in which they contract and receive a number for the availability of all businesses.

There are several issues that must be addressed when comparing numbers derived from two different data sources, some of which were raised in the comments on the SNPRM. Recipients will need to ensure that the scope of businesses included in the numerator is as close as possible to the scope included in the denominator. Using as close as possible to the same SIC codes and geographic base is very important. A recipient using its own DBE directory, particularly one that contains only firms in the fields in which it contracts, will still need to determine what fields it will use for the denominator when sorting through the CBP database. The best way to do this would be to examine their contracting program and determine the SIC codes in which they let the substantial majority of their contracts and subcontracts. The geographic area used for both the numerator and the denominator should cover the area from which the recipient draws the substantial majority of its contractors. While it may be sufficient for some state recipients to use their state borders as their contracting area, local transit and airport recipients will rarely have such an obvious choice. Those recipients will need to more carefully examine the

geographic area from which they draw contractors and base their calculation of both the numerator and denominator of the equation on the same area.

The Department and the Census Bureau will make the CBP data available in a format that gives recipients as much flexibility as possible to tailor the data to their contracting programs. Recipients will be able to extract the data in one block for all of the SIC codes they expect to contract in, or by individual SIC codes, allowing them to

weight the relative availability of DBEs in various fields, giving more weight to the fields in which they spend more money. For example, let us assume a recipient estimates that it will expend 10% of its federal aid funds within SIC code 15, 40% in SIC code 16, 25% in SIC code 17, and the remaining 25% on contracting spread over SIC codes 07, 42 and 87. The recipient could separately determine the relative availability of DBEs for each of the three major construction SIC codes (i.e., 15, 16 and

17) and the relative availability of DBEs in the other three SIC codes grouped together and weight each according to the amount of money to be spent in each area. In this example, the recipient could calculate its weighted base figure by first determining the number of DBEs in its directory for each of the groups, then extracting the availability of CBP businesses for the same groups. It would then perform the following calculation to arrive at a base figure for step one of the goal setting process:

$$\text{Base Figure} = \left[.10 \frac{(\text{DBEs in SIC 15})}{\text{CBPs in SIC 15}} + .40 \frac{(\text{DBEs in 16})}{\text{CBPs in 16}} + .25 \frac{(\text{DBEs in 17})}{\text{CBPs in 17}} + .25 \frac{(\text{DBEs in 07,42,87})}{\text{CBPs in 07,42,87}} \right] \times 100$$

As has been stated generally, this formula is offered only as an example of a way that a recipient could choose to use the CBP database. Recipients using the CBP data should choose whether to weight their calculation, and whether to do so by individual SIC codes or by groups of SIC codes, based on their own assessment of what method will best fit their spending pattern.¹

Finally, there is still the question of the propriety of comparing data from two sources as different as DBE directories and the CBP. As mentioned above, some commenters asserted that the directories may contain firms that do not normally perform DOT-assisted contracts. This problem is greatest, of course, for directories maintained by other agencies for purposes beyond DOT-assisted contracting. We believe that the recipient's knowledge of its contracting needs and the contents of its DBE directory will allow it to solve this problem by sorting the directories by SIC code to extract only the firms likely to be interested in DOT-assisted contracting. Any remaining effect from DBEs that are certified in the relevant SIC codes but still do not intend to compete for DOT-assisted contracts will be more than offset by the hurdles involved in actually becoming a DBE. It is important to note here that the certification process itself, with its paperwork, review and on-site inspection, create a filter on the number of existing firms that will be counted in the numerator without there being any equivalent filter culling firms out of the denominator. Ultimately, the Department chose these two data sources for the example because, while they may not be perfect, they represent

the best universally available current data on both the presence of DBEs and the presence of all businesses in local markets. Any recipient that believes it has available to it better sources of local data from which to make a similar calculation for its base figure is encouraged to use them.

The second example for calculating a base figure is using a bidders list to determine the relative availability of DBEs. The concept is similar to the one described above. The recipient would divide the number of available ready, willing and able DBEs by the number for all firms. The difference is that instead of measuring availability by DBE certifications and Census data, the recipient would measure availability by the number of firms that have directly participated in, or attempted to participate in, DOT-assisted contracting in the recent past. This approach has its roots in Alternative 3 from the SNPRM. Of fundamental importance to this approach is that the recipient would need to include all firms that have sought DOT-assisted contracts, regardless of whether they did so by bidding on a prime contract or quoting a job as a subcontractor. Because most DOT recipients derive the substantial majority of their DBE participation through subcontracting, it is absolutely essential that all DBE and non-DBE firms that quote subcontracts be included in the bidders list.² Bidders lists are a very focussed measure of ready, willing and able firms because they filter the pool of available firms by requiring a demonstration of their ability to participate in the process through tracking and identifying

contracting opportunities, understanding the requirements of a particular job and assembling a bid for it. Another attractive feature of the bidding "filter" is that it applies equally to both DBEs and non-DBEs.

The third example included in the final rule for setting a base figure is using data derived from a disparity study. As was discussed in the SNPRM, the Department is not requiring recipients to do a disparity study, but is only making clear that use of disparity study data by recipients that have them or choose to conduct them is a valid means of setting a goal. Disparity studies generally contain a wide array of statistical data, as well as anecdotal data and analysis that can be particularly useful in the goal setting process. We list disparity studies here, not because they are needed to justify operating the DBE program—Congress has already established the compelling need for the DBE program—but because the data a good disparity study provides can be an excellent guide for a recipient to use to set a narrowly tailored goal.

The Department will not set out specific requirements for what data or analysis is required before a disparity study can be used for setting a goal, because we believe that the design and conduct of the study is best left to the local officials and the professional organizations with which they contract to conduct the studies. Instead, we again offer simple general principles that should apply to all studies used for goal setting. Any study data relied on in the goal setting process should be as recent as possible and be focussed on the transportation contracting industry. When setting the goal, first use the study's statistical evidence to set a base figure for the relative availability of DBEs. Other study information, whether it is anecdotal data, analysis or statistical information about related

¹ While it is not statistically necessary to account for 100% of program dollars when performing this type of weighting, the greater the percentage accounted for, the more accurate the resulting calculation will be.

² To prevent any confusion, it is important to note that the DBE program does not use the so-called "benchmarking" system employed in direct Federal procurement. The benchmarking system relies on a unique database created specifically for use in the federal procurement program.

fields, should be included when making adjustments to the base figure (discussed in more detail below), but not included in the base figure for the relative availability of DBEs.

The last specific example included in the rule is using the goal of another recipient as the base figure for goal setting. This option was also included in the SNPRM. It is intended to avoid duplicative work and to lighten the burden the goal setting process might put on smaller recipients. It is important to note that a recipient could only use another recipient's goal if it was set in accordance with this rule and the other recipient performed similar contracting in a similar market area. Using another recipient's approved goal would only satisfy the first step of the goal setting process. It would serve as the base figure, and could not be used to skip over step two of the process. The recipient would need to examine the same additional evidence it would otherwise use to determine whether to adjust its goal from the base figure, as well as being required to make adjustments to account for differences in its local market or contracting program.

The final rule also maintains the option of devising an alternative method of calculating a base figure for the goal setting process. Explicitly listing this option serves to emphasize the point that the options in the rule are examples meant as guidelines intended to ensure maximum flexibility for recipients. Recipients can use this option to take advantage of their unique expertise or any unique source of data that they have that may not be available to other recipients. The concerned operating administration will review and approve the proposals of recipients that believe they can calculate a base figure that will better reflect their relevant market than any of the examples provided in this rule. Approval will be contingent on the proposals following the same principles that apply to any recipient: the methodology must be based on demonstrable data of relevant market conditions and be designed to reach a goal that the recipient would expect DBEs to achieve in the absence of discrimination.

Step 2: Adjusting the Base Figure

As alluded to above, measuring the relative availability of DBEs to derive a base figure is only the first step of the goal setting process. To ensure that they arrive at goals that truly and accurately reflect the participation they would expect absent the effects of discrimination, recipients must go beyond the formulaic measurement of

current availability to account for other evidence of conditions affecting DBEs. To accomplish this second step, recipients must first survey their jurisdiction to determine what types of relevant evidence is available to them. Then, relying on their own knowledge of their contracting markets they must review the evidence to determine whether either an up or down adjustment from the base figure is needed.

One universally available form of evidence that all recipients should consider is the proven capacity of DBEs to perform work on DOT-assisted contracts. All recipients have been tracking and reporting the dollar volume of work that is contracted and subcontracted to DBEs each year. Viewed in isolation, the past achievements of DBEs do not reflect the availability of DBEs relative to all available businesses, but it is an important and current measure of the ability of DBEs to perform on DOT-assisted contracts.

Though not universally available, there are hundreds of existing disparity studies that contain a wealth of statistical and anecdotal evidence on the utilization of disadvantaged businesses. In addition to being a possible source of data for Step 1 of the goal setting process, disparity studies should be considered during Step 2 of the process. The base figure from Step 1 is intended to determine the relative availability of DBEs. The data and analysis in a disparity study can help a recipient determine whether those existing businesses are under- or over-utilized. If a recipient has a study with disparity ratios showing that existing DBEs are receiving significantly less work than expected, an upward adjustment from the base figure is called for. Similarly, if the disparity ratio shows overutilization, a downward adjustment to the base figure would be warranted. The anecdotal evidence and analysis of contracting requirements and conditions that may have a discriminatory impact on DBEs are also important sources that should be examined when determining what adjustment to make to the base figure.³ Finally, disparity studies that are conducted within a recipient's jurisdiction should be examined even if they were not done specifically for the recipient. For example, a state highway agency may find useful data and

³ It is important to note that adjusting the goal is only part of the response a recipient should make to evidence of discriminatory barriers for DBEs. All recipients have a primary responsibility to ensure non-discrimination in their programs and should act aggressively to remove any discriminatory barriers in their programs.

analysis in either a statewide disparity study covering other agencies or in a disparity study examining contracting in a county or city within the state.

If a recipient uses another recipient's goal as its base figure under Step 1 of the goal setting process, it will have to make additional adjustments to ensure that its final goal is narrowly tailored to its market and contracting program. For example, if a local transit or airport authority adopts a statewide goal as its base figure, it must determine the extent that local relative availability of DBEs differs from the relative availability of DBEs in the contracting area relied on by the state. The local recipient would also need to examine the differences in the type of contracting work in its program and determine whether there are significant differences in the relative availability of DBEs in any fields that are unique to its program—or unique to the program of the other recipient. Similarly, if one local recipient used the goal of another local recipient in the same market as its base figure, it would also need to adjust for differences in the contracting fields used by the two programs.

Finally, the rule contains a brief list of other types of data a recipient could consider when adjusting its base figure to arrive at an overall goal. The list is by no means intended to be exhaustive. Instead, it is meant as a guide to the types of information a recipient should look for in Step 2 of the goal setting process. There is a wide array of relevant local, regional and national information about the utilization of disadvantaged businesses. Recipients are encouraged to cast as wide a net as they can to carefully examine their contracting programs and the public and private markets in which they operate.

Additional Goal Setting Issues

The Department proposed, in both the 1992 NPRM and the 1997 SNPRM, that overall goals be calculated as a percentage of DOT funds a recipient expects to expend in DOT-assisted contracts. This is different from the existing part 23 rule, which asked recipients to set overall goals on the basis of all funds, including state and local funds, to be expended in DOT-assisted contracts. This change is for accounting and administrative convenience and is not intended to have a substantive effect on the program. While not the subject of many comments, those who did comment on the proposal favored the change. The final rule adopts this approach.

A few recipients commented that public participation concerning goal setting was bothersome. Nevertheless,

we view it as an essential part of the goal setting process. There are many stakeholders involved in setting goals, and it is reasonable that they should be involved in the process and have an opportunity for comment. The part 23 provision requiring getting a state governor's approval of a goal of less than 10 percent has been eliminated, both because overall goals are no longer tied to the national 10 percent goal and to reduce administrative burdens.

The goal setting provision of the final rule continues to direct recipients to set one annual overall goal for DBEs, rather than group-specific goals separating minority and women-owned businesses.

Section 26.47 Can Recipients Be Penalized for Failing To Meet Overall Goals?

This is a new section of the regulation, the purpose of which is to clarify the Department's views on the situations in which it is appropriate to impose sanctions on recipients with respect to goals. The provision states explicitly what has long been the Department's policy: no recipient is sanctioned, or found in noncompliance, simply because it fails to meet its overall goal. In fact, through the history of the DBE program, the Department never has sanctioned a recipient for failing to obtain a particular amount of DBE participation.

On the other hand, if a recipient fails to set an overall goal which the concerned operating administration approves, or fails to operate its program in good faith toward the objective of meeting the goal, it is subject to a finding of noncompliance and possible sanctions. For example, if a recipient refuses to establish a goal or, having established one, does little or nothing to work toward attaining it, it would be reasonable for the Department to find the recipient in noncompliance. Like all compliance provisions of the rule, this provision is subject to the "court order" exception recently created by statute (see § 26.101(b)).

Section 26.49 How Are Overall Goals Established for Transit Vehicle Manufacturers?

This provision basically continues in effect the existing transit vehicle manufacturer (TVM) provisions of the rule. The SNPRM proposed to change the existing rule in two respects. FHWA or FAA recipients could avail themselves of similar provisions, if they chose. The final rule retains this flexibility. Also, it was proposed that FTA, rather than manufacturers, would set TVM goals. The few comments we received on this section objected to the

latter change. Consequently, we will not adopt the proposed change and will continue to require the TVMs themselves to set their own goals based on the principles outlined in § 26.45 of this rule.

Section 26.51 What Means Do Recipients Use To Meet Overall Goals?

One of the key points of both the SNPRM and this final rule is that, in meeting overall goals, recipients have to give priority to race-neutral means. By race-neutral means (a term which, for purposes of this rule, includes gender neutrality), we mean outreach, technical assistance, procurement process modification, etc.—measures which can be used to increase opportunities for all small businesses, not just DBEs, and do not involve setting specific goals for the use of DBEs on individual contracts. Contract goals, on the other hand, are race-conscious measures.

In the context of these definitions, it is important to note that awards of contracts to DBEs are not necessarily race-conscious actions. Whenever a DBE receives a prime contract because it is the lowest responsible bidder, the resulting DBE participation was achieved through race-neutral means. Similarly, when a DBE receives a subcontract on a project that does not have a contract goal, its participation was also achieved through race-neutral means. Finally, even on projects that do carry contract goals, when a prime awards a particular subcontract to a DBE because it has proven in the past that it does the best or quickest work, or because it submitted the lowest quote, the resulting DBE participation has, in fact, been achieved through race-neutral means. We also note that the use of race-neutral measures (e.g., outreach, technical assistance) specifically to increase the participation of DBEs does not convert these measures into race-conscious measures.

A number of non-DBE contractors commented that race-neutral measures should not only be given priority, but must be tried and fail before any use of contract goals can occur. This, they asserted, is essential for a program to be narrowly tailored. The law on this point is fairly clear, and does not support the commenters' contention. The extent to which race-neutral alternatives were considered and deemed inadequate to remedy the problem is the relevant narrow tailoring question. Both in past legislation and when considering TEA-21, Congress did consider race-neutral alternatives. In fact, as described above, throughout the debate, Member after Member gave examples of how state and local race-neutral programs without

goals fail to overcome the discriminatory barriers that face DBEs. Congress' careful consideration and conclusion that race-neutral means are insufficient, buttressed by this rule's emphasis on achieving as much of the goal as possible through race-neutral means, satisfies this part of the narrow tailoring requirement.

No one opposed the use of race-neutral means, though a number of DBEs and recipients stressed that these means, standing alone, were insufficient to address discrimination and its effects. Most recipients and non-DBE contractors supported the use of race-neutral measures, though some recipients said that increased use of these measures would require additional resources.

The relationship between race-conscious and race-neutral measures in the final rule is very important. The recipient establishes an overall goal. The recipient estimates, in advance, what part of that goal it can meet through the use of race-neutral means. This projection, and the basis for it, would be provided to the concerned operating administration at the same time as the overall goal, and is subject to OA approval.

The requirement of the rule is that the recipient get the maximum feasible DBE participation through race-neutral means. The recipient uses race-conscious measures (e.g., sets contract goals) to get the remainder of the DBE participation it needs to meet the overall goal. If the recipient expects to be able to meet its entire overall goal through race-neutral means, it could, with OA approval, implement its program without any use of contract goals.

For example, suppose Recipient X establishes an 11 percent overall goal for Fiscal Year 2000. This is the amount of DBE participation that X has determined it would have if the playing field were level. Recipient X projects that, using a combination of race-neutral means, it can achieve 5 percent DBE participation. Recipient X then sets contract goals on some of its contracts throughout the year to bring in an additional 6 percent DBE participation. Recipients would keep data separately on the DBE participation obtained through those contracts that either did or did not involve the use of contract goals. Recipients would use this and other data to adjust their use of race-neutral means and contract goals during the remainder of the year and in future years. For example, if Recipient X projected being able to attain 5 percent DBE participation through race-neutral measures, but was only able to obtain 1 percent from the race-neutral measures

It used, Recipient X would increase its future use of contract goals. On the other hand, if Recipient X exceeded its prediction that it would get 5 percent DBE participation from race-neutral measures and actually obtained 10 percent DBE participation from the contracts on which there were no contract goals, it would reduce its future use of contract goals. A recipient that was consistently able to meet its overall goal using only race-neutral measures would never need to use contract goals.

Most recipients and non-DBE contractors agreed with the SNPRM's proposal that (contrary to the part 23 provision on this subject) contract goals not be required on all contracts. This provision is retained in the final rule. We believe that this provision provides recipients the ability to achieve the objective of a narrowly tailored program. The rule also reiterates that the contract goal need not be set at the same level as the overall goal. To express this more clearly, let us return to the above example of Recipient X. Just because Recipient X has an overall goal of 11 percent, it does not have to set a contract goal on each contract. Nor does it have to establish an 11 percent goal on each contract on which it does set a contract goal. Indeed, since X has projected that it can achieve almost half of its overall goal through race-neutral means, it would most likely set contract goals on some contracts but not on others. On contracts with a contract goal, the goal might be 4 percent one time, 18 percent another time, 9 percent another time, depending on the actual work involved in each contract, the location of the work and the subcontracting opportunities available. The idea is for X to set contract goals that, cumulatively over the year, bring in 6 percent DBE participation, which, added to the 5 percent participation X projects achieving from race-neutral measures, ends up meeting the 11 percent overall goal.

The SNPRM asked for comment on evaluation credits as an additional race-conscious measure that recipients could use to meet overall goals. The vast majority of the many comments on this subject opposed the use of evaluation credits, on both legal (e.g., as contrary to narrow tailoring) and policy (e.g., as confusing and subjective) grounds. A smaller number of commenters favored at least giving recipients discretion to use this tool. While the Department does not agree with the contention that evaluation credits are legally suspect, we do agree with much of the sentiment against using them in the DBE program, particularly the practical difficulties they might involve when applied to

subcontracting (which constitutes the main source of DBE participation in the program). As a result, the final rule does not contain an evaluation credits provision.

The SNPRM proposed certain mechanisms for determining when it was appropriate to ratchet back the use of contract goals. Most commenters said they found these particular mechanisms complicated and confusing. The Department believes that, as a matter of narrow tailoring, it is important to have concrete mechanisms in place to ensure that race-conscious measures like contract goals are used only to the extent necessary to ensure a level playing field. The final rule contains examples of four such mechanisms.

The first mechanism applies to a situation in which a recipient estimates that it can meet its overall goal exclusively through the use of race-neutral goals. In this case, the recipient simply does not set contract goals during the year. The second mechanism takes this approach one step further. If the recipient meets its overall goal two years in a row using only race-neutral measures, the recipient continues to use only race-neutral measures in future years, without having to project each year how much of its overall goal it anticipates meeting through race-neutral and race-conscious means, respectively. However, if in any year the recipient does not meet its overall goal, the recipient must make the projection for the following year, using race-conscious means as needed to meet the goal.

The third mechanism applies to recipients who exceed their overall goals for two years in a row while using contract goals. In the third year, when setting their overall goal and making their projection of the amount of DBE participation they will achieve through race-neutral means, they would determine the average percentage by which they exceeded their overall goals in the two previous years. They would then use that percentage to reduce their reliance on contract goals in the coming year, as noted in the regulatory text example. The rationale for this reduction is that the recipient's overall goal represents its best estimation of the participation level expected for DBEs in the absence of discrimination. By exceeding that goal consistently, the recipient may be relying too heavily on race-conscious measures. Scaling back the use of contract goals—while keeping careful track of DBE participation rates on projects without contract goals—will ensure that the recipient's DBE program remains narrowly tailored to overcoming the continuing effects of discrimination.

The fourth mechanism operates within a given year. If a recipient determines part way through the year that it will exceed (or fall short of) its overall goal, and it is using contract goals during that year, it would scale back its use of contract goals (or increase its use of race-neutral means and/or contract goals) during the remainder of the year to ensure that it is using an appropriate balance of means to meet its "level playing field" objectives.

There were also a number of comments on how contract goals should be expressed. Most favored continuing the existing practice of adding together the Federal and local shares of a contract and expressing the contract goal as a percentage of the sum because it works well and avoids confusion. A few comments favored expressing contract goals as a percentage of only the Federal share of a contract. Ultimately, we believe that it is not necessary for the Department to dictate which method to use. Recipients may continue to use whichever method they feel works best and allows them to accurately track the participation of DBEs in their program. Recipients need only ensure that they are consistent and clearly express the method they are using, and report to the Department the total federal aid dollars spent and the federal aid dollars spent with DBEs.

As a last note on this topic, FAA recipients are reminded that funds derived from passenger facility charges (PFCs) are not covered by this part and should not be counted as part of the Federal share in any goal calculation. If a recipient chooses to express its contract goals as a percentage of the combined Federal and local share, it may include the PFC funds as part of the local share.

Section 26.53 What Are the Good Faith Efforts Procedures Recipients Follow in Situations Where There Are Contract Goals?

There was little disagreement about the main point of this section. When a recipient sets a contract goal, the basic obligation of bidders is to make good faith efforts (GFE) to meet it. They can demonstrate these efforts in either of two ways, which are equally valid. First, they can meet the goal, by documenting that they have obtained commitments for enough DBE participation to meet the goal. Second, even though they have not met the goal, they can document that they have made good faith efforts to do so. The Department emphasizes strongly that this requirement is an important and serious one. A refusal by a recipient to accept valid showings of

good faith is not acceptable under this rule.

Appendix A discusses in greater detail the kinds of good faith efforts bidders are expected to make. There was a good deal of comment concerning its contents. Non-minority contractors recited that good faith efforts standards should be "objective, measurable, realistically achievable, and standardized." Not one of these comments provided any examples or suggestions of what "objective, measurable, realistically achievable, and standardized" standards would look like, however. Certainly a one-size-fits-all checklist is neither desirable nor possible. What constitutes a showing of adequate good faith efforts in a particular procurement is an intrinsically fact-specific judgment that recipients must make. Circumstances of procurements vary widely, and GFE determinations must fit each individual situation as closely as possible.

The proposed good faith efforts appendix suggested that one of the factors recipients could take into account is the behavior of bidders other than the apparent successful bidder. For example, if the latter failed to meet the contract goal, but other bidders did, that could suggest that the apparent successful bidder had not exerted sufficient efforts to get DBE participation. Recipients who commented on this issue favored the concept; non-DBE contractors opposed it. The final rule's Appendix A makes clear that recipients are not to use a "conclusive presumption" approach, in which the apparent successful bidder is summarily found to have failed to make good faith efforts simply because another bidder was able to meet the goal. However, the track record of other bidders can be a relevant factor in a GFE determination, in more than one way. If other bidders have met the goal, and the apparent successful bidder has not, this at least raises the question of whether the apparent successful bidder's efforts were adequate. It does not, by itself, prove that the apparent successful bidder did not make a good faith effort to get DBE participation, however. On the other hand, if the apparent successful bidder—even if it failed to meet the goal—got as much or more DBE participation than other bidders, then this fact would support the apparent successful bidder's showing of GFE. The revised Appendix makes these points.

The proposed good faith efforts appendix also expanded on language in part 23 concerning price-based decisions by prime contractors. The existing language provides that a

recipient can use, as evidence of a bidder's failure to make good faith efforts, the recipient's rejection of a DBE subcontractor's "reasonable price" offer. The SNPRM added that a recipient could set a price differential from 1–10 percent to evaluate bidders' efforts. If a bidder did not meet the goal and rejected a DBE offer within the range, the recipient could view the bidder as not making good faith efforts. This was an attempt to provide additional, quantified, guidance to recipients on this issue.

Comment was mixed on this issue. Non-DBE prime contractors generally opposed the price differential idea, saying that it encouraged deviations from the traditional low bid system. It should be noted, however, that subcontracts are typically awarded outside any formal low bid system. Some recipients thought that it was a bad idea to designate a range, because it would limit their discretion, while others liked the additional definiteness of the range. Most recipients supported the "reasonable price" concept in general, even if they had their doubts about the value of a range. Some DBE organizations favored the range approach.

Taking all the comments into consideration, the Department has decided to retain language similar to that of part 23, without reference to any specific range. Appendix A now provides that the fact that some additional costs may be involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet a DBE contract goal, as long as such costs are reasonable. Along with this emphasis on the reasonableness of the cost necessarily comes the fact that prime contractors are not expected to bear unreasonable costs. The availability of a good faith efforts waiver of the contract goal helps to ensure that a prime contractor will not be in a position where it has to accept an excessive or unreasonable bid from a DBE subcontractor. At the same time, any burden that a non-DBE subcontractor might face is also limited by the reasonableness of competing bids. This approach retains flexibility for recipients while avoiding the concerns commenters expressed about a particular range.

The SNPRM proposed that recipients would have to provide for an administrative review of decisions that a bidder's GFE showing was inadequate. The purpose of the provision was to ensure that recipients did not arbitrarily dismiss bidders' attempts to show that they made good faith efforts. The provision was meant to emphasize the

seriousness with which the Department takes the GFE requirement and to help respond to allegations that some recipients administered the program in a quota-like fashion. The SNPRM also asked whether such a mechanism should be operated entirely by the recipient or whether a committee including representatives of DBE and non-DBE contractors should be involved.

A number of recipients, and a few contractors, opposed the idea on the basis of concern about administrative burdens on recipients and potential delays in the procurement process. A greater number of commenters, largely non-DBE contractors but also including recipients and DBEs, supported the proposal as ensuring greater fairness in the process. A significant majority of all commenters said that the recipient should operate the system on its own, because a committee would make the process more cumbersome and raise conflict of interest issues.

The Department will adopt this proposal, which should add to the fairness of the system and make allegations of *de facto* quota operations less likely. The Department intends that reconsideration be administered by recipients. The regulation does not call for a committee involving non-recipient personnel. The Department intends that the process be informal and timely. The recipient could ensure that the process be completed within a brief period (e.g., 5–10 days) to minimize any potential delay in procurements. The bidder would have an opportunity to meet with the reconsideration official, but a formal hearing is not required. To ensure fairness, the reconsideration official must be someone who did not participate in the original decision to reject the bidder's showing. The recipient would have to provide a written decision on reconsideration, but there would be no provision for administrative appeals to DOT.

A point raised by several non-DBE commenters was that DBEs should have to make good faith efforts (even when they were not acting as prime contractors). The commenters suggested things like providing capacity statements and documenting that they have bid on contracts. This point is unrelated to the subject of this section, which has to do with what efforts bidders for prime contracts have to make to show that they have made to obtain DBE subcontractors. It is difficult to see what purpose the additional paperwork burdens these commenters' requests would serve.

One of the most hotly debated issues among commenters was whether DBE

firms bidding on prime contracts should have to meet goals and make good faith efforts to employ DBE subcontractors. Under part 23, DBE prime contractors did not have to meet goals or make good faith efforts. The rationale for this position was that, as DBEs, 100 percent of the work of these contractors counted toward recipients' contract goals, which the firms automatically met.

A significant majority of commenters on this issue—particularly non-DBE contractors but also including some recipients and a few DBEs—argued that DBE primes should meet goals and make GFE the same as other contractors. Failing to do so, they said, went beyond providing a level playing field to the point of providing an unfair advantage for DBE bidders for prime contracts. This change would also increase opportunities for DBE subcontractors, they said. One comment suggested requiring DBE prime contractors to meet goals or make GFE, but stressed that work they performed with their own forces as well as work awarded to DBE subcontractors should count toward goals.

Supporters of the current system said that many prime contracts performed by DBEs are too small to permit subcontracting (of course, goals need be set only on contracts with subcontracting possibilities). Moreover, these commenters—mostly DBEs and recipients—said that there was already inequity as between DBEs and non-DBEs, and requiring DBEs to meet the same requirements simply maintained the inequity. There was also some support for a third option the Department included in the SNPRM, in which DBEs would have to meet goals and make GFE to the extent that work they proposed to perform with their own forces was insufficient to meet goals.

The Department believes that, in a rule aimed at providing a level playing field for DBEs, it is appropriate to impose the same requirements on all bidders for prime contracts. Consequently, part 26 will depart from the part 23 approach and require DBE prime contractors to meet goals and make good faith efforts on the same basis as other prime contractors. However, in recognition of the DBE bidders' status as DBEs, we will permit them to count toward goals the work that they commit to performing with their own forces, as well as the work that they commit to be performed by DBE subcontractors. DBE bidders on prime contracts will be expected to make the same outreach efforts as other bidders and to document good faith

efforts in situations where they do not fully meet contract goals.

Under part 23 and the SNPRM, recipients have a choice between handling bidder compliance with contract goals and good faith efforts requirements as a matter of responsiveness or responsibility. Some recipients and other contractors recounted successful experience with one approach or the other, and suggested reasons why everyone should follow each approach (e.g., responsiveness as a deterrent to bid-shopping; responsibility as a more flexible and cost-effective approach). Both approaches have their merits, and the Department believes the best course is to maintain the existing recipient discretion on this issue.

Some recipients use so-called "design-build" or "turnkey" contracts, in which the design and construction of an entire project is contracted out to a master contractor. The master contractor then lets subcontracts, which are often equivalent to the prime contracts that the recipient would let if it were designing and building the project directly. In a sense, the master contractor stands in the shoes of the recipient.

On design-build contracts, the normal process for setting contract goals does not fit the contract award process well. At the time of the award of the master contract, neither the recipient nor the master contractor knows in detail what the project will look like or exactly what contracting opportunities there will be, let alone the identity of DBEs who may subsequently be involved. In these situations, the recipient may alter the normal process, setting a project goal to which the master contractor commits. Later, when the master contractor is letting subcontracts, it will set contract goals as appropriate, standing in the shoes of the recipient. The recipient will exercise oversight of this process.

The final issue in this section has to do with replacement of DBEs that drop out of a contract. What actions, if any, should a prime contractor have to take when a DBE is unable to complete a subcontract, for whatever reason? Should it matter whether or not the DBE's participation is needed to achieve the prime contractor's goal?

Comment on this issue came mostly from recipients, with some non-DBE contractors and a few DBEs providing their views. A majority of the commenters believed that replacement of a fallen-away DBE with another DBE (or making a good faith effort toward that end) should be required only when needed to ensure that the prime contractor continued to meet its contract

goal. Others said that, since using DBEs to which the prime had committed at the time of award was a contractual requirement, replacement or good faith efforts should be required regardless of the prime's ability to meet the goal without the lost DBE's participation.

The Department believes that, in a narrowly tailored rule, it is not appropriate to require DBE participation at a level exceeding that needed to ensure a level playing field. Consequently, we will require a prime contractor to replace a fallen-away DBE (or to demonstrate that it has made good faith efforts toward that end) only to the extent needed to ensure that the prime contractor is able to achieve the contract goal established by the recipient for the procurement. The Department will also retain the SNPRM provision—supported by most commenters who mentioned it—that a prime contractor may not terminate a DBE firm for convenience and then perform the work with its own forces without the recipient's written consent. This provision is intended to prevent abuse of the program by a prime contractor who would commit to using a DBE and then bump the DBE off the project in favor of doing the work itself.

Section 26.55 How Is DBE Participation Counted Toward Goals?

In a narrowly tailored program, it is important that DBE credit be awarded only for work actually being performed by DBEs themselves. The necessary implication of this principle is that when a DBE prime contractor or subcontractor subcontracts work to another firm, the work counts toward DBE goals only if the other firm is itself a DBE. This represents a change from the existing rule and the SNPRM, which said that all the work of a DBE's contract (implicitly including work subcontracted to non-DBEs) counts toward goals. A few comments urged such a change. The new language is also consistent with the way that the final rule treats goals for DBE prime contractors.

The value of work performed by DBEs themselves is deemed to include the cost of materials and supplies purchased, and equipment leased, by the DBE from non-DBE sources. For example, if a DBE steel erection firm buys steel from a non-DBE manufacturer, or leases a crane from a non-DBE construction firm, these costs count toward DBE goals. There is one exception: if a DBE subcontractor buys supplies or leases equipment from the prime contractor on its contract, these costs do not count toward DBE goals. Several comments from prime contractors suggested these costs should

count, but this situation is too problematic, in our view, from an independence and commercially useful function (CUF) point of view to permit DBE credit.

One of the most difficult issues in this section concerns how to count DBE credit for the services of DBE trucking firms. The SNPRM proposed that, to be performing a CUF, a DBE trucking firm had to own 50 percent of the trucks it used in connection with a contract. A number of comments said that this requirement was out of step with industry practice, which commonly involves companies leasing trucks from owner-operators and other sources for purposes of a project. In response to these comments, the Department revisited this issue and reviewed the trucking CUF policies of a number of states. The resulting provision requires DBEs to have overall control of trucking operations and own at least one truck, but permits leasing from a variety of sources under controlled conditions, with varying consequences for DBE credit awarded.

A DBE need not provide all the trucks on a contract to receive credit for transportation services, but it must control the trucking operations for which it seeks credit. It must have at least one truck and driver of its own, but it can lease the trucks of others, both DBEs and non-DBEs, including owner operators. For work done with its own trucks and drivers, and for work with DBE lessees, the firm receives credit for all transportation services provided. For work done with non-DBE lessees, the firm gets credit only for the fees or commissions it receives for arranging the transportation services, since the services themselves are being performed by non-DBEs.

When we say that a DBE firm must own at least one of the trucks it uses on a contract, we intend for recipients to have a certain amount of discretion for handling unexpected circumstances, beyond the control of the firm. For example, suppose firm X starts the contract with one truck it owns. The truck is disabled by an accident or mechanical problem part way through the contract. Recipients need not conclude that the firm has ceased to perform a commercially useful function.

Most commenters who addressed the issue agreed with the SNPRM proposal that a DBE does not perform a CUF unless it performs at least 30 percent of the work of a contract with its own forces (a few commenters suggested 50 percent). This provision has been retained. A commenter suggested that the use of two-party checks by a DBE and another firm should not

automatically preclude there being a CUF. While we do not believe it is necessary to include rule text language on this point, we agree with the commenter. As long as the other party acts solely as a guarantor, and the funds do not come from the other party, we do not object to this practice where it is a commonly-recognized way of doing business. Recipients who accept this practice should monitor its use closely to avoid abuse.

One commenter noted an apparent inconsistency between counting 100 percent of the value of materials and supplies used by a DBE construction contractor (e.g., in the context of a furnish and install contract) and counting only 60 percent of the value of goods obtained by a non-DBE contractor from a DBE regular dealer. The two situations are treated differently, but there is a policy reason for the difference. There is a continuing concern in the program that, if non-DBEs are able to meet DBE goals readily by doing nothing more than obtaining supplies made by non-DBE manufacturers through DBE regular dealers, the non-DBEs will be less likely to hire DBE subcontractors for other purposes. As a policy matter, the Department does not want to reduce incentives to use DBE subcontractors, so we have not permitted 100 percent credit for supplies in this situation. Giving 100 percent credit for materials and supplies when a DBE contractor performs a furnish and install contract does not create the same type of disincentive, so the policy concern does not apply. In our experience, the 60 percent credit has been an effective incentive for the use of DBE regular dealers, so those firms are not unduly burdened.

Section 26.61 How Are Burdens of Proof Allocated in the Certification Process?

This section, which states a "preponderance of evidence" standard for applicants' demonstration to recipients concerning group membership, ownership, control, and business size, received favorable comment from all commenters who addressed it. We are retaining it with only one change, a reference to the fact that, in the final rule, recipients will collect information concerning the economic status of prospective DBE owners.

Section 26.63 What Rules Govern Group Membership Determinations?

There were several comments on details of this provision. One commenter suggested that tribal

registration be used as an identifier for Native Americans. The suggestion is consistent with long-standing DOT guidance; however this section of the regulation is meant to set out general rules applicable to all determinations of group membership, not to enumerate means of making the determination for specific groups. The same commenter suggested that if someone knowingly misrepresents himself as a group member, he should not be given further consideration for eligibility. Misrepresentation of any kind on an application is a serious matter. Indeed, misrepresentation of material facts in an application can be grounds for debarment or even criminal prosecution. While it would certainly be appropriate for recipients to take action against someone who so misrepresented himself, the regulatory text on group membership is not the place to make a general point about the consequences of misrepresentation.

Some commenters wanted further definition of what "a long period of time" means. We believe it would be counterproductive to designate a number of years that would apply in all cases, since circumstances are likely to differ. The point is to avoid "certification conversions" in which an individual suddenly discovers, not long before the application process, ancestry or culture with which he previously has had little involvement.

We are adopting the SNPRM provision without substantive change.

Section 26.65 What Rules Govern Business Size Determinations?

By statute, the Department is mandated to apply SBA small business size standards to determining whether a firm is a small business. The Department is also mandated to apply the statutory size cap (\$16.6 million in the current legislation, which the Department adjusts for inflation from time to time). Consequently, the Department cannot adopt the variety of comments we received to adjust size standards or the gross receipts cap to take differences among industries or regions into account. We are adopting the proposed language, using the new statutory gross receipts cap. As under part 23, a firm must fit under both the relevant SBA size standard and the generally applicable DOT statutory cap to be eligible for certification.

A few commenters asked for additional guidance for situations in which a firm is working in more than one SIC code, and the SBA size standards for the different SIC codes are different. First, size determinations are made for the firm as a whole, not for one

division or another. Second, suppose the size of Firm X (e.g., determined through looking at the firm's gross receipts) is \$5 million, and X is seeking certification as a DBE in SIC code yyyy and zzzz, whose SBA small business size standards are \$3.5 and \$7 million, respectively. Firm X would be a small business that could be certified as a DBE, and that could receive DBE credit toward goals, in SIC code zzzz but not in SIC code yyyy. This approach to the issue of differing standards being involved with the same firm fits in well with the general requirement of part 26 that certification be for work in particular SIC codes.

Section 26.67 What Rules Determine Social and Economic Disadvantage?

The statutes governing the DBE program continue to state that members of certain designated groups are presumed to be both socially and economically disadvantaged. Therefore, the Department is not adopting comments suggesting that one or both of the presumptions be eliminated from the DBE rule. While the rule does specify that applicants who are members of the designated groups do have to submit a signed certification that they are, in fact, socially and economically disadvantaged, this requirement should not be read as making simple "self-certification" sufficient to establish disadvantage. As has been the case since the beginning of the DBE program, the presumptions of social and economic disadvantage are rebuttable.

The Department is making an important change in this provision in response to comments about how to rebut the presumption of economic disadvantage. Recipient comments unanimously said that recipients should collect financial information, such as statements of personal net worth (PNW) and income tax returns, in order to determine whether the presumption of economic disadvantage really applies to individual applicants. Particularly in the context of a narrowly tailored program, in which it is important to ensure that the benefits are focussed on genuinely disadvantaged people (not just anyone who is a member of a designated group), we believe that these comments have merit. While charges by opponents of the program that fabulously wealthy persons could readily participate under part 23 have been exceedingly hyperbolic and inaccurate (e.g., references to the Sultan of Brunei as a potential DBE), it is appropriate to give recipients this tool to make sure that non-disadvantaged persons do not participate.

For this reason, part 26 requires recipients to obtain a signed and notarized statement of personal net worth from all persons who claim to own and control a firm applying for DBE certification and whose ownership and control are relied upon for DBE certification. These statements must be accompanied by appropriate supporting documentation (e.g., tax returns, where relevant). The rule does not prescribe the exact supporting documentation that should be provided, and recipients should strive for a good balance between the need for thorough examination of applicants' PNW and the need to limit paperwork burdens on applicants. For reasons of avoiding a retroactive paperwork burden on firms that are now certified, the rule does not require recipients to obtain this information from currently certified firms. These firms would submit the information the next time they apply for renewal or recertification. The final rule's provisions on calculating personal net worth are derived directly from SBA regulations on this subject (see 13 CFR § 124.104(c)(2), as amended on June 30, 1998).

One of the primary concerns of DBE firms commenting about submitting personal financial information is ensuring that the information remains confidential. In response to this concern, the rule explicitly requires that this material be kept confidential. It may be provided to a third party only with the written consent of the individual to whom the information pertains. This provision is specifically intended to preempt any contrary application of state or local law (e.g., a state freedom of information act that might be interpreted to require a state transportation agency to provide to a requesting party the personal income tax return of a DBE applicant who had provided the return as supporting documentation for his PNW statement). There is one exception to this confidentiality requirement. If there is a certification appeal in which the economic disadvantage of an individual is at issue (e.g., the recipient has determined that he or she is not economically disadvantaged and the individual seeks DOT review of the decision), the personal financial information would have to be provided to DOT as part of the administrative record. The Department would treat the information as confidential.

Creating a clear and definitive standard for determining when an individual has overcome the economic disadvantage that the DBE program is meant to remedy has long been a contentious issue. In 1992, the

Department proposed to use a personal net worth standard of \$750,000 to rebut the presumption of disadvantage for members of the designated groups. In 1997, the Department proposed a similar idea, though rather than use the \$750,000 figure, the SNPRM asked the public for input on what the specific amount should be. Finally, as discussed in detail above, the issue of ensuring that wealthy individuals do not participate in the DBE program was a central part of the 1998 Congressional debate.

Public comment on both proposals was sharply divided. Roughly equal numbers of commenters thought \$750,000 was too high as thought it was too low. Commenters proposed figures ranging from \$250,000 to \$2 million. Others supported the \$750,000 level, which is based on the SBA's threshold for participation in the SDB program (it is also the retention level for the 8(a) program). One theme running through a number of comments was that recipients should have discretion to vary the threshold depending on such factors as the local economy or the type of firms involved. Some comments opposed the idea of a PNW threshold altogether or suggested an alternative approach (e.g., based on Census data about the distribution of wealth).

Others commented that rebutting the presumption did not go far enough, pointing out that the only way to ensure that wealthy people did not participate in the program was for the threshold to act as a complete bar on the eligibility of an individual to participate in the program. Congress appears to share this concern. While they differed on the effectiveness of past DOT efforts, both proponents and opponents of the program agreed that preventing the participation of wealthy individuals was central to ensuring the constitutionality of the DBE program.

The Department agrees and, in light of the comments and the intervening TEA-21 debate, is adopting the clearest and most effective standard available: when an individual's personal net worth exceeds the \$750,000 threshold, the presumption of economic disadvantage is conclusively rebutted and the individual is no longer eligible to participate in the DBE program. The Department is using the \$750,000 figure because it is a well established and effective part of the SBA programs and is a reasonable middle ground in view of the wide range of comments calling for higher or lower thresholds. Using a figure any lower, as some commenters noted, could penalize success and make growth for DBEs difficult (since, for example, banks and insurers frequently

look to the personal assets of small business owners in making lending and bonding decisions). Operating the threshold as a cap on eligibility for all applicants also serves to treat men and women, minorities and non-minorities equally.

When a recipient determines, from the PNW statement and supporting information, that an individual's personal net worth exceeds \$750,000, the recipient must deem the individual's presumption of economic disadvantage to have been conclusively rebutted. No hearing or other proceeding is called for in this case. When this happens in the course of an application for DBE eligibility, the certification process for the applicant firm stops, unless other socially and economically disadvantaged owners can account for the required 51 percent ownership and control. A recipient cannot count the participation of the owner whose presumption of economic disadvantage has been conclusively rebutted toward the ownership and control requirements for DBE eligibility.

There may be other situations in which a recipient has a reasonable basis (e.g., from information in its own files, as the result of a complaint from a third party) for believing that an individual who benefits from the statutory presumptions is not really socially and/or economically disadvantaged. In these cases, the recipient may begin a proceeding to rebut the presumptions. For example, if a recipient had reason to believe that the owner of a currently-certified firm had accumulated personal assets well in excess of \$750,000, it might begin such a proceeding. The recipient has the burden of proving, by a preponderance of evidence, that the individual is not disadvantaged. However, the recipient may require the individual to produce relevant information.

It is possible that, at some time in the future, SBA may consider changing the \$750,000 cap amount. The Department anticipates working closely with SBA on any such matter and seeking comment on any potential changes to this rule that would be coordinated with changes SBA proposes for Federal procurement programs in this area.

Under part 23, recipients had to accept 8(a)-certified firms (except for those who exceeded the statutory gross receipts cap). The SNPRM proposed some modifications of this requirement. Recipients were concerned that in some situations information used for 8(a) certification could be inaccurate or out of date. They noted differences between 8(a) and DBE certification standards and procedures. They asked for the ability to

look behind 8(a) certifications and make their own certification decisions.

In response to these comments, the Department is providing greater discretion to recipients. Under part 26, recipients can treat 8(a) certifications as they do certifications made by other DOT recipients. A recipient can accept such a certification in lieu of conducting its own certification process or it can require the firm to go through part or all of its own application process. Because SBA is beginning a certification process for firms participating in the small and disadvantaged business (SDB) program, we will treat certified SDB firms in the same way. If an SDB firm is certified by SBA or an organization recognized by SBA as a certifying authority, a recipient may accept this certification instead of doing its own certification. (This does not apply to firms whose participation in the SDB program is based on a self-certification.) We note that this way of handling SBA program certifications is in the context of the development by DOT recipients of uniform certification programs. If a unified certification program (UCP) accepts a firm's 8(a) or 8(d) certification, then the firm will be certified for all DOT recipients in the state.

People who are not presumed socially and economically disadvantaged can still apply for DBE certification. To do so, they must demonstrate to the recipient that they are disadvantaged as individuals. Using the guidance provided in Appendix E, recipients must make case-by-case decisions concerning such applications. It should be emphasized that the DBE program is a disadvantage-based program, not one limited to members of certain designated groups. For this reason, recipients must take these applications seriously and consider them fairly. The applicant has the burden of proof concerning disadvantage, however.

Section 26.69 What Rules Govern Determinations of Ownership?

Commenters on the ownership provisions of the SNPRM addressed a variety of points. Most commenters agreed that the general burden of proof on applicants should be the preponderance of the evidence. A few commenters thought that this burden should also apply in situations where a firm was formerly owned by a non-disadvantaged individual. For some of these situations, the SNPRM proposed the higher "clear and convincing evidence" standard, because of the heightened opportunities for abuse involved. The Department believes this safeguard is necessary, and we will

retain the higher standard in these situations.

Commenters asked for more guidance in evaluating claims that a contribution of expertise from disadvantaged owners should count toward the required 51 percent ownership. They cited the potential for abuse. The Department believes that there may be circumstances in which expertise can be legitimately counted toward the ownership requirement. For example, suppose someone with a great deal of expertise in a computer-related field, without whom the success of his or her high-tech start-up business would not be feasible, receives substantial capital from a non-disadvantaged source.

We have modified the final rule provision to reflect a number of considerations. Situations in which expertise must be recognized for this purpose are limited. The expertise must be outstanding and in a specialized field: everyday experience in administration, construction, or a professional field is unlikely to meet this test. (This is not a "sweat equity" provision.) We believe that it is fair that the critical expertise of this individual be recognized in terms of the ownership determination. At the same time, the individual must have a significant financial stake in the company. This program focuses on entrepreneurial activity, not simply expertise. While we will not designate a specific percentage of ownership that such an individual must have, entrepreneurship without a reasonable degree of financial risk is inconceivable.

The SNPRM's proposals on how to treat assets obtained through inheritance, divorce, and gifts were somewhat controversial. Most comments agreed with the proposal that assets acquired through death or divorce be counted. One commenter objected to the provision that such assets always be counted, saying that the owner should have to make an additional demonstration that it truly owned the assets before the recipient counted them. We do not see the point of such an additional showing. If a white male business owner dies, and his widow inherits the business, the assets are clearly hers, and the deceased husband will play no further role in operating the firm. Likewise, assets a woman obtains through a divorce settlement are unquestionably hers. Absent a term of a divorce settlement or decree that limits the customary incidents of ownership of the assets or business (a contingency for which the proposed provision provided), there is no problem for which an additional showing of some

sort by the owner would be a useful remedy.

A majority of comments on the issue of gifts opposed the SNPRM proposal, saying that gifts should not be counted toward ownership at all. The main reason was that allowing gifts would make it easier for fronts to infiltrate the program. Some comments also had a flavor of opposition to counting what commenters saw as unearned assets. The Department understands these concerns. If a non-disadvantaged individual who provides a gift is no longer connected with the business, or a disadvantaged individual makes the gift, the issue of the firm being a potential front is much reduced. Where a non-disadvantaged individual makes a gift and remains involved with the business, the concern about potential fronts is greater.

For this reason, the SNPRM erected a presumption that assets acquired by gift in this situation would not count. The applicant could overcome this presumption only by showing, through clear and convincing evidence—a high standard of proof—that the transfer was not for the purpose of gaining DBE certification and that the disadvantaged owner really controls the company. This provides effective safeguards against fraud, without going to the unfair extreme of creating a conclusive presumption that all gifts are illegitimate. Also, for purposes of ownership, all assets are created equal. If the money that one invests in a company is really one's own, it does not matter whether it comes from the sweat of one's brow, a bank loan, a gift or inheritance, or hitting the lottery. As long as there are sufficient safeguards in place to protect against fronts—and we believe the rule provides them—the origin of the assets is unimportant. We are adopting the proposed provisions without change.

Commenters were divided about how to handle marital property, especially in community property states. Some commenters believed that such assets should not be counted at all. This was based, in part, on the concern that allowing such assets to be counted could make it difficult to screen out interspousal gifts designed to set up fronts, even if irrevocable transfers of assets were made. Other commenters said they thought the proposal was appropriate, and some of these thought the requirement for irrevocable transfers was unfair.

The Department is adopting the proposed language. In a community property state, or elsewhere where property is jointly held between spouses, the wife has a legal interest in

a portion of the property. It is really hers. It would be inappropriate to treat this genuine property interest as if it did not exist for purposes of DBE ownership.

To ensure the integrity of the program, it is necessary to put safeguards in place. The regulation does so. First, recipients would not count more assets toward DBE ownership than state law treats as belonging to the wife (the final rule provision adds language to this effect). Second, the irrevocable transfer requirement prevents the husband from being in a position to continue to claim any ownership rights in the assets. If an irrevocable transfer of assets constitutes a gift from a non-disadvantaged spouse who remains involved in the business, then the presumption/clear and convincing evidence mechanism discussed above for gifts would apply to the transaction. If recipients in community property states wanted to establish a mechanism for allocating assets between spouses that was consistent with state law, but did not require court involvement or other more formal procedures, they could propose doing so as part of their DBE programs, subject to operating administration approval.

Most commenters supported the SNPRM's proposal concerning trusts, particularly the distinction drawn between revocable living and irrevocable trusts. One commenter favored counting revocable living trusts when the same disadvantaged individual is both the grantor and beneficiary. The Department believes there is merit in making this exception. If the same disadvantaged individual is grantor, beneficiary, and trustee (i.e., an individual puts his own money in a revocable living trust for tax planning or other legitimate purposes and he alone plays the roles of grantor, beneficiary, and trustee), the situation seems indistinguishable for DBE program purposes from the situation of the same individual controlling his assets without the trust. In all other situations, revocable living trusts would not count.

Some comments asked for clarification of the 51 percent ownership requirement, a subject on which the Department has received a number of questions over the years. The Department has clarified this requirement, with respect to corporations, by stating that socially and economically disadvantaged individuals must own 51 percent of each class of voting stock of a corporation, as well as 51 percent of the aggregate stock. A similar point applies to partnerships and limited liability companies. This latter type of company was not

mentioned in the SNPRM, but a commenter specifically requested clarification concerning it. (We have also noted, in § 26.83, that limited liability companies must report changes in management responsibility to recipients. This is intended to include situations where management responsibility is rotated among members.) These clarifications are consistent with SBA regulations.

There are some ownership issues (e.g., concerning stock options and distribution of dividends) that SBA addresses in some detail in its regulations (see 13 CFR § 124.105 (c), (e), (f)) that were not the subject of comments to the DOT SNPRM. These issues have not been prominent in DOT certification practice, to the best of our knowledge, so we are not adding them to the rule. However, we would use the SBA provisions as guidance in the event such issues arise.

Section 26.71 What Rules Govern Determinations Concerning Control?

Commenters generally agreed with the proposed provisions concerning expertise and delegation of responsibilities. 51 percent control of voting stock, and differences in remuneration. A few commenters expressed concern about having to make judgments concerning expertise. However, this expertise standard, as a matter of interpretation, has been part of the DBE program since the mid-1980s. We do not believe that articulating it in the regulatory text should cause problems, and we believe it is a very reasonable and understandable approach to expertise issues. The provision concerning 51 percent ownership of voting stock, as discussed above, has been relocated in the ownership section of the rule. The Department has added three useful clarifications of the general requirement that disadvantaged owners must control the firm (e.g., by serving as president or CEO, controlling a corporate board). These clarifications are based on SBA's regulations (see 13 CFR § 124.106(a)(2), (b), (d)(1)). The Department intends to use other material in 13 CFR § 124.106 as guidance on control matters, when applicable. Otherwise, the Department is adopting these provisions as proposed.

There was some concern about the proposal concerning licensing. Some recipients thought that it would be better to require a license as proof of control in the case of all licensed occupations. We do not think it is justifiable for the DBE program to require more than state law does. If state law allows someone to run a certain

type of business (e.g., electrical contractors, engineers) without personally having a license in that occupation, then we do not think it is appropriate for the recipient to refuse to consider that someone without a license may be able to control the business. The rule is very explicit in saying that the recipient can consider the presence or absence of a license in determining whether someone really has sufficient ability to control a firm.

Family-owned firms have long been a concern in the program. The SNPRM provided explicitly that if the threads of control in a family-run business cannot be disentangled, such that the recipient can specifically find that a woman or other disadvantaged individual independently controls the business, the recipient may not certify the firm. A business that is controlled by the family as a group, as distinct from controlled individually by disadvantaged individuals, is not eligible.

Notwithstanding this provision, a few recipients commented that certifying any businesses in which non-disadvantaged family members participate would open the program to fronts. We do not agree. Non-disadvantaged individuals can participate in any DBE firm, as long as disadvantaged individuals control the firm. It is not fair and does not achieve any reasonable program objective to say that an unrelated white male may perform functions in a DBE while the owner's brother may never do so.

Commenters generally supported the provision calling for recipients to certify firms only for types of work in which disadvantaged owners had the ability to control the firm's operations. One commenter suggested that recipients, while not requiring recertification of firms seeking to perform additional types of work as DBEs (e.g., work in other than their primary industrial classification), should have to approve a written request from firms in this position. We do believe it is necessary for recipients to verify that disadvantaged owners can control work in an additional area, and we have added language to this effect. Recipients will have discretion about how to administer this verification process.

Commenters asked for additional clarification about the eligibility of people who work only part-time in a firm. We have done so by adding examples of situations that do not lead to eligibility (part-time involvement in a full-time firm and absentee ownership) and a situation that may, depending on circumstances, be compatible with eligibility (running a part-time firm all the time it is operating). It should be

noted that this provision does not preclude someone running a full-time firm from having outside employment. Outside employment is incompatible with eligibility only when it interferes with the individual's ability to control the DBE firm on a full-time basis.

One commenter brought to the Department's attention the situation of DBEs who use "employee leasing companies." According to the commenter, employee leasing companies fill a number of administrative functions for employers, such as payroll, personnel, forwarding of taxes to governmental entities, and drug testing. Typically, the employees of the underlying firm are transferred to the payroll of the employee leasing firm, which in turn leases them back to the underlying employer. The underlying employer continues to hire, fire, train, assign, direct, control etc. the employees with respect to their on-the-job duties. While the employee leasing firm sends payments to the IRS, Social Security, and state tax authorities on behalf of the underlying employer, it is the latter who is remains responsible for paying the taxes.

For practical and legal purposes, the underlying employer retains an employer-employee relationship with the leased employees. The employee leasing company does not get involved in the operations of the underlying employer. In this situation, the use of an employee leasing company by a DBE does not preclude the DBE from meeting the control requirements of this rule. Nor does the employee leasing company become an affiliate of the DBE for business size purposes. Case-by-case judgement, of course, remains necessary. Should an employee leasing company in fact exercise control over the on-the-job activities of employees of the DBE, then the ability of the DBE to meet control requirements would be compromised.

One commenter said, as a general matter, that independence and control should be considered separately. We view independence as an aspect of control: If a firm is not independent of some other business, then the other firm, not the disadvantaged owners, exercise control. While independence is an aspect of control that recipients must review, we do not see any benefit in separating consideration of the two concepts.

A recent court decision (*Jack Wood Construction Co., Inc. v. U.S. Department of Transportation*, 12 F. Supp. 2d 25 (D.D.C., 1998)) overturned a DOT Office of Civil Rights certification appeal decision that upheld a denial of certification based on lack of control.

The court, reading existing part 23 closely, said that a non-disadvantaged individual who was an employee, but not an owner, of a firm could disproportionately control the affairs of a firm without making it ineligible. The court also said that the existing rule language did not make it necessary for a disadvantaged owner to have both technical and managerial competence to control a firm. Part 26 solves both problems that the court found to exist in part 23's control provisions (see § 26.71(e)-(g)).

Section 26.73 What Are Other Rules Affecting Certification?

There were relatively few comments on this section. One commenter disagreed with the proposal to continue the provision that a firm owned by a DBE firm, rather than by socially and economically disadvantaged individuals, was not eligible. The argument against this provision, as we understand it, is that precluding a DBE firm from being owned by, for example, a holding company that is in turn owned by disadvantaged individuals would deny those individuals a financing and tax planning tool available to other businesses.

This argument has merit in some circumstances. The purpose of the DBE program is to help create a level playing field for DBEs. It would be inconsistent with the program's intent to deny DBEs a financial tool that is generally available to other businesses. The Department will allow this exception. Recipients must be careful, however, to ensure that certifying a firm under this exception does not have the effect of allowing the firm, or its parent company, to evade any of the requirements or restrictions of the certification process. The arrangement must be consistent with local business practices and must not have the effect of diluting actual ownership by disadvantaged individuals below the 51 percent requirement. All other certification requirements, including control by disadvantaged individuals and size limits, would continue to apply.

Another commenter suggested a firm should not be certified as a DBE if its owners have interests in non-DBE businesses. We believe that a *per se* rule to this effect would be too draconian. If owners of a DBE—whether disadvantaged individuals or not—also have interests in other businesses, the recipient can look at the relationships among the businesses to determine if the DBE is really independent.

One commenter opposed basing certification on the present status of

firms, seeking discretion to deny certification based on the history of the firm. We believe there is no rational or legal basis for denying certification to a firm on the basis of what it was in the past. Is it a small business presently owned and controlled by socially and economically disadvantaged individuals? If so, it would be contrary to the statute, and to the intent of the program, to deny certification because at some time—perhaps years—in the past, it was not owned and controlled by such individuals. The rule specifies that recipients may consider whether a firm has engaged in a pattern of conduct evincing an intent to evade or subvert the program.

The final provision of this section concerns firms owned by Alaska Native Corporations (ANCs), Indian tribes, and Native Hawaiian Organizations. Like the NPRM, it provides that firms owned by these entities can be eligible DBEs, even though their ownership does not reside, as such, in disadvantaged individuals. These firms must meet the size standards applicable to other firms, including affiliation (test large combinations of tribal or ANC-owned corporations put other DBEs at a strong competitive disadvantage). Also, they must be controlled by socially and economically disadvantaged individuals. For example, if a tribe or ANC owns a company, but its daily business operations are controlled by a non-disadvantaged white male, the firm would not be eligible.

Commenters pointed us to the following provision of the Alaska Native Claims Settlement Act (ANCSA):

(e) Minority and economically disadvantaged status—

(1) For all purposes of Federal law, a Native Corporation shall be considered to be a corporation owned and controlled by Natives and a minority and economically disadvantaged business enterprise if the Settlement Common Stock of the corporation and other stock of the corporation held by holders of Settlement Common Stock and by Natives and descendants of Natives, represents a majority of both the total equity of the corporation and the total voting power of the corporation for the purposes of electing directors.

(2) For all purposes of Federal law, direct and indirect subsidiary corporations, joint ventures, and partnerships of a Native Corporation qualifying pursuant to paragraph (1) shall be considered to be entities owned and controlled by Natives and a minority and economically disadvantaged business enterprise if the shares of stock or other units of ownership interest in any such entity held by such Native Corporation and by the holders of its Settlement Common Stock represent a majority of both—

(A) The total equity of the subsidiary corporation, joint venture, or partnership; and

(B) The total voting power of the subsidiary corporation, joint venture, or partnership for the purpose of electing directors, the general partner, or principal officers. (43 U.S.C. 1626(e)).

The question for the Department is whether, reading this language together with the language of the Department's DBE statutes, DOT must alter these provisions.

The DOT DBE statute (TEA-21 version) provides as follows:

(b) Disadvantaged Business Enterprises.—

(1) General rule.—Except to the extent that the Secretary determines otherwise, not less than 10 percent of the amounts made available for any program under titles I, III, and V of this Act shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals.

(2) Definitions.—In this subsection, the following definitions apply:

(A) Small business concern.—The term "small business concern" has the meaning such term has under section 3 of the Small Business Act (15 U.S.C. 632); except that such term shall not include any concern or group of concerns controlled by the same socially and economically disadvantaged individual or individuals which has average annual gross receipts over the preceding 3 fiscal years in excess of \$16,600,000, as adjusted by the Secretary for inflation.

(B) Socially and economically disadvantaged individuals.—The term "socially and economically disadvantaged individuals" has the meaning such term has under section 8(d) of the Small Business Act (15 U.S.C. 637(d)) and relevant subcontracting regulations promulgated pursuant thereto; except that women shall be presumed to be socially and economically disadvantaged individuals for purposes of this subsection.

(4) Uniform certification.—The Secretary shall establish minimum uniform criteria for State governments to use in certifying whether a concern qualifies for purposes of this subsection. Such minimum uniform criteria shall include but not be limited to on-site visits, personal interviews, licenses, analysis of stock ownership, listing of equipment, analysis of bonding capacity, listing of work completed, resume of principal owners, financial capacity, and type of work preferred.

While the language § 1626(e) is broad, the terms used in the two statutes are not identical. Section 1626(e) refers to "minority and economically disadvantaged business enterprise[s]", while the Department's statutes refer to "small business concerns owned and controlled by socially and economically disadvantaged individuals." Requirements applicable to the former need not necessarily apply to the latter.

The legislative history of § 1626(e) lends support to distinguishing the two statutes. The following excerpt from House Report 102-673 suggests that the intent of Congress in enacting this provision was to focus on direct Federal procurement programs:

[The statute] amends section [1626(e)] of ANCSA to clarify that Alaska Native Corporations are minority and economically disadvantaged business enterprises for the purposes of implementing the SBA programs * * * This section would further clarify that Alaska Native Corporations and their subsidiary companies are minority and economically disadvantaged business enterprises for purposes of qualifying for participation in federal contracting and subcontracting programs, the largest of which include the SBA 8(a) program and the Department of Defense Small and Disadvantaged Business Program. These programs were established to increase the participation of certain segments of the population that have historically been denied access to Federal procurement activities. While this section eliminates the need for Alaska Native Corporations or their subsidiaries to prove their "economic" disadvantage the corporations would still be required to meet size requirements as small businesses. This will continue to be determined on a case-by-case basis. (Id. at 19.)

This statute, in other words, was meant to apply to direct Federal procurement programs like the 8(a) program or the DOD SBD program, rather than a program involving state and local procurements reimbursed by DOT financial assistance.

The TEA-21 program is a more recent, more specific statute governing DOT recipients' programs. In contrast, the older, more general section 1626(e) evinces no specific intent to govern the DOT DBE program. There is no evidence that Congress, in enacting section 1626(e), had any awareness of or intent to alter the DOT DBE program.

A number of provisions of the TEA-21 statute suggest that Congress intended to impose specific requirements for the DOT program, without regard to other more general statutory references. For example, the \$16.6 million size cap and the uniform certification requirements suggest that Congress wanted the eligibility for the DOT program to be determined in very specific ways, giving no hint that they intended these specific requirements to be overridden in the case of ANCs.

The Department concludes that section 1626(e) is distinguishable from the DOT DBE statutes, and that the latter govern the implementation of the DBE program. The Department is not compelled to alter its approach to certification in the case of ANCs.

Section 26.81 What Are the Requirements for Unified Certification Programs?

As was the case following the 1992 NPRM, a significant majority of the large number of commenters addressing the issue favored implementing the proposed UCP requirement, which the final rule retains largely as proposed. A few commenters suggested that airports be included in UCPs for concession purposes as well as for FAA-assisted contracting, because there are not any significant differences between the certification standards for concessionaires and contractors (the only exception is size standards, which are easy to apply). We agree, and the final rule does not make an exception for concessions (regardless of the CFR part in which the concessions provisions appear). Some commenters wanted either a longer or shorter implementation period than the SNPRM proposed, but we believe the proposal is a good middle ground between the goal of establishing UCPs as soon as possible and the time recipients will need to resolve organizational, operational, and funding issues.

There were a number of comments and questions about details of the UCP provision. One recipient wondered whether a UCP may or must be separate from a recipient and what the legal liability implications of various arrangements might be. As far as the rule is concerned, a UCP can either be situated within a recipient's organization or elsewhere. Recipients can take state law concerning liability into account in determining how best to structure a UCP in their state. Another recipient asked if existing UCPs could be exempted from submitting plans for approval. Rather than being exempted, we believe that it would be appropriate for such UCPs to submit their existing plans. They would have to change them only to the extent needed to conform to the requirements of the rule.

Some commenters asked about the relationship of UCPs to recipients. For example, should a recipient be able to certify a firm that the UCP had not certified (or whose application the UCP had not yet acted on) or refuse to recognize the UCP certification of a firm the recipient did not think should be eligible? In both cases, the answer is no. Allowing this kind of discretion would fatally undermine the "one-stop shopping" rationale of UCPs. However, a recipient could, like any other party, initiate a third-party challenge to a UCP certification action, the result of which could be appealed to DOT.

We would emphasize that the form of the UCP is a matter for negotiation among DOT recipients in a state, and this regulation does not prescribe its organization. A number of models are available, including single state agencies, consortia of recipients that hire a contractor or share the workload among themselves, mandatory reciprocity among recipients, etc. It might be conceivable for a UCP to be a "virtual entity" that is not resident in any particular location. What matters is that the UCP meet the functional requirements of this rule and actually provide one-stop shopping service to applicants. The final rule adds a provision to clarify that UCPs—even when not part of a recipient's own organization—must comply with all provisions of this rule concerning certification and nondiscrimination. Recipients cannot use a UCP that does not do so. For example, if a UCP fails to comply with part 26 certification standards and procedures, or discriminates against certain applicants, the Secretary reserves the right to direct recipients not to use the UCP, effectively "decertifying" the UCP for purposes of DOT-assisted programs. In this case, which we hope will never happen, the Department would work with recipients in the state on interim measures and replacement of the erring UCP.

The SNPRM proposed "pre-certification." That is, the UCP would have to certify a firm before the firm became eligible to participate as a DBE in a contract. The application could not be submitted as a last-minute request in connection with a procurement action, which could lead to hasty and inaccurate certification decisions. Commenters were divided on this issue, with most expressing doubts about the concept. The Department believes that avoiding last-minute (and especially post-bid opening) applications is important to an orderly and accurate certification process, so we are retaining this requirement. However, we are modifying the timing of the requirement, by requiring that certification take place before the bid/offer due date, rather than before the issuance of the solicitation. The certification action must be completed by this date in order for the firm's proposed work on the particular contract to be credited toward DBE goals. It is not enough for the application to have been submitted by the deadline.

The SNPRM proposed that, once UCPs were up and running, a UCP in State A would not have to process an application from a firm whose principal

place of business was in State B unless State B had first certified the firm. Most commenters supported this proposal, one noting that it would help eliminate problems of having to make costly out-of-state site visits. It would also potentially reduce confusion caused by multiple, and potentially conflicting, outcomes in certification decisions. One commenter was concerned that this provision would lead to "free-rider" problems among recipients. The Department will be alert to this possibility, but we do not see it as precluding going forward with this provision. We have added a provision making explicit that when State B has certified a firm, it would have an obligation to send copies of the information and documents it had on the firm to State A when the firm applied there.

All save one of the comments on mandatory reciprocity opposed the concept. That is, commenters favored UCPs being able to choose whether or not to accept certification decisions made by other UCPs. The Department urges UCPs to band together in multi-state or regional alliances, but we believe that it is best to leave reciprocity discretionary. Mandatory reciprocity, even among UCPs, could lead to forum shopping problems.

UCPs will have a common directory, which will have to be maintained in electronic form (i.e., on the internet). One commenter suggested that this electronic directory be updated daily. We think this comment has merit, and the final rule will require recipients to keep a running update of the electronic directory, making changes as they occur.

Section 26.83 What Procedures Do Recipients Follow in Making Certification Decisions?

Commenters generally supported this certification process section, and we are adopting it with only minor changes. Commenters suggested that provision for electronic filing of applications be discretionary rather than mandatory. We agree, and the final rule does not mandate development of electronic filing systems. Some commenters remained concerned about site visits and asked for more guidance on the subject. We intend to provide future guidance on this subject.

Most commenters who addressed the subject favored the development of a mandatory, nationwide, standard DOT application form for DBE eligibility. A number of commenters supplied the forms they use as examples. We believe that this is a good idea, which will help avoid confusion among applicants in a nationwide program. However, we have

not yet developed a form for this purpose. The final rule reserves a requirement for recipients to use a uniform form. We intend to work on developing such a form during the next year, in consultation with recipients and applicants. Meanwhile, recipients can continue to use existing forms, modified as necessary to conform to the requirements of this part.

The SNPRM said recipients could charge a reasonable fee to applicants. A majority of commenters, both recipients and DBEs, opposed the idea of a fee or said it should be capped at a low figure. Fees are not mandatory, and they would be limited, under the final rule, to modest application fees (not intended to recover the cost of the certification process). However, if a recipient wants to charge a modest application fee, we do not see that it is inconsistent with the nature of the program to allow it to do so. Fee waivers would be required if necessary (i.e., a firm who showed they could not afford it). All fees would have to be approved by the concerned OA as part of the DBE program approval process, which would preclude excessive fees.

Given that reciprocity is discretionary among recipients, we thought it would be useful to spell out the options a recipient has when presented by an applicant with the information that another recipient has certified the firm. The recipient may accept the other recipient's certification without any additional procedures. The recipient can make an independent decision based, in whole or in part, on the information developed by the first recipient (e.g., application forms, supporting documents, reports of site visits). The recipient may make the applicant start an entire new application process. The choice among these options is up to the recipient. (As noted above, UCPs will have these same options.)

Most commenters on the subject supported the three-year term for certifications. Some wanted a shorter or longer period. We believe the three-year term is appropriate, particularly given the safeguards of annual and update affidavits that the rule provides. In response to a few comments that recipients should have longer than the proposed 21 days after a change in circumstances to submit an update affidavit, we have extended the period to 30 days. If recipients want to have a longer term in their DBE programs than the three years provided in the rule, they can do so, with the Department's approval, as part of their DBE programs.

A few recipients said that the 90-day period for making decisions on

applications (with the possibility of a 60-day extension) was too short. Particularly since this clock does not begin ticking until a complete application, including necessary supporting documentation, is received from the applicant, we do not think this time frame is unreasonable. We would urge recipients and applicants to work together to resolve minor errors or data gaps during the assembly of the package, before this time period begins to run.

Section 26.85 What Rules Govern Recipients' Denials of Initial Requests for Certification?

A modest number of commenters addressed this section, most of whom supported it as proposed. One commenter noted that it was appropriate to permit minor errors to be corrected in an application without invoking the 12-month reapplication waiting period. We agree, and we urge recipients to follow such a policy. Most commenters thought 12 months was a good length for a reapplication period. A few opposed the idea of a waiting period or thought a shorter period was appropriate. The rule keeps 12 months, but permits recipients to seek DOT approval, through the DBE program review process, for shorter periods.

Section 26.87 What Procedures Does a Recipient Use To Remove a DBE's Eligibility?

As long ago as 1983, the Department (in the preamble to the first DBE rule) strongly urged recipients to use appropriate due process procedures for decertification actions. Recipient procedures are still inconsistent and, in some cases, inadequate, in this respect. Quite recently, for example, litigation forced one recipient to rescind a decertification of an apparently ineligible firm because it had failed to provide administrative due process. We believe that proper due process procedures are crucial to maintaining the integrity of this program. The majority of commenters agreed, though a number of commenters had concerns about particular provisions of the SNPRM proposal.

Some recipients, for example, thought separation of functions was an unnecessary requirement, or too burdensome, particularly for small recipients. We believe separation of functions is essential: there cannot be a fair proceeding if the same party acts as prosecutor and judge. We believe that the burdens are modest, particularly in the context of state DOTs and statewide UCPs. We acknowledge that for small recipients, like small airports and transit

authorities, small staffs may create problems in establishing separation of functions (e.g., if there is only one person in the organization who is knowledgeable about the DBE program). For this reason, the rule will permit small recipients to comply with this requirement to the extent feasible until UCPs are in operation (at which time the UCPs would have to ensure separation of functions in all such cases). The organizational scheme for providing separation of functions will be part of each recipient's DBE program. In the case of a small recipient, if the DBE program showed that other alternatives (e.g., the airport using the transit authority's DBE officer as the decisionmaker in decertification actions, and vice-versa) were unavailable, the Department could approve something less than ideal separation of functions for the short term before the UCP becomes operational. In reviewing certification appeals from such recipients, the Department would take into account the absence of separation of functions.

It is very important that the decisionmaker be someone who is familiar with the DBE certification requirements of this part. The decisionmaker need not be an administrative law judge or some similar official; a knowledgeable program official is preferable to an ALJ who lacks familiarity with the program.

Another aspect of the due process requirements that commenters addressed was the requirement for a record of the hearing, which some commenters found to be burdensome. We want to emphasize that, while recipients have to keep a hearing record (including a verbatim record of the hearing), they do not need to produce a transcript unless there is an appeal. A hearing record is essential, because DOT appellate review is a review of the administrative record.

Some commenters suggested deleting two provisions. One of these allowed recipients to impose a sort of administrative temporary restraining order on firms pending a final decertification decision. The other allowed the effect of a decertification decision to be retroactive to the date of the complaint. The Department agrees that these two provisions could lead to unfairness, and so we have deleted them.

Section 26.89 What Is the Process for Certification Appeals to the Department of Transportation?

Several commenters addressed this section, supporting it with a few requests for modification. Some

commenters wanted a time limit for DOT consideration of appeals. We have added a provision saying that if DOT takes longer than 180 days from the time we receive a complete package, we will write everyone concerned with an explanation of the delay and a new target date for completion. Some commenters thought a different time limit for appeals to the Department (e.g., 180 days) would be beneficial. We believe that 90 days is enough time for someone to decide whether a decision of a recipient or UCP should be appealed and write a letter to DOT. This time period starts to run from the date of the final recipient decision on the matter. DOT can accept late-filed appeals on the basis of a showing of good cause (e.g., factors beyond the control of the appellant). Some recipients thought that more time might be necessary to compile an administrative record, so we have permitted DOT to grant extensions for good cause. Generally, however, the Department will adhere to the 90-day time period in order to prevent delays in the appeals process. As a clarification, we have added a provision that all recipients involved must provide administrative record material to DOT when there is an appeal. For example, State A has relied on the information gathered by State B to certify Firm X. A competitor files an ineligibility complaint with State A, which decertifies the firm. Firm X appeals to the Department. Both State A and State B must provide their administrative record materials to DOT for purposes of the appeal. (The material would be provided to the Departmental Office of Civil Rights.)

Section 26.91 What Actions Do Recipients Take Following DOT Certification Appeal Decisions?

There were few comments concerning this section. Some comments suggested DOT appeal decisions should have mandatory nationwide effect. That is if DOT upheld the decertification action of Recipient A, Recipients B, C, D, E, etc. should automatically decertify the firm. This approach is inconsistent with the administrative review of the record approach this rule takes for appeals to DOT.

A DOT decision that A's decertification was supported by substantial evidence is not a DOT decision that the firm is ineligible. It is only a finding that A had enough evidence to decertify the firm. Other results might also be supported by substantial evidence. Nevertheless, when the Department takes action on an appeal, other recipients would be well

advised to review their own decisions to see if any new proceedings are appropriate. One comment suggested the Department should explain a refusal to accept a complaint. This is already the Department's practice.

The SNPRM included a proposal to permit direct third-party complaints to the Department. There were few comments on this proposal, which would have continued an existing DOT practice. Some of these comments suggested dropping this provision, saying it made more sense to have all certification matters handled at the recipient level in the first instance. Others raised procedural issues (e.g., the possibility of the Department holding *de novo* hearings). The Department has reconsidered this proposal, and we have decided to delete it. We believe it will avoid administrative confusion and simplify procedures for everyone if all certification actions begin at the recipient level, with DOT appellate review on the administrative record.

Subpart F—Compliance and Enforcement

There were very few comments concerning this subpart, which we are adopting as proposed. One section has been added to reflect language in TEA-21 that prohibits sanctions against recipients for noncompliance in situations where compliance is precluded by a final Federal court order finding the program unconstitutional.

DBE Participation in Airport Concessions

The Department proposed a number of changes to its airport concessions DBE program rule in the 1997 SNPRM. We received a substantial number of comments on these proposals. The Department is continuing to work on its responses to these comments, as well as on refinements of the rule to ensure that it is narrowly tailored. This work is not complete. Rather than postpone issuance of the rest of the rule pending completion of this work, we are not issuing final concessions provisions at this time. The existing concessions provisions of 49 CFR part 23 will remain in place pending completion of the revised rule.

Regulatory Analyses and Notices Executive Order 12866

This rule is a significant rule under Executive Order 12866, because of the substantial public interest concerning and policy importance of programs to ensure nondiscrimination in Federally-assisted contracting. It also affects a wide variety of parties, including

recipients in three important DOT financial assistance programs and the DBE and non-DBE contractors that work for them. It has been reviewed by the Office of Management and Budget. It is also a significant rule for purposes of the Department's Regulatory Policies and Procedures.

We do not believe that the rule will have significant economic impacts, however. In evaluating the potential economic impact of this rule, we begin by noting that it does not create a new program. It simply revises the rule governing an existing program. The economic impacts of the DBE program are created by the existing regulation and the statutes that mandate it, not by these revisions. The changes that we propose in this program are likely to have some positive economic impacts. For example, "one-stop shopping" and clearer standards in certification are likely to reduce costs for small businesses applying for DBE certification, as well as reducing administrative burdens on recipients.

The rule's "narrow tailoring" changes are likely to be neutral in terms of their overall economic impact. These could have some distributive impacts (e.g., if the proposed goal-setting mechanism results in changes in DBE goals, a different mix of firms may work on recipients' contracts), but there would probably not be net gains or losses to the economy. There could be some short-term costs to recipients owing to changes in program administration resulting from "narrow tailoring," however.

In any event, the economic impacts are quite speculative and appear nearly impossible to quantify. Comments did not provide, and the Department does not have, any significant information that would allow the Department to estimate any such impacts.

Regulatory Flexibility Act Analysis

The DBE program is aimed at improving contracting opportunities for small businesses owned and controlled by socially and economically disadvantaged individuals. Virtually all the businesses it affects are small entities. There is no doubt that a DBE rule always affects a substantial number of small entities.

This rule, while improving program administration and facilitating DBE participation (e.g., by making the certification process clearer) and responding to legal developments, appears essentially cost-neutral with respect to small entities in general (as noted above, the one-stop shopping feature is intended to benefit small entities seeking to participate). It does

not impose new burdens or costs on small entities, compared to the existing rule. It does not affect the total funds or business opportunities available to small businesses that seek to work in DOT financial assistance programs. To the extent that the proposals in this rule (e.g., with respect to changes in the methods used to set overall goals) lead to different goals than the existing rule, some small firms may gain, and others lose, business.

There is no data of which the Department is aware that would permit us, at this time, to measure the distributive effects of the revisions on various types of small entities. It is likely that any attempt to gauge these effects would be highly speculative. For this reason, we are not able to make a quantitative, or even a precise qualitative, estimate of these effects.

Paperwork Reduction Act

A number of provisions of this rule involve information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA). One of these provisions, concerning a report of DBE achievements that recipients make to the Department, is the subject of an existing OMB approval under the PRA.

With one exception, the other information collection requirements of the rule continue existing part 23 requirements, major elements of the DBE program that recipients and contractors have been implementing since 1980 or 1983. While the final rule modifies these requirements in some ways, the Department believes the overall burden of these requirements will remain the same or shrink. These requirements are the following:

- Firms applying for DBE certification must provide information to recipients to allow them to make eligibility decisions. Currently certified firms must provide information to recipients to allow them to review the firms' continuing eligibility. (After the UCP requirements of the rule are implemented, the burdens of the certification provisions should be substantially reduced.)

- When contractors bid on prime contracts that have contract goals, they must document their DBE participation and/or the good faith efforts they have made to meet the contract goals. (Given the final rule's emphasis on race-neutral measures, it is likely the burden in this area will be reduced.)

- Recipients must maintain a directory of certified DBE firms. (Once UCPs are implemented, there will be 52 consolidated directories rather than the hundreds now required, reducing burdens substantially.)

- Recipients must calculate overall goals and transmit them to the Department for approval. (The process of setting overall goals is more flexible, but may also be more complex, than under part 23. As they make their transition to the final rule's goal-setting process during the first years of implementation, recipients may temporarily expend more hours than in the past on information-related tasks.)

- Recipients must have a DBE program approved by the Department. (The final rule includes a one-time requirement to submit a revised program document making changes to conform to the new regulation.)

The Department estimates that these program elements will result in a total of approximately 1.58 million burden hours to recipients and contractors combined during the first year of implementation and approximately 1.47 million annual burden hours thereafter.

The final rule also includes one new information collection element. It calls for recipients to collect and maintain data concerning both DBE and non-DBE bidders on DOT-assisted contracts. This information is intended to assist recipients in making more precise determinations of the availability of DBEs and the shape of the "level playing field" the maintenance of which is a major objective of the rule. The Department estimates that this requirement will add 254,595 burden hours in the first year of implementation. This figure is projected to decline to 193,261 hours in the second year and to 161,218 hours in the third and subsequent years.

Both as the result of comments and what the Department learns as it implements the DBE program under part 26, it is possible for the Department's information needs and the way we meet them to change. Sometimes the way we collect information can be changed informally (e.g., by guidance telling recipients they need not repeat information that does not change significantly from year to year). In other circumstances, a technical amendment to the regulation may be needed. In any case, the Department will remain sensitive to situations in which modifying information collection requirements becomes appropriate.

As required by the PRA, the Department has submitted an information collection approval request to OMB. Organizations and individuals desiring to submit comments on information collection requirements should direct them to the Department's docket for this rulemaking. You may also submit copies of your comments to

the Office of Information and Regulatory Affairs (OIRA), OMB, Room 10235, New Executive Office Building, Washington, DC, 20503; Attention: Desk Officer for U.S. Department of Transportation.

The Department considers comments by the public on information collections for several purposes:

- Evaluating the necessity of information collections for the proper performance of the Department's functions, including whether the information has practical utility.

- Evaluating the accuracy of the Department's estimate of the burden of the information collections, including the validity of the methods and assumptions used.

- Enhancing the quality, usefulness, and clarity of the information to be collected.

- Minimizing the burden of the collection of information on respondents, including through the use of electronic and other methods.

The Department points out that, with the exception of the bid data collection, all the information collection elements discussed in this section of the preamble have not only been part of the Department's DBE program for many years, but have also been the subject of extensive public comment following the 1992 NPRM and 1997 SNPRM. Among the over 900 comments received in response to these notices were a number addressing administrative burden issues surrounding these program elements. In this final rule, the Department has responded to these comments.

OMB is required to make a decision concerning information collections within 30-60 days of the publication of this notice. Therefore, for best effect, comments should be received by DOT/OMB within 30 days of publication. Following receipt of OMB approval, the Department will publish a Federal Register notice containing the applicable OMB approval numbers.

Federalism

The rule does not have sufficient Federalism impacts to warrant the preparation of a Federalism assessment. While the rule concerns the activities of state and local governments in DOT financial assistance programs, the rule does not significantly alter the role of state and local governments vis-a-vis DOT from the present part 23. The availability of program waivers could allow greater flexibility for state and local participants, however.

List of Subjects

49 CFR Part 23

Administrative practice and procedure, Airports, Civil rights,

Concessions, Government contracts, Grant programs—transportation, Minority businesses, Reporting and recordkeeping requirements.

49 CFR Part 26

Administrative practice and procedure, Airports, Civil rights, Government contracts, Grant programs—transportation, Highways and roads, Mass transportation, Minority businesses, Reporting and recordkeeping requirements. Issued this 8th day of January, 1999, at Washington, DC.

Rodney E. Slater,

Secretary of Transportation.

For the reasons set forth in the preamble, the Department amends 49 CFR subtitle A as follows:

PART 23—PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISE IN AIRPORT CONCESSIONS

1. Revise the heading of 49 CFR part 23 as set forth above.
2. Revise the authority citation for 49 CFR part 23 to read as follows:
Authority: 42 U.S.C. 200d et seq.; 49 U.S.C. 47107 and 47123; Executive Order 12138, 3 CFR, 1979 Comp., p. 393.

Revision 1: Authority for Part 23 is restated.

Subparts A, C, D, and E—[Removed and Reserved]

3. Remove and reserve subparts A, C, D, and E of part 23.

§ 23.89 [Amended]

4. Amend § 23.89 as follows:

a. In the definition of "disadvantaged business," remove the words "§ 23.61 of subpart D of this part" and add the words "49 CFR part 26"; and remove the words "§ 23.61" in the last line of the definition and add the words "49 CFR part 26".

b. In the definition of "small business concern," paragraph (b), remove the words "§ 23.43(d)" and add the words "§ 23.43(d) in effect prior to March 4, 1999 (See 49 CFR Parts 1 to 99 revised as of October 1, 1998.)".

c. In the definition of "socially and economically disadvantaged individuals," remove the words "§ 23.61 of subpart D of this part" and add "49 CFR part 26".

§ 23.93 [Amended]

5. Amend § 23.93(a) introductory text by removing the words "§ 23.7" and adding the words "§ 26.7".

§ 23.95 [Amended]

6. Amend § 23.95(a)(1) by removing the words "based on the factors listed in § 23.43(g)(5)" and adding the words "consistent with the process for setting overall goals set forth in 49 CFR 26.45".

Revision 2: In §

7. In addition, amend § 23.95 as follows:

a. In paragraph (f)(1), remove the words "§ 23.51" and add the words "49 CFR part 26, subpart E";

b. In paragraph (f)(2), remove the words "Except as provided in § 23.51(c), each" and add "Each";

c. Remove paragraph (f)(5); d. In paragraph (g)(1), remove the words "§ 23.53" and add the words "49 CFR part 26, subpart D".

Revision 2. In § 23.95 remove and reserve paragraphs (f)(2) and (f)(3).

§ 23.97 [Amended]

8. Amend § 23.97 by removing the words "§ 23.55" and adding the words "49 CFR 26.89".

§ 23.11 [Removed]

9. Remove § 23.111.

10. Add a new 49 CFR part 26, to read as follows:

PART 26—PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES IN DEPARTMENT OF TRANSPORTATION FINANCIAL ASSISTANCE PROGRAMS

Subpart A—General

- Sec. 26.1 What are the objectives of this part?
26.3 To whom does this part apply?
26.5 What do the terms used in this part mean?
26.7 What discriminatory actions are forbidden?
26.9 How does the Department issue guidance and interpretations under this part?
26.11 What records do recipients keep and report?

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Subpart B—Administrative Requirements for DBE Programs for Federally-Assisted Contracting

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26.41 What is the role of the statutory 10 percent goal in this program?

26.43 Can recipients use set-asides or quotas as part of this program?

26.45 How do recipients set overall goals?

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26.49 How are overall goals established for transit vehicle manufacturers?

26.51 What means do recipients use to meet overall goals?

26.53 What are the good faith efforts procedures recipients follow in situations where there are contract goals?

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Subpart D—Certification Standards

26.61 How are burdens of proof allocated in the certification process?

26.63 What rules govern group membership determinations?

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26.81 What are the requirements for Unified Certification Programs?

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26.85 What rules govern recipients' denials of initial requests for certification?

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26.89 What is the process for certification appeals to the Department of Transportation?

26.91 What actions do recipients take following DOT certification appeal decisions?

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26.101 What compliance procedures apply to recipients?

26.103 What enforcement actions apply in FHWA and FTA programs?

26.105 What enforcement actions apply in FAA Programs?

26.107 What enforcement actions apply to firms participating in the DBE program?

26.109 What are the rules governing information, confidentiality, cooperation, and intimidation or retaliation?

Appendix A to part 26—Guidance Concerning Good Faith Efforts

Appendix B to part 26—Forms [Reserved]

Appendix C to part 26—DBE Business Development Program Guidelines Appendix D to part 26—Mentor-Protégé Program Guidelines

Appendix E to part 26—Individual Determinations of Social and Economic Disadvantage

Authority: 23 U.S.C. 324; 42 U.S.C. 2000d et seq.; 49 U.S.C. 1615, 47107, 47113, 47123;

Revision 3. Authority is revised by adding: Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113

Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113.

Subpart A—General

§ 26.1 What are the objectives of this part?

This part seeks to achieve several objectives:

- (a) To ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs;
 - (b) To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
 - (c) To ensure that the Department's DBE program is narrowly tailored in accordance with applicable law;
 - (d) To ensure that only firms that fully meet this part's eligibility standards are permitted to participate as DBEs;
 - (e) To help remove barriers to the participation of DBEs in DOT-assisted contracts;
 - (f) To assist the development of firms that can compete successfully in the marketplace outside the DBE program;
- and
- (g) To provide appropriate flexibility to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.

§ 26.3 To whom does this part apply?

(a) If you are a recipient of any of the following types of funds, this part applies to you:

(1) Federal-aid highway funds authorized under Titles I (other than Part B) and V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Pub. L. 102-240, 105 Stat. 1914, or Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21), Pub. L. 105-178, 112 Stat. 107.

(2) Federal transit funds authorized by Titles I, III, V and VI of ISTEA, Pub. L. 102-240 or by Federal transit laws in Title 49, U.S. Code, or Titles I, III, and V of the TEA-21, Pub. L. 105-178.

(3) Airport funds authorized by 49 U.S.C. 47101, et seq.

(b) [Reserved]

(c) If you are letting a contract, and that contract is to be performed entirely outside the United States, its territories and possessions, Puerto Rico, Guam, or the Northern Marianas Islands, this part does not apply to the contract.

(d) If you are letting a contract in which DOT financial assistance does not participate, this part does not apply to the contract.

26.5 What do the terms used in this part mean?

Affiliation has the same meaning the term has in the Small Business Administration (SBA) regulations, 13 CFR part 121.

(1) Except as otherwise provided in 13 CFR part 121, concerns are affiliates of each other when, either directly or indirectly:

- (i) One concern controls or has the power to control the other; or
- (ii) A third party or parties controls or has the power to control both; or
- (iii) An identity of interest between or among parties exists such that affiliation may be found.

(2) In determining whether affiliation exists, it is necessary to consider all appropriate factors, including common ownership, common management, and contractual relationships. Affiliates must be considered together in determining whether a concern meets small business size criteria and the statutory cap on the participation of firms in the DBE program.

Alaska Native means a citizen of the United States who is a person of one-fourth degree or more Alaskan Indian (including Tsimshian Indians not enrolled in the Metlakta Indian Community), Eskimo, or Aleut blood, or a combination of those bloodlines. The term includes, in the absence of proof of a minimum blood quantum, any citizen whom a Native village or Native group regards as an Alaska Native if their father or mother is regarded as an Alaska Native.

Alaska Native Corporation (ANC) means any Regional Corporation, Village Corporation, Urban Corporation, or Group Corporation organized under the laws of the State of Alaska in accordance with the Alaska Native Claims Settlement Act, as amended (43 U.S.C. 1601, et seq.).

Compliance means that a recipient has correctly implemented the requirements of this part.

Rev 4. Add: to Contract definition: For purposes of this part, a lease is considered to be a contract.

Contract means a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For purposes of this part, a lease is considered to be a contract.

Contractor means one who participates, through a contract or subcontract (at any tier), in a DOT-assisted highway, transit, or airport program.

Department or DOT means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA).

Disadvantaged business enterprise or DBE means a for-profit small business concern—

(1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and

(2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

DOT-assisted contract means any contract between a recipient and a contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees, except a contract solely for the purchase of land.

Good faith efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Immediate family member means father, mother, husband, wife, son, daughter, brother, sister, grandmother, grandfather, grandson, granddaughter, mother-in-law, or father-in-law.

Indian tribe means any Indian tribe, band, nation, or other organized group or community of Indians, including any ANC, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians, or is recognized as such by the State in which the tribe, band, nation, group, or community resides. See definition of "tribally-owned concern" in this section.

Joint venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest. *Native Hawaiian* means any individual whose ancestors were natives, prior to 1778, of the area which now comprises the State of Hawaii.

Native Hawaiian Organization means any community service organization serving Native Hawaiians in the State of Hawaii which is a not-for-profit organization chartered by the State of Hawaii, is controlled by Native Hawaiians, and whose business activities will principally benefit such Native Hawaiians.

Noncompliance means that a recipient has not correctly implemented the requirements of this part.

Operating Administration or OA means any of the following parts of DOT: the Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA). The "Administrator" of an operating administration includes his or her designees.

Personal net worth means the net value of the assets of an individual remaining after total liabilities are deducted. An individual's personal net worth does not include: The individual's ownership interest in an applicant or participating DBE firm; or the individual's equity in his or her primary place of residence. An individual's personal net worth includes only his or her own share of assets held jointly or as community property with the individual's spouse.

Primary industry classification means the four digit Standard Industrial Classification (SIC) code designation which best describes the primary business of a firm. The SIC code designations are described in the Standard Industry Classification Manual. As the North American Industrial Classification System (NAICS) replaces the SIC system, references to SIC codes and the SIC Manual are deemed to refer to the NAICS manual and applicable codes. The SIC Manual and the NAICS Manual are available through the National Technical Information Service (NTIS) of the U.S. Department of Commerce (Springfield, VA, 22261). NTIS also makes materials available through its web site (www.ntis.gov/naics).

Primary recipient means a recipient which receives DOT financial assistance and passes some or all of it on to another recipient.

Principal place of business means the business location where the individuals who manage the firm's day-to-day operations spend most working hours and where top management's business records are kept. If the offices from which management is directed and where business records are kept are in different locations, the recipient will determine the principal place of business for DBE program purposes.

Program means any undertaking on a recipient's part to use DOT financial assistance, authorized by the laws to which this part applies.

Race-conscious measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, *race-neutral* includes gender-neutrality.

Recipient is any entity, public or private, to which DOT financial assistance is extended, whether directly or through another recipient, through the programs of the FAA, FHWA, or FTA, or who has applied for such assistance.

Secretary means the Secretary of Transportation or his/her designee.

Set-aside means a contracting practice restricting eligibility for the competitive award of a contract solely to DBE firms.

Small Business Administration or SBA means the United States Small Business Administration.

Small business concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in § 26.65(b).

Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is—

(1) Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.

(2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

(ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunel, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi) Women;

(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

Tribally-owned concern means any concern at least 51 percent owned by an Indian tribe as defined in this section.

You refers to a recipient, unless a statement in the text of this part or the context requires otherwise (i.e., "You must do XYZ" means that recipients must do XYZ).

§ 26.7 What discriminatory actions are forbidden?

(a) You must never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by this part on the basis of race, color, sex, or national origin.

(b) In administering your DBE program, you must not, directly or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the program with respect to individuals of a particular race, color, sex, or national origin.

§ 26.9 How does the Department issue guidance and interpretations under this part?

(a) This part applies instead of subparts A and C through E of 49 CFR part 23 in effect prior to March 4, 1999. (See 49 CFR Parts 1 to 99, revised as of October 1, 1998.) Only guidance and interpretations (including interpretations set forth in certification appeal decisions) consistent with this part 26 and issued after March 4, 1999 have definitive, binding effect in implementing the provisions of this part and constitute the official position of the Department of Transportation.

(b) The Secretary of Transportation, Office of the Secretary of Transportation, FHWA, FTA, and FAA may issue written interpretations of or written guidance concerning this part. Written interpretations and guidance are valid and binding, and constitute the official position of the Department of Transportation, only if they are issued over the signature of the Secretary of Transportation or if they contain the following statement:

The General Counsel of the Department of Transportation has reviewed this document and approved it as consistent with the language and intent of 49 CFR part 26.

§ 26.11 What records do recipients keep and report?

(a) [Reserved]

(b) You must continue to provide data about your DBE program to the Department as directed by DOT operating administrations.

(c) You must create and maintain a bidders list, consisting of all firms bidding on prime contracts and bidding or quoting subcontracts on DOT-assisted projects. For every firm, the following information must be included:

- (1) Firm name;
- (2) Firm address;
- (3) Firm's status as a DBE or non-DBE;
- (4) The age of the firm; and
- (5) The annual gross receipts of the firm.

§ Section 26.13 What assurances must recipients and contractors make?

(a) Each financial assistance agreement you sign with a DOT operating administration (or a primary recipient) must include the following assurance: The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification of the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

(b) Each contract you sign with a contractor (and each subcontract the prime contractor signs with a subcontractor) must include the following assurance: The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract

or such other remedy as the recipient deems appropriate.

§ 26.15 How can recipients apply for exemptions or waivers?

(a) You can apply for an exemption from any provision of this part. To apply, you must request the exemption in writing from the Office of the Secretary of Transportation, FHWA, FTA, or FAA. The Secretary will grant the request only if it documents special or exceptional circumstances, not likely to be generally applicable, and not contemplated in connection with the rulemaking that established this part, that make your compliance with a specific provision of this part impractical. You must agree to take any steps that the Department specifies to comply with the intent of the provision from which an exemption is granted. The Secretary will issue a written response to all exemption requests.

(b) You can apply for a waiver of any provision of Subpart B or C of this part including, but not limited to, any provisions regarding administrative requirements, overall goals, contract goals or good faith efforts. Program waivers are for the purpose of authorizing you to operate a DBE program that achieves the objectives of this part by means that may differ from one or more of the requirements of Subpart B or C of this part. To receive a program waiver, you must follow these procedures:

(1) You must apply through the concerned operating administration. The application must include a specific program proposal and address how you will meet the criteria of paragraph (b)(2) of this section. Before submitting your application, you must have had public participation in developing your proposal, including consultation with the DBE community and at least one public hearing. Your application must include a summary of the public participation process and the information gathered through it.

(2) Your application must show that—

(i) There is a reasonable basis to conclude that you could achieve a level of DBE participation consistent with the objectives of this part using different or innovative means other than those that are provided in subpart B or C of this part;

(ii) Conditions in your jurisdiction are appropriate for implementing the proposal;

(iii) Your proposal would prevent discrimination against any individual or group in access to contracting opportunities or other benefits of the program; and

(iv) Your proposal is consistent with applicable law and program requirements of the concerned operating administration's financial assistance program.

(3) The Secretary has the authority to approve your application. If the Secretary grants your application, you may administer your DBE program as provided in your proposal, subject to the following conditions:

(i) DBE eligibility is determined as provided in subparts D and E of this part, and DBE participation is counted as provided in § 26.49;

(ii) Your level of DBE participation continues to be consistent with the objectives of this part;

(iii) There is a reasonable limitation on the duration of your modified program; and

(iv) Any other conditions the Secretary makes on the grant of the waiver.

(4) The Secretary may end a program waiver at any time and require you to comply with this part's provisions. The Secretary may also extend the waiver, if he or she determines that all requirements of paragraphs (b)(2) and

(3) of this section continue to be met. Any such extension shall be for no longer than period originally set for the duration of the program.

Subpart B—Administrative Requirements for DBE Programs for Federally-Assisted Contracting

§ 26.21 Who must have a DBE program?

(a) If you are in one of these categories and let DOT-assisted contracts, you must have a DBE program meeting the requirements of this part:

- (1) All FHWA recipients receiving funds authorized by a statute to which this part applies;

Revision 5: Revise § 26.21(a)(2) to read:

(2) FTA recipients that receive \$250,000 in FTA planning, capital or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49.

~~(2) FTA recipients that receive \$250,000 or more in FTA planning, capital, and/or operating assistance in a Federal fiscal year;~~

(2) FTA recipients that receive \$250,000 in FTA planning, capital or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49.

(3) FAA recipients that receive a grant of \$250,000 or more for airport planning or development.

(b)(1) You must submit a DBE program conforming to this part by August 31, 1999 to the concerned operating administration (OA). Once the OA has approved your program, the approval counts for all of your DOT-assisted programs (except that goals are reviewed and approved by the particular operating administration that provides funding for your DOT-assisted contracts).

Revision 6 In §

(2) You do not have to submit regular updates of your DBE programs, as long as you remain in compliance. However, you must submit significant changes in the program for approval.

(c) You are not eligible to receive DOT financial assistance unless DOT has

approved your DBE program and you are in compliance with it and this part. You must continue to carry out your program until all funds from DOT financial assistance have been expended.

§ 26.23 What is the requirement for a policy statement?

You must issue a signed and dated policy statement that expresses your commitment to your DBE program, states its objectives, and outlines responsibilities for its implementation. You must circulate the statement throughout your organization and to the DBE and non-DBE business communities that perform work on your DOT-assisted contracts.

§ 26.25 What is the requirement for a liaison officer?

You must have a DBE liaison officer, who shall have direct, independent access to your Chief Executive Officer concerning DBE program matters. The liaison officer shall be responsible for implementing all aspects of your DBE program. You must also have adequate staff to administer the program in compliance with this part.

26.27 What efforts must recipients make concerning DBE financial institutions?

You must thoroughly investigate the full extent of services offered by financial institutions owned and controlled by socially and economically disadvantaged individuals in your community and make reasonable efforts to use these institutions. You must also encourage prime contractors to use such institutions.

§ 26.29 What prompt payment mechanisms must recipients have?

(a) You must establish, as part of your DBE program, a contract clause to require prime contractors to pay subcontractors for satisfactory performance of their contracts no later than a specific number of days from receipt of each payment you make to the prime contractor. This clause must also require the prompt return of retainage payments from the prime contractor to the subcontractor within a specific number of days after the subcontractor's work is satisfactorily completed.

(1) This clause may provide for appropriate penalties for failure to comply, the terms and conditions of which you set.

(2) This clause may also provide that any delay or postponement of payment among the parties may take place only for good cause, with your prior written approval.

(b) You may also establish, as part of your DBE program, any of the following

additional mechanisms to ensure prompt payment:

(1) A contract clause that requires prime contractors to include in their subcontracts language providing that prime contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes. You may specify the nature of such mechanisms.

(2) A contract clause providing that the prime contractor will not be reimbursed for work performed by subcontractors unless and until the prime contractor ensures that the subcontractors are promptly paid for the work they have performed.

(3) Other mechanisms, consistent with this part and applicable state and local law, to ensure that DBEs and other contractors are fully and promptly paid.

§ 26.31 What requirements pertain to the DBE directory?

You must maintain and make available to interested persons a directory identifying all firms eligible to participate as DBEs in your program. In the listing for each firm, you must include its address, phone number, and the types of work the firm has been certified to perform as a DBE. You must revise your directory at least annually and make updated information available to contractors and the public on request.

§ 26.33 What steps must a recipient take to address overconcentration of DBEs in certain types of work?

(a) If you determine that DBE firms are so overconcentrated in a certain type of work as to unduly burden the opportunity of non-DBE firms to participate in this type of work, you must devise appropriate measures to address this overconcentration.

(b) These measures may include the use of incentives, technical assistance, business development programs, mentor-protégé programs, and other appropriate measures designed to assist DBEs in performing work outside of the specific field in which you have determined that non-DBEs are unduly burdened. You may also consider varying your use of contract goals, to the extent consistent with § 26.51, to ensure that non-DBEs are not unfairly prevented from competing for subcontracts.

(c) You must obtain the approval of the concerned DOT operating administration for your determination of overconcentration and the measures you devise to address it. Once approved, the measures become part of your DBE program.

§ 26.35 What role do business development and mentor-protégé programs have in the DBE program?

(a) You may or, if an operating administration directs you to, you must establish a DBE business development program (BDP) to assist firms in gaining the ability to compete successfully in the marketplace outside the DBE program. You may require a DBE firm, as a condition of receiving assistance through the BDP, to agree to terminate its participation in the DBE program after a certain time has passed or certain objectives have been reached. See Appendix C of this part for guidance on administering BDP programs.

(b) As part of a BDP or separately, you may establish a "mentor-protégé" program, in which another DBE or non-DBE firm is the principal source of business development assistance to a DBE firm.

(1) Only firms you have certified as DBEs before they are proposed for participation in a mentor-protégé program are eligible to participate in the mentor-protégé program.

(2) During the course of the mentor-protégé relationship, you must:

(i) Not award DBE credit to a non-DBE mentor firm for using its own protégé firm for more than one half of its goal on any contract let by the recipient; and

(ii) Not award DBE credit to a non-DBE mentor firm for using its own protégé firm for more than every other contract performed by the protégé firm.

(3) For purposes of making determinations of business size under this part, you must not treat protégé firms as affiliates of mentor firms, when both firms are participating under an approved mentor-protégé program. See Appendix D of this part for guidance concerning the operation of mentor-protégé programs.

(c) Your BDPs and mentor-protégé programs must be approved by the concerned operating administration before you implement them. Once approved, they become part of your DBE program.

§ 26.37 What are a recipient's responsibilities for monitoring the performance of other program participants?

(a) You must implement appropriate mechanisms to ensure compliance with the part's requirements by all program participants (e.g., applying legal and contract remedies available under Federal, state and local law). You must set forth these mechanisms in your DBE program.

(b) Your DBE program must also include a monitoring and enforcement mechanism to verify that the work committed to DBEs at contract award is

actually performed by the DBEs. This mechanism must provide for a running tally of actual DBE attainments (e.g., payments actually made to DBE firms) and include a provision ensuring that DBE participation is credited toward overall or contract goals only when payments are actually made to DBE firms.

Subpart C—Goals, Good Faith Efforts, and Counting

§ 26.41 What is the role of the statutory 10 percent goal in this program?

(a) The statutes authorizing this program provide that, except to the extent the Secretary determines otherwise, not less than 10 percent of the authorized funds are to be expended with DBEs.

(b) This 10 percent goal is an aspirational goal at the national level, which the Department uses as a tool in evaluating and monitoring DBEs' opportunities to participate in DOT-assisted contracts.

(c) The national 10 percent goal does not authorize or require recipients to set overall or contract goals at the 10 percent level, or any other particular level, or to take any special administrative steps if their goals are above or below 10 percent.

§ 26.43 Can recipients use set-asides or quotas as part of this program?

(a) You are not permitted to use quotas for DBEs on DOT-assisted contracts subject to this part.

(b) You may not set-aside contracts for DBEs on DOT-assisted contracts subject to this part, except that, in limited and extreme circumstances, you may use set-asides when no other method could be reasonably expected to redress egregious instances of discrimination.

§ 26.45 How do recipients set overall goals?

(a) You must set an overall goal for DBE participation in your DOT-assisted contracts.

(b) Your overall goal must be based on demonstrable evidence of the availability of ready, willing and able DBEs relative to all businesses ready, willing and able to participate on your DOT-assisted contracts (hereafter, the "relative availability of DBEs"). The goal must reflect your determination of the level of DBE participation you would expect absent the effects of discrimination. You cannot simply rely on either the 10 percent national goal, your previous overall goal or past DBE participation rates in your program without reference to the relative availability of DBEs in your market.

(c) Step 1. You must begin your goal setting process by determining a base figure

for the relative availability of DBEs. The following are examples of approaches that you may take toward determining a base figure. These examples are provided as a starting point for your goal setting process. Any percentage figure derived from one of these examples should be considered a basis from which you begin when examining all evidence available in your jurisdiction. These examples are not intended as an exhaustive list. Other methods or combinations of methods to determine a base figure may be used, subject to approval by the concerned operating administration.

(1) Use DBE Directories and Census Bureau Data. Determine the number of ready, willing and able DBEs in your market from your DBE directory. Using the Census Bureau's County Business Pattern (CBP) data base, determine the number of all ready, willing and able businesses available in your market that perform work in the same SIC codes. (Information about the CBP data base may be obtained from the Census Bureau at their web site, www.census.gov/cpcd/cbp/view/cbpview.html.) Divide the number of DBEs by the number of all businesses to derive a base figure for the relative availability of DBEs in your market.

(2) Use a bidders list. Determine the number of DBEs that have bid or quoted on your DOT-assisted prime contracts or subcontracts in the previous year. Determine the number of all businesses that have bid or quoted on prime or subcontracts in the same time period. Divide the number of DBE bidders and quoters by the number for all businesses to derive a base figure for the relative availability of DBEs in your market.

(3) Use data from a disparity study. Use a percentage figure derived from data in a valid, applicable disparity study.

(4) Use the goal of another DOT recipient. If another DOT recipient in the same, or substantially similar, market has set an overall goal in compliance with this rule, you may use that goal as a base figure for your goal.

Revision 6: In §26.45(c)(5) Remove the words "Subject to the approval of the DOT operating administration, you" and add "You" in its place.

(5) Alternative methods. Subject to the approval of the DOT operating administration, you may use other methods to determine a base figure for your overall goal. Any methodology you choose must be based on demonstrable evidence of local market conditions and be designed to ultimately attain a goal that is rationally related to the relative availability of DBEs in your market.

(d) Step 2. Once you have calculated a base figure, you must examine all of the evidence

available in your jurisdiction to determine what adjustment, if any, is needed to the base figure in order to arrive at your overall goal.

(1) There are many types of evidence that must be considered when adjusting the base figure. These include:

(i) The current capacity of DBEs to perform work in your DOT-assisted contracting program, as measured by the volume of work DBEs have performed in recent years;

(ii) Evidence from disparity studies conducted anywhere within your jurisdiction, to the extent it is not already accounted for in your base figure; and

(iii) If your base figure is the goal of another recipient, you must adjust it for differences in your local market and your contracting program.

(2) You may also consider available evidence from related fields that affect the opportunities for DBEs to form, grow and compete. These include, but are not limited to:

(i) Statistical disparities in the ability of DBEs to get the financing, bonding and insurance required to participate in your program;

(ii) Data on employment, self-employment, education, training and union apprenticeship programs, to the extent you can relate it to the opportunities for DBEs to perform in your program.

(3) If you attempt to make an adjustment to your base figure to account for the continuing effects of past discrimination (often called the "but for" factor) or the effects of an ongoing DBE program, the adjustment must be based on demonstrable evidence that is logically and directly related to the effect for which the adjustment is sought.

(c) Once you have determined a percentage figure in accordance with paragraphs (c) and (d) of this section, you should express your overall goal as follows:

(1) If you are an FHWA recipient, as a percentage of all Federal-aid highway funds you will expend in FHWA-assisted contract in the forthcoming fiscal year;

(2) If you are an FTA or FAA recipient as a percentage of all FTA or FAA funds (exclusive of FTA funds to be used for the purchase of transit vehicles) that you will expend in FTA or FAA-assisted contracts in the forthcoming fiscal year. In appropriate cases, the FTA or FAA Administrator may permit you to express your overall goal as a percentage of funds for a particular grant or project or group of grants and/or projects.

(f) (1) If you set overall goals on a fiscal year basis, you must submit them to the applicable DOT operating administration for review on August 1 of each year, unless the Administrator of the concerned operating administration establishes a different submission date.

(2) If you are an FTA or FAA recipient and set your overall goal on a project or grant basis, you must submit the goal for review at a time determined by the FTA or FAA Administrator.

(3) You must include with your overall goal submission a description of the methodology you used to establish the goal, including your base figure and the evidence with which it was calculated, and the adjustments you made to the base figure and the evidence relied on for the adjustments. You should also include a summary listing of the relevant available evidence in your jurisdiction and, where applicable, an explanation of why you did not use that evidence to adjust your base figure. You must also include your projection of the portions of the overall goal you expect to meet through race-neutral and race-conscious measures, respectively (see § 26.51 (c)).

(4) You are not required to obtain prior operating administration concurrence with the your overall goal. However, if the operating administration's review suggests that your overall goal has not been correctly calculated, or that your method for calculating goals is inadequate, the operating administration may, after consulting with you, adjust your overall goal or require that you do so. The adjusted overall goal is binding on you.

(5) If you need additional time to collect data or take other steps to develop an approach to setting overall goals, you may request the approval of the concerned operating administration for an interim goal and/or goal-setting mechanism. Such a mechanism must:

(i) Reflect the relative availability of DBEs in your local market to the maximum extent feasible given the data available to you; and

(ii) Avoid imposing undue burdens on non-DBEs.

(g) In establishing an overall goal, you must provide for public participation. This public participation must include:

(1) Consultation with minority, women's and general contractor groups, community organizations, and other officials or organizations which could be expected to have information concerning the availability of disadvantaged and non-disadvantaged businesses, the effects of discrimination on opportunities for DBEs, and your efforts to establish a level playing field for the participation of DBEs.

(2) A published notice announcing your proposed overall goal, informing the public that the proposed goal and its rationale are available for inspection during normal business hours at your principal office for 30 days following the date of the notice, and informing the public that you and the Department will accept comments on the goals for 45 days from the date of the notice. The notice must include addresses to which comments may be sent, and you must publish it in general circulation media and available minority-focused media and trade association publications.

(h) Your overall goals must provide for participation by all certified DBEs and must not be subdivided into group-specific goals.

§ 26.47 Can recipients be penalized for failing to meet overall goals?

(a) You cannot be penalized, or treated by the Department as being in noncompliance with this rule, because your DBE participation falls short of your overall goal, unless you have failed to administer your program in good faith.

(b) If you do not have an approved DBE program or overall goal, or if you fail to implement your program in good faith, you are in noncompliance with this part.

§ 26.49 How are overall goals established for transit vehicle manufacturers?

(a) If you are an FTA recipient, you must require in your DBE program that each transit vehicle manufacturer, as a condition of being authorized to bid or propose on FTA-assisted transit vehicle procurements, certify that it has complied with the requirements of this section. You do not include FTA assistance used in transit vehicle procurements in the base amount from which your overall goal is calculated.

(b) If you are a transit vehicle manufacturer, you must establish and submit for FTA's approval an annual overall percentage goal. In setting your overall goal, you should be guided, to the extent applicable, by the principles underlying § 26.45. The base from which you calculate this goal is the amount of FTA financial assistance included in transit vehicle contracts you will perform during the fiscal year in question. You must exclude from this base funds attributable to work performed outside the United States and its territories, possessions, and commonwealths. The requirements and procedures of this part with respect to submission and approval of overall goals apply to you as they do to recipients.

(c) As a transit vehicle manufacturer, you may make the certification required by this section if you have submitted the goal this section requires and FTA has approved it or not disapproved it.

(d) As a recipient, you may, with FTA approval, establish project-specific goals for DBE participation in the procurement of transit vehicles in lieu of complying through the procedures of this section.

(e) If you are an FHWA or FAA recipient, you may, with FHWA or FAA approval, use the procedures of this section with respect to procurements of vehicles or specialized equipment. If you choose to do so, then the manufacturers of this equipment must meet the same requirements (including goal approval by FHWA or FAA) as transit vehicle manufacturers must meet in FTA-assisted procurements.

§ 26.51 What means do recipients use to meet overall goals?

(a) You must meet the maximum feasible portion of your overall goal by using race-neutral means of facilitating DBE participation. Race-neutral DBE participation includes any time a DBE wins a prime contract through customary competitive procurement procedures, is awarded a subcontract on a prime contract that does not carry a DBE goal, or even if there is a DBE goal, wins a subcontract from a prime contractor that did not consider its DBE status in making the award (e.g., a prime contractor that uses a strict low bid system to award subcontracts).

(b) Race-neutral means include, but are not limited to, the following:

(1) Arranging solicitations, times for the presentation of bids, quantities, specifications, and delivery schedules in ways that facilitate DBE, and other small businesses, participation (e.g., unbundling large contracts to make them more accessible to small businesses, requiring or encouraging prime contractors to subcontract portions of work that they might otherwise perform with their own forces);

(2) Providing assistance in overcoming limitations such as inability to obtain bonding or financing (e.g., by such means as simplifying the bonding process, reducing bonding requirements, eliminating the impact of surety costs from bids, and providing services to help DBEs, and other small businesses, obtain bonding and financing);

(3) Providing technical assistance and other services;

(4) Carrying out information and communications programs on contracting procedures and specific

contract opportunities (e.g., ensuring the inclusion of DBEs, and other small businesses, on recipient mailing lists for bidders; ensuring the dissemination to bidders on prime contracts of lists of potential subcontractors; provision of information in languages other than English, where appropriate);

(5) Implementing a supportive services program to develop and improve immediate and long-term business management, record keeping, and financial and accounting capability for DBEs and other small businesses;

(6) Providing services to help DBEs, and other small businesses, improve long-term development, increase opportunities to participate in a variety of kinds of work, handle increasingly significant projects, and achieve eventual self-sufficiency;

(7) Establishing a program to assist new, start-up firms, particularly in fields in which DBE participation has historically been low;

(8) Ensuring distribution of your DBE directory, through print and electronic means, to the widest feasible universe of potential prime contractors; and

(9) Assisting DBEs, and other small businesses, to develop their capability to utilize emerging technology and conduct business through electronic media.

(c) Each time you submit your overall goal for review by the concerned operating administration, you must also submit your projection of the portion of the goal that you expect to meet through race-neutral means and your basis for that projection. This projection is subject to approval by the concerned operating administration, in conjunction with its review of your overall goal.

(d) You must establish contract goals to meet any portion of your overall goal you do not project being able to meet using race-neutral means.

(e) The following provisions apply to the use of contract goals:

(1) You may use contract goals only on those DOT-assisted contracts that have subcontracting possibilities.

(2) You are not required to set a contract goal on every DOT-assisted contract. You are not required to set each contract goal at the same percentage level as the overall goal. The goal for a specific contract may be higher or lower than that percentage level of the overall goal, depending on such factors as the type of work involved, the location of the work, and the availability of DBEs for the work of the particular contract. However, over the period covered by your overall goal, you must set contract goals so that they will cumulatively result in meeting any portion of your overall goal you do not

project being able to meet through the use of race-neutral means.

(3) Operating administration approval of each contract goal is not necessarily required. However, operating administrations may review and approve or disapprove any contract goal you establish.

(4) Your contract goals must provide for participation by all certified DBEs and must not be subdivided into group-specific goals.

(f) To ensure that your DBE program continues to be narrowly tailored to overcome the effects of discrimination, you must adjust your use of contract goals as follows:

(1) If your approved projection under paragraph (c) of this section estimates that you can meet your entire overall goal for a given year through race-neutral means, you must implement your program without setting contract goals during that year.

Example to Paragraph (f)(1): Your overall goal for Year I is 12 percent. You estimate that you can obtain 12 percent or more DBE participation through the use of race-neutral measures, without any use of contract goals. In this case, you do not set any contract goals for the contracts that will be performed in Year I.

(2) If, during the course of any year in which you are using contract goals, you determine that you will exceed your overall goal, you must reduce or eliminate the use of contract goals to the extent necessary to ensure that the use of contract goals does not result in exceeding the overall goal. If you determine that you will fall short of your overall goal, then you must make appropriate modifications in your use of race-neutral and/or race-conscious measures to allow you to meet the overall goal.

Example to Paragraph (f)(2): In Year II, your overall goal is 12 percent. You have estimated that you can obtain 5 percent DBE participation through use of race-neutral measures. You therefore plan to obtain the remaining 7 percent participation through use of DBE goals. By September, you have already obtained 11 percent DBE participation for the year. For contracts let during the remainder of the year, you use contract goals only to the extent necessary to obtain an additional one percent DBE participation. However, if you determine in September that your participation for the year is likely to be only 8 percent total, then you would increase your use of race-neutral and/or race-conscious means during the remainder of the year in order to achieve your overall goal.

(3) If the DBE participation you have obtained by race-neutral means alone meets or exceeds your overall goals for two consecutive years, you are not required to make a projection of the

amount of your goal you can meet using such means in the next year. You do not set contract goals on any contracts in the next year. You continue using only race-neutral means to meet your overall goals unless and until you do not meet your overall goal for a year.

Example to Paragraph (f)(3): Your overall goal for Years I and Year II is 10 percent. The DBE participation you obtain through race-neutral measures alone is 10 percent or more in each year. (For this purpose, it does not matter whether you obtained additional DBE participation through using contract goals in these years.) In Year III and following years, you do not need to make a projection under paragraph (c) of this section of the portion of your overall goal you expect to meet using race-neutral means. You simply use race-neutral means to achieve your overall goals. However, if in Year VI your DBE participation falls short of your overall goal, then you must make a paragraph (c) projection for Year VII and, if necessary, resume use of contract goals in that year.

(4) If you obtain DBE participation that exceeds your overall goal in two consecutive years through the use of contract goals (i.e., not through the use of race-neutral means alone), you must reduce your use of contract goals proportionately in the following year.

Example to Paragraph (f)(4): In Years I and II, your overall goal is 12 percent, and you obtain 14 and 16 percent DBE participation, respectively. You have exceeded your goals over the two-year period by an average of 25 percent. In Year III, your overall goal is again 12 percent, and your paragraph (c) projection estimates that you will obtain 4 percent DBE participation through race-neutral means and 8 percent through contract goals. You then reduce the contract goal projection by 25 percent (i.e., from 8 to 6 percent) and set contract goals accordingly during the year. If in Year III you obtain 11 percent participation, you do not use this contract goal adjustment mechanism for Year IV, because there have not been two consecutive years of exceeding overall goals.

(g) In any year in which you project meeting part of your goal through race-neutral means and the remainder through contract goals, you must maintain data separately on DBE achievements in those contracts with and without contract goals, respectively. You must report this data to the concerned operating administration as provided in § 26.11.

§ 26.53 What are the good faith efforts procedures recipients follow in situations where there are contract goals?

(a) When you have established a DBE contract goal, you must award the contract only to a bidder/offeror who makes good faith efforts to meet it. You must determine that a bidder/offeror has made good faith efforts if the bidder/

offeror does either of the following things:

- (1) Documents that it has obtained enough DBE participation to meet the goal; or
 - (2) Documents that it made adequate good faith efforts to meet the goal, even though it did not succeed in obtaining enough DBE participation to do so. If the bidder/offeror does document adequate good faith efforts, you must not deny award of the contract on the basis that the bidder/offeror failed to meet the goal. See Appendix A of this part for guidance in determining the adequacy of a bidder/offeror's good faith efforts.
- (b) In your solicitations for DOT-assisted contracts for which a contract goal has been established, you must require the following:
- (1) Award of the contract will be conditioned on meeting the requirements of this section;
 - (2) All bidders/offerors will be required to submit the following information to the recipient, at the time provided in paragraph (b)(3) of this section:
 - (i) The names and addresses of DBE firms that will participate in the contract;
 - (ii) A description of the work that each DBE will perform;
 - (iii) The dollar amount of the participation of each DBE firm participating;
 - (iv) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;
 - (v) Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and
 - (vi) If the contract goal is not met, evidence of good faith efforts (see Appendix A of this part); and
 - (3) At your discretion, the bidder/offeror must present the information required by paragraph (b)(2) of this section—
 - (i) Under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or
 - (ii) At any time before you commit yourself to the performance of the contract by the bidder/offeror, as a matter of responsibility.
 - (c) You must make sure all information is complete and accurate and adequately documents the bidder/offeror's good faith efforts before committing yourself to the performance of the contract by the bidder/offeror.
 - (d) If you determine that the apparent successful bidder/offeror has failed to meet the requirements of paragraph (a)

of this section, you must, before awarding the contract, provide the bidder/offeror an opportunity for administrative reconsideration.

- (1) As part of this reconsideration, the bidder/offeror must have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.
- (2) Your decision on reconsideration must be made by an official who did not take part in the original determination that the bidder/offeror failed to meet the goal or make adequate good faith efforts to do so.
- (3) The bidder/offeror must have the opportunity to meet in person with your reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.
- (4) You must send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.
- (5) The result of the reconsideration process is not administratively appealable to the Department of Transportation.
- (e) In a "design-build" or "turnkey" contracting situation, in which the recipient lets a master contract to a contractor, who in turn lets subsequent subcontracts for the work of the project, a recipient may establish a goal for the project. The master contractor then establishes contract goals, as appropriate, for the subcontracts it lets. Recipients must maintain oversight of the master contractor's activities to ensure that they are conducted consistent with the requirements of this part.
 - (f)(1) You must require that a prime contractor not terminate for convenience a DBE subcontractor listed in response to paragraph (b)(2) of this section (or an approved substitute DBE firm) and then perform the work of the terminated subcontract with its own forces or those of an affiliate, without your prior written consent.
 - (2) When a DBE subcontractor is terminated, or fails to complete its work on the contract for any reason, you must require the prime contractor to make good faith efforts to find another DBE subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal you established for the procurement.

(3) You must include in each prime contract a provision for appropriate administrative remedies that you will invoke if the prime contractor fails to comply with the requirements of this section.

(g) You must apply the requirements of this section to DBE bidders/offerors for prime contracts. In determining whether a DBE bidder/offeror for a prime contract has met a contract goal, you count the work the DBE has committed to performing with its own forces as well as the work that it has committed to be performed by DBE subcontractors and DBE suppliers.

§ 26.55 How is DBE participation counted toward goals?

(a) When a DBE participates in a contract, you count only the value of the work actually performed by the DBE toward DBE goals.

(1) Count the entire amount of that portion of a construction contract (or other contract not covered by paragraph (a)(2) of this section) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).

(2) Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.

(3) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

(b) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.

(c) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities

by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, you must examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, you must presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (c)(3) of this section, the DBE may present evidence to rebut this presumption. You may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) Your decisions on commercially useful function matters are subject to review by the concerned operating administration, but are not administratively appealable to DOT.

(d) Use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

(1) The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(5) The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(6) For purposes of this paragraph (d), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

(e) Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

(1)(i) If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this paragraph (e)(1), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

(2)(i) If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(A) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the

purchase and sale or lease of the products in question.

(B) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (e)(2)(ii) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

(C) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (e)(2).

(3) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals, however.

(f) If a firm is not currently certified as a DBE in accordance with the standards of subpart D of this part at the time of the execution of the contract, do not count the firm's participation toward any DBE goals, except as provided for in § 26.87(l).

(g) Do not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward your overall goal.

(h) Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements or your overall goal until the amount being counted toward the goal has been paid to the DBE.

Subpart D—Certification Standards

§ 26.81 How are burdens of proof allocated in the certification process?

(a) In determining whether to certify a firm as eligible to participate as a DBE, you must apply the standards of this subpart.

(b) The firm seeking certification has the burden of demonstrating to you, by a preponderance of the evidence, that it meets the requirements of this subpart concerning group membership or individual disadvantage, business size, ownership, and control.

(c) You must rebuttably presume that members of the designated groups

identified in § 26.67(a) are socially and economically disadvantaged. This means that they do not have the burden of proving to you that they are socially and economically disadvantaged. However, applicants have the obligation to provide you information concerning their economic disadvantage (see § 26.67).

(d) Individuals who are not presumed to be socially and economically disadvantaged, and individuals concerning whom the presumption of disadvantage has been rebutted, have the burden of proving to you, by a preponderance of the evidence, that they are socially and economically disadvantaged. (See Appendix E of this part.)

(e) You must make determinations concerning whether individuals and firms have met their burden of demonstrating group membership, ownership, control, and social and economic disadvantage (where disadvantage must be demonstrated on an individual basis) by considering all the facts in the record, viewed as a whole.

§ 26.63 What rules govern group membership determinations?

(a) If you have reason to question whether an individual is a member of a group that is presumed to be socially and economically disadvantaged, you must require the individual to demonstrate, by a preponderance of the evidence, that he or she is a member of the group.

(b) In making such a determination, you must consider whether the person has held himself out to be a member of the group over a long period of time prior to application for certification and whether the person is regarded as a member of the group by the relevant community. You may require the applicant to produce appropriate documentation of group membership.

(1) If you determine that an individual claiming to be a member of a group presumed to be disadvantaged is not a member of a designated disadvantaged group, the individual must demonstrate social and economic disadvantage on an individual basis.

(2) Your decisions concerning membership in a designated group are subject to the certification appeals procedure of § 26.89.

§ 26.65 What rules govern business size determinations?

(a) To be an eligible DBE, a firm (including its affiliates) must be an existing small business, as defined by Small Business Administration (SBA) standards. You must apply current SBA business size standard(s) found in 13 CFR part 121 appropriate to the type (s) of work the firm seeks to perform in DOT-assisted contracts.

(b) Even if it meets the requirements of paragraph (a) of this section, a firm is not an eligible DBE in any Federal fiscal year if the

firm (including its affiliates) has had average annual gross receipts, as defined by SBA regulations (see 13 CFR 121.402), over the firm's previous three fiscal years, in excess of \$16.6 million. The Secretary adjusts this amount for inflation from time to time.

Revision 7: In § 26.67, Revise paragraph (a)(2)(i); redesignate paragraph (a)(2)(ii) as (a)(2)(iii) and add new paragraph (a)(2)(ii)
§ 26.67 What rules determine social and economic disadvantage?

(a) Presumption of disadvantage.

(1) You must rebuttably presume that citizens of the United States (or lawfully admitted permanent residents) who are women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, or other minorities found to be disadvantaged by the SBA, are socially and economically disadvantaged individuals. You must require applicants to submit a signed, notarized certification that each presumptively disadvantaged owner is, in fact, socially and economically disadvantaged.

(2)(i) You must require each individual owner of a firm applying to participate as a DBE (except a firm applying to participate as an airport concessionaire) whose ownership and control are relied upon for DBE certification to submit a signed, notarized statement of personal net worth, with appropriate supporting documentation. This statement and documentation must not be unduly lengthy, burdensome or intrusive.

(ii) Notwithstanding any provision of state law, you must not release an individual's personal net worth statement nor any documentation supporting it to any third party without the written consent of the submitter. *Provided* that you must transmit this information to DOT in any certification appeal proceeding under § 26.89 in which the disadvantaged status of the individual is in question.

In determining net worth, you must exclude an individual's ownership interest in the applicant firm and the individual's equity in his or her primary residence (except any portion of such equity that is attributable to excessive withdrawals from the applicant firm). A contingent liability does not reduce an individual's net worth. The personal net worth of an individual claiming to be an Alaska Native will include assets and income from sources other than an Alaska Native Corporation and exclude any of the following which the individual receives from any Alaska Native Corporation: cash (including cash dividends on stock received from an ANC) to the extent that it does not, in the aggregate, exceed \$2,000 per individual per annum; stock (including stock issued or distributed by an ANC as a dividend or distribution on stock); a partnership interest; land or an interest in land (including land or an interest in land received from an ANC as a dividend or distribution on stock); and an interest in a settlement trust.

(b) Rebuttal of presumption of disadvantage.

(1) If the statement of personal net worth that an individual submits under paragraph (a)(2) of this section shows that the individual's personal net worth exceeds \$750,000, the individual's presumption of economic disadvantage is rebutted. You are not required to have a proceeding under paragraph (b)(2) of this section in order to rebut the presumption of economic disadvantage in this case.

(2) If you have a reasonable basis to believe that an individual who is a member of one of the designated groups is not, in fact, socially and/or economically disadvantaged you may, at any time, start a proceeding to determine whether the presumption should be regarded as rebutted with respect to that individual. Your proceeding must follow the procedures of § 26.87.

(3) In such a proceeding, you have the burden of demonstrating, by a preponderance of the evidence, that the individual is not socially and economically disadvantaged. You may require the individual to produce information relevant to the determination of his or her disadvantage.

(4) When an individual's presumption of social and/or economic disadvantage has been rebutted, his or her ownership and control of the firm in question cannot be used for purposes of DBE eligibility under this subpart unless and until he or she makes an individual showing of social and/or economic disadvantage. If the basis for rebutting the presumption is a determination that the individual's personal net worth exceeds \$750,000, the individual is no longer eligible for participation in the program and cannot regain eligibility by making an individual showing of disadvantage.

(c) 8(a) and SDB Firms. If a firm applying for certification has a current, valid certification from or recognized by the SBA under the 8(a) or small and disadvantaged business (SDB) program (except an SDB certification based on the firm's self-certification as an SDB), you may accept the firm's 8(a) or SDB certification in lieu of conducting your own certification proceeding, just as you may accept the certification of another DOT recipient for this purpose. You are not required to do so, however.

(d) Individual determinations of social and economic disadvantage. Firms owned and controlled by individuals who are not presumed to be socially and economically disadvantaged (including individuals whose presumed disadvantage has been rebutted) may apply for DBE

certification. You must make a case-by-case determination of whether each individual whose ownership and control are relied upon for DBE certification is socially and economically disadvantaged. In such a proceeding, the applicant firm has the burden of demonstrating to you, by a preponderance of the evidence, that the individuals who own and control it are socially and economically disadvantaged. An individual whose personal net worth exceeds \$750,000 shall not be deemed to be economically disadvantaged. In making these determinations, use the guidance found in Appendix E of this part. You must require that applicants provide sufficient information to permit determinations under the guidance of Appendix E of this part.

§ 26.69 What rules govern determinations of ownership?

(a) In determining whether the socially and economically disadvantaged participants in a firm own the firm, you must consider all the facts in the record, viewed as a whole.

(b) To be an eligible DBE, a firm must be at least 51 percent owned by socially and economically disadvantaged individuals.

(1) In the case of a corporation, such individuals must own at least 51 percent of the each class of voting stock outstanding and 51 percent of the aggregate of all stock outstanding.

(2) In the case of a partnership, 51 percent of each class of partnership interest must be owned by socially and economically disadvantaged individuals. Such ownership must be reflected in the firm's partnership agreement.

(3) In the case of a limited liability company, at least 51 percent of each class of member interest must be owned by socially and economically disadvantaged individuals.

(c) The firm's ownership by socially and economically disadvantaged individuals must be real, substantial, and continuing, going beyond pro forma ownership of the firm as reflected in ownership documents. The disadvantaged owners must enjoy the customary incidents of ownership, and share in the risks and profits commensurate with their ownership interests, as demonstrated by the substance, not merely the form, of arrangements.

(d) All securities that constitute ownership of a firm shall be held directly by disadvantaged persons. Except as provided in this paragraph (d), no securities or assets held in trust, or by any guardian for a minor, are

considered as held by disadvantaged persons in determining the ownership of a firm. However, securities or assets held in trust are regarded as held by a disadvantaged individual for purposes of determining ownership of the firm, if—

(1) The beneficial owner of securities or assets held in trust is a disadvantaged individual, and the trustee is the same or another such individual; or

(2) The beneficial owner of a trust is a disadvantaged individual who, rather than the trustee, exercises effective control over the management, policy-making, and daily operational activities of the firm. Assets held in a revocable living trust may be counted only in the situation where the same disadvantaged individual is the sole grantor, beneficiary, and trustee.

(e) The contributions of capital or expertise by the socially and economically disadvantaged owners to acquire their ownership interests must be real and substantial. Examples of insufficient contributions include a promise to contribute capital, an unsecured note payable to the firm or an owner who is not a disadvantaged individual, or mere participation in a firm's activities as an employee. Debt instruments from financial institutions or other organizations that lend funds in the normal course of their business do not render a firm ineligible, even if the debtor's ownership interest is security for the loan.

(f) The following requirements apply to situations in which expertise is relied upon as part of a disadvantaged owner's contribution to acquire ownership:

(1) The owner's expertise must be—

(i) In a specialized field;

(ii) Of outstanding quality;

(iii) In areas critical to the firm's operations;

(iv) Indispensable to the firm's potential success;

(v) Specific to the type of work the firm performs; and

(vi) Documented in the records of the firm. These records must clearly show the contribution of expertise and its value to the firm.

(2) The individual whose expertise is relied upon must have a significant financial investment in the firm.

(g) You must always deem as held by a socially and economically disadvantaged individual, for purposes of determining ownership, all interests in a business or other assets obtained by the individual—

(1) As the result of a final property settlement or court order in a divorce or legal separation, provided that no term or condition of the agreement or divorce

decree is inconsistent with this section; or

(2) Through inheritance, or otherwise because of the death of the former owner.

(h)(1) You must presume as not being held by a socially and economically disadvantaged individual, for purposes of determining ownership, all interests in a business or other assets obtained by the individual as the result of a gift, or transfer without adequate consideration, from any non-disadvantaged individual or non-DBE firm who is—

(i) Involved in the same firm for which the individual is seeking certification, or an affiliate of that firm;

(ii) Involved in the same or a similar line of business; or

(iii) Engaged in an ongoing business relationship with the firm, or an affiliate of the firm, for which the individual is seeking certification.

(2) To overcome this presumption and permit the interests or assets to be counted, the disadvantaged individual must demonstrate to you, by clear and convincing evidence, that—

(i) The gift or transfer to the disadvantaged individual was made for reasons other than obtaining certification as a DBE; and

(ii) The disadvantaged individual actually controls the management, policy, and operations of the firm, notwithstanding the continuing participation of a non-disadvantaged individual who provided the gift or transfer.

(i) You must apply the following rules in situations in which marital assets form a basis for ownership of a firm:

(1) When marital assets (other than the assets of the business in question), held jointly or as community property by both spouses, are used to acquire the ownership interest asserted by one spouse, you must deem the ownership interest in the firm to have been acquired by that spouse with his or her own individual resources, provided that the other spouse irrevocably renounces and transfers all rights in the ownership interest in the manner sanctioned by the laws of the state in which either spouse or the firm is domiciled. You do not count a greater portion of joint or community property assets toward ownership than state law would recognize as belonging to the socially and economically disadvantaged owner of the applicant firm.

(2) A copy of the document legally transferring and renouncing the other spouse's rights in the jointly owned or community assets used to acquire an ownership interest in the firm must be included as part of the firm's application for DBE certification.

(j) You may consider the following factors in determining the ownership of a firm. However, you must not regard a contribution of capital as failing to be real and substantial, or find a firm ineligible, solely because—

(1) A socially and economically disadvantaged individual acquired his or her ownership interest as the result of a gift, or transfer without adequate consideration, other than the types set forth in paragraph (h) of this section;

(2) There is a provision for the co-signature of a spouse who is not a socially and economically disadvantaged individual on financing agreements, contracts for the purchase or sale of real or personal property, bank signature cards, or other documents; or

(3) Ownership of the firm in question or its assets is transferred for adequate consideration from a spouse who is not a socially and economically disadvantaged individual to a spouse who is such an individual. In this case, you must give particularly close and careful scrutiny to the ownership and control of a firm to ensure that it is owned and controlled, in substance as well as in form, by a socially and economically disadvantaged individual.

§ 26.71 What rules govern determinations concerning control?

(a) In determining whether socially and economically disadvantaged owners control a firm, you must consider all the facts in the record, viewed as a whole.

(b) Only an independent business may be certified as a DBE. An independent business is one the viability of which does not depend on its relationship with another firm or firms.

(1) In determining whether a potential DBE is an independent business, you must scrutinize relationships with non-DBE firms, in such areas as personnel, facilities, equipment, financial and/or bonding support, and other resources.

(2) You must consider whether present or recent employer/employee relationships between the disadvantaged owner(s) of the potential DBE and non-DBE firms or persons associated with non-DBE firms compromise the independence of the potential DBE firm.

(3) You must examine the firm's relationships with prime contractors to determine whether a pattern of exclusive or primary dealings with a prime contractor compromises the independence of the potential DBE firm.

(4) In considering factors related to the independence of a potential DBE firm, you must consider the consistency of relationships between the potential

DBE and non-DBE firms with normal industry practice.

(c) A DBE firm must not be subject to any formal or informal restrictions which limit the customary discretion of the socially and economically disadvantaged owners. There can be no restrictions through corporate charter provisions, by-law provisions, contracts or any other formal or informal devices (e.g., cumulative voting rights, voting powers attached to different classes of stock, employment contracts, requirements for concurrence by non-disadvantaged partners, conditions precedent or subsequent, executory agreements, voting trusts, restrictions on or assignments of voting rights) that prevent the socially and economically disadvantaged owners, without the cooperation or vote of any non-disadvantaged individual, from making any business decision of the firm. This paragraph does not preclude a spousal co-signature on documents as provided for in § 26.69(j)(2).

(d) The socially and economically disadvantaged owners must possess the power to direct or cause the direction of the management and policies of the firm and to make day-to-day as well as long-term decisions on matters of management, policy and operations.

(1) A disadvantaged owner must hold the highest officer position in the company (e.g., chief executive officer or president).

(2) In a corporation, disadvantaged owners must control the board of directors.

(3) In a partnership, one or more disadvantaged owners must serve as general partners, with control over all partnership decisions.

(e) Individuals who are not socially and economically disadvantaged may be involved in a DBE firm as owners, managers, employees, stockholders, officers, and/or directors. Such individuals must not, however, possess or exercise the power to control the firm, or be disproportionately responsible for the operation of the firm.

(f) The socially and economically disadvantaged owners of the firm may delegate various areas of the management, policymaking, or daily operations of the firm to other participants in the firm, regardless of whether these participants are socially and economically disadvantaged individuals. Such delegations of authority must be revocable, and the socially and economically disadvantaged owners must retain the power to hire and fire any person to whom such authority is delegated. The managerial role of the socially and economically disadvantaged owners in

the firm's overall affairs must be such that the recipient can reasonably conclude that the socially and economically disadvantaged owners actually exercise control over the firm's operations, management, and policy.

(g) The socially and economically disadvantaged owners must have an overall understanding of, and managerial and technical competence and experience directly related to, the type of business in which the firm is engaged and the firm's operations. The socially and economically disadvantaged owners are not required to have experience or expertise in every critical area of the firm's operations, or to have greater experience or expertise in a given field than managers or key employees. The socially and economically disadvantaged owners must have the ability to intelligently and critically evaluate information presented by other participants in the firm's activities and to use this information to make independent decisions concerning the firm's daily operations, management, and policymaking. Generally, expertise limited to office management, administration, or bookkeeping functions unrelated to the principal business activities of the firm is insufficient to demonstrate control.

(h) If state or local law requires the persons to have a particular license or other credential in order to own and/or control a certain type of firm, then the socially and economically disadvantaged persons who own and control a potential DBE firm of that type must possess the required license or credential. If state or local law does not require such a person to have such a license or credential to own and/or control a firm, you must not deny certification solely on the ground that the person lacks the license or credential. However, you may take into account the absence of the license or credential as one factor in determining whether the socially and economically disadvantaged owners actually control the firm.

(i)(1) You may consider differences in remuneration between the socially and economically disadvantaged owners and other participants in the firm in determining whether to certify a firm as a DBE. Such consideration shall be in the context of the duties of the persons involved, normal industry practices, the firm's policy and practice concerning reinvestment of income, and any other explanations for the differences proffered by the firm. You may determine that a firm is controlled by its socially and economically disadvantaged owner although that

owner's remuneration is lower than that of some other participants in the firm.

(2) In a case where a non-disadvantaged individual formerly controlled the firm, and a socially and economically disadvantaged individual now controls it, you may consider a difference between the remuneration of the former and current controller of the firm as a factor in determining who controls the firm, particularly when the non-disadvantaged individual remains involved with the firm and continues to receive greater compensation than the disadvantaged individual.

(j) In order to be viewed as controlling a firm, a socially and economically disadvantaged owner cannot engage in outside employment or other business interests that conflict with the management of the firm or prevent the individual from devoting sufficient time and attention to the affairs of the firm to control its activities. For example, absentee ownership of a business and part-time work in a full-time firm are not viewed as constituting control. However, an individual could be viewed as controlling a part-time business that operates only on evenings and/or weekends, if the individual controls it all the time it is operating.

(k)(1) A socially and economically disadvantaged individual may control a firm even though one or more of the individual's immediate family members (who themselves are not socially and economically disadvantaged individuals) participate in the firm as a manager, employee, owner, or in another capacity. Except as otherwise provided in this paragraph, you must make a judgment about the control the socially and economically disadvantaged owner exercises vis-a-vis other persons involved in the business as you do in other situations, without regard to whether or not the other persons are immediate family members.

(2) If you cannot determine that the socially and economically disadvantaged owners—as distinct from the family as a whole—control the firm, then the socially and economically disadvantaged owners have failed to carry their burden of proof concerning control, even though they may participate significantly in the firm's activities.

(l) Where a firm was formerly owned and/or controlled by a non-disadvantaged individual (whether or not an immediate family member), ownership and/or control were transferred to a socially and economically disadvantaged individual, and the non-disadvantaged individual remains involved with the firm in any capacity, the disadvantaged individual

now owning the firm must demonstrate to you, by clear and convincing evidence, that:

(1) The transfer of ownership and/or control to the disadvantaged individual was made for reasons other than obtaining certification as a DBE; and

(2) The disadvantaged individual actually controls the management, policy, and operations of the firm, notwithstanding the continuing participation of a non-disadvantaged individual who formerly owned and/or controlled the firm.

(m) In determining whether a firm is controlled by its socially and economically disadvantaged owners, you may consider whether the firm owns equipment necessary to perform its work. However, you must not determine that a firm is not controlled by socially and economically disadvantaged individuals solely because the firm leases, rather than owns, such equipment, where leasing equipment is a normal industry practice and the lease does not involve a relationship with a prime contractor or other party that compromises the independence of the firm.

(n) You must grant certification to a firm only for specific types of work in which the socially and economically disadvantaged owners have the ability to control the firm. To become certified in an additional type of work, the firm need demonstrate to you only that its socially and economically disadvantaged owners are able to control the firm with respect to that type of work. You may not, in this situation, require that the firm be recertified or submit a new application for certification, but you must verify the disadvantaged owner's control of the firm in the additional type of work.

(o) A business operating under a franchise or license agreement may be certified if it meets the standards in this subpart and the franchiser or licensor is not affiliated with the franchisee or licensee. In determining whether affiliation exists, you should generally not consider the restraints relating to standardized quality, advertising, accounting format, and other provisions imposed on the franchisee or licensee by the franchise agreement or license, provided that the franchisee or licensee has the right to profit from its efforts and bears the risk of loss commensurate with ownership. Alternatively, even though a franchisee or licensee may not be controlled by virtue of such provisions in the franchise agreement or license, affiliation could arise through other means, such as common management or excessive restrictions on

the sale or transfer of the franchise interest or license.

(p) In order for a partnership to be controlled by socially and economically disadvantaged individuals, any non-disadvantaged partners must not have the power, without the specific written concurrence of the socially and economically disadvantaged partner(s), to contractually bind the partnership or subject the partnership to contract or tort liability.

(q) The socially and economically disadvantaged individuals controlling a firm may use an employee leasing company. The use of such a company does not preclude the socially and economically disadvantaged individuals from controlling their firm if they continue to maintain an employer-employee relationship with the leased employees. This includes being responsible for hiring, firing, training, assigning, and otherwise controlling the on-the-job activities of the employees, as well as ultimate responsibility for wage and tax obligations related to the employees.

§ 26.73 What are other rules affecting certification?

(a)(1) Consideration of whether a firm performs a commercially useful function or is a regular dealer pertains solely to counting toward DBE goals the participation of firms that have already been certified as DBEs. Except as provided in paragraph (a)(2) of this section, you must not consider commercially useful function issues in any way in making decisions about whether to certify a firm as a DBE.

(2) You may consider, in making certification decisions, whether a firm has exhibited a pattern of conduct indicating its involvement in attempts to evade or subvert the intent or requirements of the DBE program.

(b) You must evaluate the eligibility of a firm on the basis of present circumstances. You must not refuse to certify a firm based solely on historical information indicating a lack of ownership or control of the firm by socially and economically disadvantaged individuals at some time in the past, if the firm currently meets the ownership and control standards of this part. Nor must you refuse to certify a firm solely on the basis that it is a newly formed firm.

(c) DBE firms and firms seeking DBE certification shall cooperate fully with your requests (and DOT requests) for information relevant to the certification process. Failure or refusal to provide such information is a ground for a denial or removal of certification.

(d) Only firms organized for profit may be eligible DBEs. Not-for-profit organizations, even though controlled by socially and economically disadvantaged individuals, are not eligible to be certified as DBEs.

(e) An eligible DBE firm must be owned by individuals who are socially and economically disadvantaged. Except as provided in this paragraph, a firm that is not owned by such individuals, but instead is owned by another firm—even a DBE firm—cannot be an eligible DBE.

(1) If socially and economically disadvantaged individuals own and control a firm through a parent or holding company, established for tax, capitalization or other purposes consistent with industry practice, and the parent or holding company in turn owns and controls an operating subsidiary, you may certify the subsidiary if it otherwise meets all requirements of this subpart. In this situation, the individual owners and controllers of the parent or holding company are deemed to control the subsidiary through the parent or holding company.

(2) You may certify such a subsidiary only if there is cumulatively 51 percent ownership of the subsidiary by socially and economically disadvantaged individuals. The following examples illustrate how this cumulative ownership provision works:

Example 1: Socially and economically disadvantaged individuals own 100 percent of a holding company, which has a wholly-owned subsidiary. The subsidiary may be certified, if it meets all other requirements.

Example 2: Disadvantaged individuals own 100 percent of the holding company, which owns 51 percent of a subsidiary. The subsidiary may be certified, if all other requirements are met.

Example 3: Disadvantaged individuals own 80 percent of the holding company, which in turn owns 70 percent of a subsidiary. In this case, the cumulative ownership of the subsidiary by disadvantaged individuals is 56 percent (80 percent of the 70 percent). This is more than 51 percent, so you may certify the subsidiary, if all other requirements are met.

Example 4: Same as Example 2 or 3, but someone other than the socially and economically disadvantaged owners of the parent or holding company controls the subsidiary. Even though the subsidiary is owned by disadvantaged individuals, through the holding or parent company, you cannot certify it because it fails to meet control requirements.

Example 5: Disadvantaged individuals own 60 percent of the holding company, which in turn owns 51 percent of a subsidiary. In this case, the cumulative ownership of the subsidiary by disadvantaged individuals is about 31 percent. This is less than 51 percent, so you cannot certify the subsidiary.

Example 6: The holding company, in addition to the subsidiary seeking certification, owns several other companies. The combined gross receipts of the holding companies and its subsidiaries are greater than the size standard for the subsidiary seeking certification and/or the gross receipts cap of § 26.65(b). Under the rules concerning affiliation, the subsidiary fails to meet the size standard and cannot be certified.

(f) Recognition of a business as a separate entity for tax or corporate purposes is not necessarily sufficient to demonstrate that a firm is an independent business, owned and controlled by socially and economically disadvantaged individuals.

(g) You must not require a DBE firm to be prequalified as a condition for certification unless the recipient requires all firms that participate in its contracts and subcontracts to be prequalified.

(h) A firm that is owned by an Indian tribe, Alaska Native Corporation, or Native Hawaiian organization as an entity, rather than by Indians, Alaska Natives, or Native Hawaiians as individuals, may be eligible for certification. Such a firm must meet the size standards of § 26.65. Such a firm must be controlled by socially and economically disadvantaged individuals, as provided in § 26.71.

Subpart E—Certification Procedures

§ 26.81 What are the requirements for Unified Certification Programs?

(a) You and all other DOT recipients in your state must participate in a Unified Certification Program (UCP).

(1) Within three years of March 4, 1999, you and the other recipients in your state must sign an agreement establishing the UCP for that state and submit the agreement to the Secretary for approval. The Secretary may, on the basis of extenuating circumstances shown by the recipients in the state, extend this deadline for no more than one additional year.

(2) The agreement must provide for the establishment of a UCP meeting all the requirements of this section. The agreement must specify that the UCP will follow all certification procedures and standards of this part, on the same basis as recipients; that the UCP shall cooperate fully with oversight, review, and monitoring activities of DOT and its operating administrations; and that the UCP shall implement DOT directives and guidance concerning certification matters. The agreement shall also commit recipients to ensuring that the UCP has sufficient resources and expertise to carry out the requirements of this part. The agreement shall include an implementation schedule ensuring

that the UCP is fully operational no later than 18 months following the approval of the agreement by the Secretary.

(3) Subject to approval by the Secretary, the UCP in each state may take any form acceptable to the recipients in that state.

(4) The Secretary shall review the UCP and approve it, disapprove it, or remand it to the recipients in the state for revisions. A complete agreement which is not disapproved or remanded within 180 days of its receipt is deemed to be accepted.

(5) If you and the other recipients in your state fail to meet the deadlines set forth in this paragraph (a), you shall have the opportunity to make an explanation to the Secretary why a deadline could not be met and why meeting the deadline was beyond your control. If you fail to make such an explanation, or the explanation does not justify the failure to meet the deadline, the Secretary shall direct you to complete the required action by a date certain. If you and the other recipients fail to carry out this direction in a timely manner, you are collectively in noncompliance with this part.

(b) The UCP shall make all certification decisions on behalf of all DOT recipients in the state with respect to participation in the DOT DBE Program.

(1) Certification decisions by the UCP shall be binding on all DOT recipients within the state.

(2) The UCP shall provide "one-stop shopping" to applicants for certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients in the state.

(3) All obligations of recipients with respect to certification and nondiscrimination must be carried out by UCPs, and recipients may use only UCPs that comply with the certification and nondiscrimination requirements of this part.

(c) All certifications by UCPs shall be pre-certifications; i.e., certifications that have been made final before the due date for bids or offers on a contract on which a firm seeks to participate as a DBE.

(d) A UCP is not required to process an application for certification from a firm having its principal place of business outside the state if the firm is not certified by the UCP in the state in which it maintains its principal place of business. The "home state" UCP shall share its information and documents concerning the firm with other UCPs that are considering the firm's application.

(e) Subject to DOT approval as provided in this section, the recipients in two or more states may form a regional UCP. UCPs may also enter into written reciprocity agreements with other UCPs. Such an agreement shall outline the specific responsibilities of each participant. A UCP may accept the certification of any other UCP or DOT recipient.

(f) Pending the establishment of UCPs meeting the requirements of this section, you may enter into agreements with other recipients, on a regional or inter-jurisdictional basis, to perform certification functions required by this part. You may also grant reciprocity to other recipient's certification decisions.

(g) Each UCP shall maintain a unified DBE directory containing, for all firms certified by the UCP (including those from other states certified under the provisions of this section), the information required by § 26.31. The UCP shall make the directory available to the public electronically, on the internet, as well as in print. The UCP shall update the electronic version of the directory by including additions, deletions, and other changes as soon as they are made.

(h) Except as otherwise specified in this section, all provisions of this subpart and subpart D of this part pertaining to recipients also apply to UCPs.

§ 26.83 What procedures do recipients follow in making certification decisions?

(a) You must ensure that only firms certified as eligible DBEs under this section participate as DBEs in your program.

(b) You must determine the eligibility of firms as DBEs consistent with the standards of subpart D of this part. When a UCP is formed, the UCP must meet all the requirements of subpart D of this part and this subpart that recipients are required to meet.

(c) You must take all the following steps in determining whether a DBE firm meets the standards of subpart D of this part:

(1) Perform an on-site visit to the offices of the firm. You must interview the principal officers of the firm and review their résumés and/or work histories. You must also perform an on-site visit to job sites if there are such sites on which the firm is working at the time of the eligibility investigation in your jurisdiction or local area. You may rely upon the site visit report of any other recipient with respect to a firm applying for certification;

(2) If the firm is a corporation, analyze the ownership of stock in the firm;

(3) Analyze the bonding and financial capacity of the firm;

(4) Determine the work history of the firm, including contracts it has received and work it has completed;

(5) Obtain a statement from the firm of the type of work it prefers to perform as part of the DBE program and its preferred locations for performing the work, if any;

(6) Obtain or compile a list of the equipment owned by or available to the firm and the licenses the firm and its key personnel possess to perform the work it seeks to do as part of the DBE program;

(7) Require potential DBEs to complete and submit an appropriate application form.

(i) *Uniform form.* [Reserved]

(ii) You must make sure that the applicant attests to the accuracy and truthfulness of the information on the application form. This shall be done either in the form of an affidavit sworn to by the applicant before a person who is authorized by state law to administer oaths or in the form of an unsworn declaration executed under penalty of perjury of the laws of the United States.

(iii) You must review all information on the form prior to making a decision about the eligibility of the firm.

(d) When another recipient, in connection with its consideration of the eligibility of a firm, makes a written request for certification information you have obtained about that firm (e.g., including application materials or the report of a site visit, if you have made one to the firm), you must promptly make the information available to the other recipient.

(e) When another DOT recipient has certified a firm, you have discretion to take any of the following actions:

(1) Certify the firm in reliance on the certification decision of the other recipient;

(2) Make an independent certification decision based on documentation provided by the other recipient, augmented by any additional information you require the applicant to provide; or

(3) Require the applicant to go through your application process without regard to the action of the other recipient.

(f) Subject to the approval of the concerned operating administration as part of your DBE program, you may impose a reasonable application fee for certification. Fee waivers shall be made in appropriate cases.

(g) You must safeguard from disclosure to unauthorized persons information gathered as part of the certification process that may

reasonably be regarded as proprietary or other confidential business information, consistent with applicable Federal, state, and local law.

(h) Once you have certified a DBE, it shall remain certified for a period of at least three years unless and until its certification has been removed through the procedures of § 26.87. You may not require DBEs to reapply for certification as a condition of continuing to participate in the program during this three-year period, unless the factual basis on which the certification was made changes.

(i) If you are a DBE, you must inform the recipient or UCP in writing of any change in circumstances affecting your ability to meet size, disadvantaged status, ownership, or control requirements of this part or any material change in the information provided in your application form.

(1) Changes in management responsibility among members of a limited liability company are covered by this requirement.

(2) You must attach supporting documentation describing in detail the nature of such changes.

(3) The notice must take the form of an affidavit sworn to by the applicant before a person who is authorized by state law to administer oaths or of an unsworn declaration executed under penalty of perjury of the laws of the United States. You must provide the written notification within 30 days of the occurrence of the change. If you fail to make timely notification of such a change, you will be deemed to have failed to cooperate under § 26.109(c).

(j) If you are a DBE, you must provide to the recipient, every year on the anniversary of the date of your certification, an affidavit sworn to by the firm's owners before a person who is authorized by state law to administer oaths or an unsworn declaration executed under penalty of perjury of the laws of the United States. This affidavit must affirm that there have been no changes in the firm's circumstances affecting its ability to meet size, disadvantaged status, ownership, or control requirements of this part or any material changes in the information provided in its application form, except for changes about which you have notified the recipient under paragraph (i) of this section. The affidavit shall specifically affirm that your firm continues to meet SBA business size criteria and the overall gross receipts cap of this part, documenting this affirmation with supporting documentation of your firm's size and gross receipts. If you fail to provide this affidavit in a timely manner, you will be

deemed to have failed to cooperate under § 26.109(c).

(k) If you are a recipient, you must make decisions on applications for certification within 90 days of receiving from the applicant firm all information required under this part. You may extend this time period once, for no more than an additional 60 days, upon written notice to the firm, explaining fully and specifically the reasons for the extension. You may establish a different time frame in your DBE program, upon a showing that this time frame is not feasible, and subject to the approval of the concerned operating administration. Your failure to make a decision by the applicable deadline under this paragraph is deemed a constructive denial of the application, on the basis of which the firm may appeal to DOT under § 26.89.

§ 26.85 What rules govern recipients' denials of initial requests for certification?

(a) When you deny a request by a firm, which is not currently certified with you, to be certified as a DBE, you must provide the firm a written explanation of the reasons for the denial, specifically referencing the evidence in the record that supports each reason for the denial. All documents and other information on which the denial is based must be made available to the applicant, on request.

(b) When a firm is denied certification, you must establish a time period of no more than twelve months that must elapse before the firm may reapply to the recipient for certification. You may provide, in your DBE program, subject to approval by the concerned operating administration, a shorter waiting period for reapplication. The time period for reapplication begins to run on the date the explanation required by paragraph (a) of this section is received by the firm.

(c) When you make an administratively final denial of certification concerning a firm, the firm may appeal the denial to the Department under § 26.89.

§ 26.87 What procedures does a recipient use to remove a DBE's eligibility?

(a) *Ineligibility complaints.* (1) Any person may file with you a written complaint alleging that a currently-certified firm is ineligible and specifying the alleged reasons why the firm is ineligible. You are not required to accept a general allegation that a firm is ineligible or an anonymous complaint. The complaint may include any information or arguments supporting the complainant's assertion that the firm is ineligible and should not

continue to be certified. Confidentiality of complainants' identities must be protected as provided in § 26.109(b).

(2) You must review your records concerning the firm, any material provided by the firm and the complainant, and other available information. You may request additional information from the firm or conduct any other investigation that you deem necessary.

(3) If you determine, based on this review, that there is reasonable cause to believe that the firm is ineligible, you must provide written notice to the firm that you propose to find the firm ineligible, setting forth the reasons for the proposed determination. If you determine that such reasonable cause does not exist, you must notify the complainant and the firm in writing of this determination and the reasons for it. All statements of reasons for findings on the issue of reasonable cause must specifically reference the evidence in the record on which each reason is based.

(b) *Recipient-initiated proceedings.* If, based on notification by the firm of a change in its circumstances or other information that comes to your attention, you determine that there is reasonable cause to believe that a currently certified firm is ineligible, you must provide written notice to the firm that you propose to find the firm ineligible, setting forth the reasons for the proposed determination. The statement of reasons for the finding of reasonable cause must specifically reference the evidence in the record on which each reason is based.

(c) *DOT directive to initiate proceeding.* (1) If the concerned operating administration determines that information in your certification records, or other information available to the concerned operating administration, provides reasonable cause to believe that a firm you certified does not meet the eligibility criteria of this part, the concerned operating administration may direct you to initiate a proceeding to remove the firm's certification.

(2) The concerned operating administration must provide you and the firm a notice setting forth the reasons for the directive, including any relevant documentation or other information.

(3) You must immediately commence and prosecute a proceeding to remove eligibility as provided by paragraph (b) of this section.

(d) *Hearing.* When you notify a firm that there is reasonable cause to remove its eligibility, as provided in paragraph (a), (b), or (c) of this section, you must

give the firm an opportunity for an informal hearing, at which the firm may respond to the reasons for the proposal to remove its eligibility in person and provide information and arguments concerning why it should remain certified.

(1) In such a proceeding, you bear the burden of proving, by a preponderance of the evidence, that the firm does not meet the certification standards of this part.

(2) You must maintain a complete record of the hearing, by any means acceptable under state law for the retention of a verbatim record of an administrative hearing. If there is an appeal to DOT under § 26.89, you must provide a transcript of the hearing to DOT and, on request, to the firm. You must retain the original record of the hearing. You may charge the firm only for the cost of copying the record.

(3) The firm may elect to present information and arguments in writing, without going to a hearing. In such a situation, you bear the same burden of proving, by a preponderance of the evidence, that the firm does not meet the certification standards, as you would during a hearing.

(e) *Separation of functions.* You must ensure that the decision in a proceeding to remove a firm's eligibility is made by an office and personnel that did not take part in actions leading to or seeking to implement the proposal to remove the firm's eligibility and are not subject, with respect to the matter, to direction from the office or personnel who did take part in these actions.

(1) Your method of implementing this requirement must be made part of your DBE program.

(2) The decisionmaker must be an individual who is knowledgeable about the certification requirements of your DBE program and this part.

(3) Before a UCP is operational in its state, a small airport or small transit authority (i.e., an airport or transit authority serving an area with less than 250,000 population) is required to meet this requirement only to the extent feasible.

(f) *Grounds for decision.* You must not base a decision to remove eligibility on a reinterpretation or changed opinion of information available to the recipient at the time of its certification of the firm. You may base such a decision only on one or more of the following:

(1) Changes in the firm's circumstances since the certification of the firm by the recipient that render the firm unable to meet the eligibility standards of this part;

(2) Information or evidence not available to you at the time the firm was certified;

(3) Information that was concealed or misrepresented by the firm in previous certification actions by a recipient;

(4) A change in the certification standards or requirements of the Department since you certified the firm; or

(5) A documented finding that your determination to certify the firm was factually erroneous.

(g) *Notice of decision.* Following your decision, you must provide the firm written notice of the decision and the reasons for it, including specific references to the evidence in the record that supports each reason for the decision. The notice must inform the firm of the consequences of your decision and of the availability of an appeal to the Department of Transportation under § 26.89. You must send copies of the notice to the complainant in the ineligibility complaint or the concerned operating administration that had directed you to initiate the proceeding.

(h) *Status of firm during proceeding.*
(1) A firm remains an eligible DBE during the pendency of your proceeding to remove its eligibility.

(2) The firm does not become ineligible until the issuance of the notice provided for in paragraph (g) of this section.

(i) *Effects of removal of eligibility.* When you remove a firm's eligibility, you must take the following action:

(1) When a prime contractor has made a commitment to using the ineligible firm, or you have made a commitment to using a DBE prime contractor, but a subcontract or contract has not been executed before you issue the decertification notice provided for in paragraph (g) of this section, the ineligible firm does not count toward the contract goal or overall goal. You must direct the prime contractor to meet the contract goal with an eligible DBE firm or demonstrate to you that it has made a good faith effort to do so.

(2) If a prime contractor has executed a subcontract with the firm before you have notified the firm of its ineligibility, the prime contractor may continue to use the firm on the contract and may continue to receive credit toward its DBE goal for the firm's work. In this case, or in a case where you have let a prime contract to the DBE that was later ruled ineligible, the portion of the ineligible firm's performance of the contract remaining after you issued the notice of its ineligibility shall not count toward your overall goal, but may count toward the contract goal.

(3) *Exception:* If the DBE's ineligibility is caused solely by its having exceeded the size standard during the performance of the contract, you may continue to count its participation on that contract toward overall and contract goals.

(j) *Availability of appeal.* When you make an administratively final removal of a firm's eligibility under this section, the firm may appeal the removal to the Department under § 26.89.

§ 26.89 What is the process for certification appeals to the Department of Transportation?

(a)(1) If you are a firm which is denied certification or whose eligibility is removed by a recipient, you may make an administrative appeal to the Department.

(2) If you are a complainant in an ineligibility complaint to a recipient (including the concerned operating administration in the circumstances provided in § 26.87(c)), you may appeal to the Department if the recipient does not find reasonable cause to propose removing the firm's eligibility or, following a removal of eligibility proceeding, determines that the firm is eligible.

(3) Send appeals to the following address: Department of Transportation, Office of Civil Rights, 400 7th Street, SW, Room 2401, Washington, DC 20590.

(b) Pending the Department's decision in the matter, the recipient's decision remains in effect. The Department does not stay the effect of the recipient's decision while it is considering an appeal.

(c) If you want to file an appeal, you must send a letter to the Department within 90 days of the date of the recipient's final decision, including information and arguments concerning why the recipient's decision should be reversed. The Department may accept an appeal filed later than 90 days after the date of the decision if the Department determines that there was good cause for the late filing of the appeal.

(1) If you are an appellant who is a firm which has been denied certification, whose certification has been removed, whose owner is determined not to be a member of a designated disadvantaged group, or concerning whose owner the presumption of disadvantage has been rebutted, your letter must state the name and address of any other recipient which currently certifies the firm, which has rejected an application for certification from the firm or removed the firm's eligibility within one year prior to the date of the appeal, or before

which an application for certification or a removal of eligibility is pending. Failure to provide this information may be deemed a failure to cooperate under § 26.109(c).

(2) If you are an appellant other than one described in paragraph (c)(1) of this section, the Department will request, and the firm whose certification has been questioned shall promptly provide, the information called for in paragraph (c)(1) of this section. Failure to provide this information may be deemed a failure to cooperate under § 26.109(c).

(d) When it receives an appeal, the Department requests a copy of the recipient's complete administrative record in the matter. If you are the recipient, you must provide the administrative record, including a hearing transcript, within 20 days of the Department's request. The Department may extend this time period on the basis of a recipient's showing of good cause. To facilitate the Department's review of a recipient's decision, you must ensure that such administrative records are well organized, indexed, and paginated. Records that do not comport with these requirements are not acceptable and will be returned to you to be corrected immediately. If an appeal is brought concerning one recipient's certification decision concerning a firm, and that recipient relied on the decision and/or administrative record of another recipient, this requirement applies to both recipients involved.

(e) The Department makes its decision based solely on the entire administrative record. The Department does not make a de novo review of the matter and does not conduct a hearing. The Department may supplement the administrative record by adding relevant information made available by the DOT Office of Inspector General; Federal, state, or local law enforcement authorities; officials of a DOT operating administration or other appropriate DOT office; a recipient; or a firm or other private party.

(f) As a recipient, when you provide supplementary information to the Department, you shall also make this information available to the firm and any third-party complainant involved, consistent with Federal or applicable state laws concerning freedom of information and privacy. The Department makes available, on request by the firm and any third-party complainant involved, any supplementary information it receives from any source.

(1) The Department affirms your decision unless it determines, based on the entire administrative record, that your decision is unsupported by

substantial evidence or inconsistent with the substantive or procedural provisions of this part concerning certification.

(2) If the Department determines, after reviewing the entire administrative record, that your decision was unsupported by substantial evidence or inconsistent with the substantive or procedural provisions of this part concerning certification, the Department reverses your decision and directs you to certify the firm or remove its eligibility, as appropriate. You must take the action directed by the Department's decision immediately upon receiving written notice of it.

(3) The Department is not required to reverse your decision if the Department determines that a procedural error did not result in fundamental unfairness to the appellant or substantially prejudice the opportunity of the appellant to present its case.

(4) If it appears that the record is incomplete or unclear with respect to matters likely to have a significant impact on the outcome of the case, the Department may remand the record to you with instructions seeking clarification or augmentation of the record before making a finding. The Department may also remand a case to you for further proceedings consistent with Department instructions concerning the proper application of the provisions of this part.

(5) The Department does not uphold your decision based on grounds not specified in your decision.

(6) The Department's decision is based on the status and circumstances of the firm as of the date of the decision being appealed.

(7) The Department provides written notice of its decision to you, the firm, and the complainant in an ineligibility complaint. A copy of the notice is also sent to any other recipient whose administrative record or decision has been involved in the proceeding (see paragraph (d) of this section). The notice includes the reasons for the Department's decision, including specific references to the evidence in the record that supports each reason for the decision.

(8) The Department's policy is to make its decision within 180 days of receiving the complete administrative record. If the Department does not make its decision within this period, the Department provides written notice to concerned parties, including a statement of the reason for the delay and a date by which the appeal decision will be made.

(g) All decisions under this section are administratively final, and are not subject to petitions for reconsideration.

§ 26.91 What actions do recipients take following DOT certification appeal decisions?

(a) If you are the recipient from whose action an appeal under § 26.89 is taken, the decision is binding. It is not binding on other recipients.

(b) If you are a recipient to which a DOT determination under § 26.89 is applicable, you must take the following action:

(1) If the Department determines that you erroneously certified a firm, you must remove the firm's eligibility on receipt of the determination, without further proceedings on your part.

Effective on the date of your receipt of the Department's determination, the consequences of a removal of eligibility set forth in § 26.87(i) take effect.

(2) If the Department determines that you erroneously failed to find reasonable cause to remove the firm's eligibility, you must expeditiously commence a proceeding to determine whether the firm's eligibility should be removed, as provided in § 26.87.

(3) If the Department determines that you erroneously declined to certify or removed the eligibility of the firm, you must certify the firm, effective on the date of your receipt of the written notice of Department's determination.

(4) If the Department determines that you erroneously determined that the presumption of social and economic disadvantage either should or should not be deemed rebutted, you must take appropriate corrective action as determined by the Department.

(5) If the Department affirms your determination, no further action is necessary.

(c) Where DOT has upheld your denial of certification to or removal of eligibility from a firm, or directed the removal of a firm's eligibility, other recipients with whom the firm is certified may commence a proceeding to remove the firm's eligibility under § 26.87. Such recipients must not remove the firm's eligibility absent such a proceeding. Where DOT has reversed your denial of certification to or removal of eligibility from a firm, other recipients must take the DOT action into account in any certification action involving the firm. However, other recipients are not required to certify the firm based on the DOT decision.

Subpart F—Compliance and Enforcement

§ 26.101 What compliance procedures apply to recipients?

(a) If you fail to comply with any requirement of this part, you may be subject to formal enforcement action

under § 26.103 or § 26.105 or appropriate program sanctions by the concerned operating administration, such as the suspension or termination of Federal funds, or refusal to approve projects, grants or contracts until deficiencies are remedied. Program sanctions may include, in the case of the FHWA program, actions provided for under 23 CFR 1.36; in the case of the FAA program, actions consistent with 49 U.S.C. 47106(d), 47111(d), and 47122; and in the case of the FTA program, any actions permitted under 49 U.S.C. chapter 53 or applicable FTA program requirements.

(b) As provided in statute, you will not be subject to compliance actions or sanctions for failing to carry out any requirement of this part because you have been prevented from complying because a Federal court has issued a final order in which the court found that the requirement is unconstitutional.

§ 26.103 What enforcement actions apply in FHWA and FTA programs?

The provisions of this section apply to enforcement actions under FHWA and FTA programs:

(a) *Noncompliance complaints.* Any person who believes that a recipient has failed to comply with its obligations under this part may file a written complaint with the concerned operating administration's Office of Civil Rights. If you want to file a complaint, you must do so no later than 180 days after the date of the alleged violation or the date on which you learned of a continuing course of conduct in violation of this part. In response to your written request, the Office of Civil Rights may extend the time for filing in the interest of justice, specifying in writing the reason for so doing. The Office of Civil Rights may protect the confidentiality of your identity as provided in § 26.109(b). Complaints under this part are limited to allegations of violation of the provisions of this part.

(b) *Compliance reviews.* The concerned operating administration may review the recipient's compliance with this part at any time, including reviews of paperwork and on-site reviews, as appropriate. The Office of Civil Rights may direct the operating administration to initiate a compliance review based on complaints received.

(c) *Reasonable cause notice.* If it appears, from the investigation of a complaint or the results of a compliance review, that you, as a recipient, are in noncompliance with this part, the appropriate DOT office promptly sends you, return receipt requested, a written notice advising you that there is reasonable cause to find you in

noncompliance. The notice states the reasons for this finding and directs you to reply within 30 days concerning whether you wish to begin conciliation.

(d) *Conciliation.* (1) If you request conciliation, the appropriate DOT office shall pursue conciliation for at least 30, but not more than 120, days from the date of your request. The appropriate DOT office may extend the conciliation period for up to 30 days for good cause, consistent with applicable statutes.

(2) If you and the appropriate DOT office sign a conciliation agreement, then the matter is regarded as closed and you are regarded as being in compliance. The conciliation agreement sets forth the measures you have taken or will take to ensure compliance. While a conciliation agreement is in effect, you remain eligible for FHWA or FTA financial assistance.

(3) The concerned operating administration shall monitor your implementation of the conciliation agreement and ensure that its terms are complied with. If you fail to carry out the terms of a conciliation agreement, you are in noncompliance.

(4) If you do not request conciliation, or a conciliation agreement is not signed within the time provided in paragraph (d)(1) of this section, then enforcement proceedings begin.

(e) *Enforcement actions.* (1) Enforcement actions are taken as provided in this subpart.

(2) Applicable findings in enforcement proceedings are binding on all DOT offices.

§ 26.105 What enforcement actions apply in FAA Programs?

(a) Compliance with all requirements of this part by airport sponsors and other recipients of FAA financial assistance is enforced through the procedures of Title 49 of the United States Code, including 49 U.S.C. 47106(d), 47111(d), and 47122, and regulations implementing them.

(b) The provisions of § 26.103(b) and this section apply to enforcement actions in FAA programs.

(c) Any person who knows of a violation of this part by a recipient of FAA funds may file a complaint under 14 CFR part 16 with the Federal Aviation Administration Office of Chief Counsel.

§ 26.107 What enforcement actions apply to firms participating in the DBE program?

(a) If you are a firm that does not meet the eligibility criteria of subpart D of this part and that attempts to participate in a DOT-assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations

or under circumstances indicating a serious lack of business integrity or honesty, the Department may initiate suspension or debarment proceedings against you under 49 CFR part 29.

(b) If you are a firm that, in order to meet DBE contract goals or other DBE program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D of this part, the Department may initiate suspension or debarment proceedings against you under 49 CFR part 29.

(c) In a suspension or debarment proceeding brought under paragraph (a) or (b) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude the Department from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE goals, should be suspended or debarred.

(d) The Department may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE program whose conduct is subject to such action under 49 CFR part 31.

(e) The Department may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.

§ 26.109 What are the rules governing information, confidentiality, cooperation, and intimidation or retaliation?

(a) *Availability of records.* (1) In responding to requests for information concerning any aspect of the DBE program, the Department complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). The Department may make available to the public any information concerning the DBE program release of which is not prohibited by Federal law.

(2) If you are a recipient, you shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal, state, and local law.

(b) *Confidentiality of information on complainants.* Notwithstanding the provisions of paragraph (a) of this

section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing. FAA follows the procedures of 14 CFR part 16 with respect to confidentiality of information in complaints.

(c) *Cooperation.* All participants in the Department's DBE program (including, but not limited to, recipients, DBE firms and applicants for DBE certification, complainants and appellants, and contractors using DBE firms to meet contract goals) are required to cooperate fully and promptly with DOT and recipient compliance reviews, certification reviews, investigations, and other requests for information. Failure to do so shall be a ground for appropriate action against the party involved (e.g., with respect to recipients, a finding of noncompliance; with respect to DBE firms, denial of certification or removal of eligibility and/or suspension and debarment; with respect to a complainant or appellant, dismissal of the complaint or appeal; with respect to a contractor which uses DBE firms to meet goals, findings of non-responsibility for future contracts and/or suspension and debarment).

(d) *Intimidation and retaliation.* If you are a recipient, contractor, or any other participant in the program, you must not intimidate, threaten, coerce, or discriminate against any individual or firm for the purpose of interfering with any right or privilege secured by this part or because the individual or firm has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this part. If you violate this prohibition, you are in noncompliance with this part.

Appendix A to Part 26—Guidance Concerning Good Faith Efforts

1. When, as a recipient, you establish a contract goal on a DOT-assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took

all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere *pro forma* efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring *bona fide* good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the

available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

Appendix B to Part 26—Forms [Reserved]

Appendix C to Part 26—DBE Business Development Program Guidelines

The purpose of this program element is to further the development of DBEs, including but not limited to assisting them to move into non-traditional areas of work and/or compete in the marketplace outside the DBE program, via the provision of training and assistance from the recipient.

(A) Each firm that participates in a recipient's business development program (BDP) program is subject to a program term determined by the recipient. The term should consist of two stages; a developmental stage and a transitional stage.

(B) In order for a firm to remain eligible for program participation, it must continue to meet all eligibility criteria contained in part 26.

(C) By no later than 6 months of program entry, the participant should develop and submit to the recipient a comprehensive business plan setting forth the participant's business targets, objectives and goals. The participant will not be eligible for program benefits until such business plan is submitted and approved by the recipient. The approved business plan will constitute the participant's short and long term goals and the strategy for developmental growth to the point of economic viability in non-traditional areas of work and/or work outside the DBE program.

(D) The business plan should contain at least the following:

(1) An analysis of market potential, competitive environment and other business analyses estimating the program participant's prospects for profitable operation during the term of program participation and after graduation from the program.

(2) An analysis of the firm's strengths and weaknesses, with particular attention paid to the means of correcting any financial, managerial, technical, or labor conditions which could impede the participant from receiving contracts other than those in traditional areas of DBE participation.

(3) Specific targets, objectives, and goals for the business development of the participant during the next two years, utilizing the results of the analysis conducted pursuant to paragraphs (C) and (D)(1) of this appendix;

(4) Estimates of contract awards from the DBE program and from other sources which are needed to meet the objectives and goals for the years covered by the business plan; and

(5) Such other information as the recipient may require.

(E) Each participant should annually review its currently approved business plan with the recipient and modify the plan as may be appropriate to account for any changes in the firm's structure and redefined needs. The currently approved plan should be considered the applicable plan for all program purposes until the recipient approves in writing a modified plan. The recipient should establish an anniversary date for review of the participant's business plan and contract forecasts.

(F) Each participant should annually forecast in writing its need for contract awards for the next program year and the succeeding program year during the review of its business plan conducted under paragraph (E) of this appendix. Such forecast should be included in the participant's business plan. The forecast should include:

(1) The aggregate dollar value of contracts to be sought under the DBE program, reflecting compliance with the business plan;

(2) The aggregate dollar value of contracts to be sought in areas other than traditional areas of DBE participation;

(3) The types of contract opportunities being sought, based on the firm's primary line of business; and

(4) Such other information as may be requested by the recipient to aid in providing effective business development assistance to the participant.

(C) Program participation is divided into two stages: (1) a developmental stage and (2) a transitional stage. The developmental stage is designed to assist participants to overcome their social and economic disadvantage by providing such assistance as may be necessary and appropriate to enable them to access relevant markets and strengthen their financial and managerial skills. The transitional stage of program participation follows the developmental stage and is designed to assist participants to overcome, insofar as practical, their social and economic disadvantage and to prepare the participant for leaving the program.

(H) The length of service in the program term should not be a pre-set time frame for either the developmental or transitional stages but should be figured on the number of years considered necessary in normal progression of achieving the firm's established goals and objectives. The setting of such time could be factored on such items as, but not limited to, the number of contracts, aggregate amount of the contract received, years in business, growth potential, etc.

(I) Beginning in the first year of the transitional stage of program participation, each participant should annually submit for inclusion in its business plan a transition management plan outlining specific steps to promote profitable business operations in areas other than traditional areas of DBE participation after graduation from the program. The transition management plan should be submitted to the recipient at the same time other modifications are submitted pursuant to the annual review under paragraph (E) of this section. The plan should set forth the same information as required under paragraph (F) of steps the participant will take to continue its business development after the expiration of its program term.

(J) When a participant is recognized as successfully completing the program by substantially achieving the targets, objectives and goals set forth in its program term, and has demonstrated the ability to compete in the marketplace, its further participation within the program may be determined by the recipient.

(K) In determining whether a concern has substantially achieved the goals and

objectives of its business plan, the following factors, among others, should be considered by the recipient:

(1) Profitability;

(2) Sales, including improved ratio of non-traditional contracts to traditional-type contracts;

(3) Net worth, financial ratios, working capital, capitalization, access to credit and capital;

(4) Ability to obtain bonding;

(5) A positive comparison of the DBE's business and financial profile with profiles of non-DBE businesses in the same area or similar business category; and

(6) Good management capacity and capability.

(L) Upon determination by the recipient that the participant should be graduated from the developmental program, the recipient should notify the participant in writing of its intent to graduate the firm in a letter of notification. The letter of notification should set forth findings, based on the facts, for every material issue relating to the basis of the program graduation with specific reasons for each finding. The letter of notification should also provide the participant 45 days from the date of service of the letter to submit in writing information that would explain why the proposed basis of graduation is not warranted.

(M) Participation of a DBE firm in the program may be discontinued by the recipient prior to expiration of the firm's program term for good cause due to the failure of the firm to engage in business practices that will promote its competitiveness within a reasonable period of time as evidenced by, among other indicators, a pattern of inadequate performance or unjustified delinquent performance. Also, the recipient can discontinue the participation of a firm that does not actively pursue and bid on contracts, and a firm that, without justification, regularly fails to respond to solicitations in the type of work it is qualified for and in the geographical areas where it has indicated availability under its approved business plan. The recipient should take such action if over a 2-year period a DBE firm exhibits such a pattern.

Appendix D to Part 26—Mentor-Protégé Program Guidelines

(A) The purpose of this program element is to further the development of DBEs, including but not limited to assisting them to move into non-traditional areas of work and/or compete in the marketplace outside the DBE program, via the provision of training and assistance from other firms. To operate a mentor-protégé program, a recipient must obtain the approval of the concerned operating administration.

(B)(1) Any mentor-protégé relationship shall be based on a written development plan, approved by the recipient, which clearly sets forth the objectives of the parties and their respective roles, the duration of the arrangement and the services and resources to be provided by the mentor to the protégé. The formal mentor-protégé agreement may set a fee schedule to cover the direct and indirect cost for such services rendered by

the mentor for specific training and assistance to the protégé through the life of the agreement. Services provided by the mentor may be reimbursable under the FTA, FHWA, and FAA programs.

(2) To be eligible for reimbursement, the mentor's services provided and associated costs must be directly attributable and properly allowable to specific individual contracts. The recipient may establish a line item for the mentor to quote the portion of the fee schedule expected to be provided during the life of the contract. The amount claimed shall be verified by the recipient and paid on an incremental basis representing the time the protégé is working on the contract. The total individual contract figures accumulated over the life of the agreement shall not exceed the amount stipulated in the original mentor/protégé agreement.

(C) DBEs involved in a mentor-protégé agreement must be independent business entities which meet the requirements for certification as defined in subpart D of this part. A protégé firm must be certified before it begins participation in a mentor-protégé arrangement. If the recipient chooses to recognize mentor/protégé agreements, it should establish formal general program guidelines. These guidelines must be submitted to the operating administration for approval prior to the recipient executing an individual contractor/ subcontractor mentor-protégé agreement.

Appendix E to Part 26—Individual Determinations of Social and Economic Disadvantage

The following guidance is adapted, with minor modifications, from SBA regulations concerning social and economic disadvantage determinations (see 13 CFR 124.103(c) and 124.104).

Social Disadvantage

1. Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias within American society because of their identities as members of groups and without regard to their individual qualities. Social disadvantage must stem from circumstances beyond their control. Evidence of individual social disadvantage must include the following elements:

(A) At least one objective distinguishing feature that has contributed to social disadvantage, such as race, ethnic origin, gender, disability, long-term residence in an environment isolated from the mainstream of American society, or other similar causes not common to individuals who are not socially disadvantaged;

(B) Personal experiences of substantial and chronic social disadvantage in American society, not in other countries; and

(C) Negative impact on entry into or advancement in the business world because of the disadvantage. Recipients will consider any relevant evidence in assessing this element. In every case, however, recipients will consider education, employment and business history, where applicable, to see if the totality of circumstances shows disadvantage in entering into or advancing in the business world.

(1) *Education.* Recipients will consider such factors as denial of equal access to institutions of higher education and vocational training, exclusion from social and professional association with students or teachers, denial of educational honors rightfully earned, and social patterns or pressures which discouraged the individual from pursuing a professional or business education.

(2) *Employment.* Recipients will consider such factors as unequal treatment in hiring, promotions and other aspects of professional advancement, pay and fringe benefits, and other terms and conditions of employment; retaliatory or discriminatory behavior by an employer or labor union; and social patterns or pressures which have channeled the individual into non-professional or non-business fields.

(3) *Business history.* The recipient will consider such factors as unequal access to credit or capital, acquisition of credit or capital under commercially unfavorable circumstances, unequal treatment in opportunities for government contracts or other work, unequal treatment by potential customers and business associates, and exclusion from business or professional organizations.

II. With respect to paragraph I.(A) of this appendix, the Department notes that people with disabilities have disproportionately low incomes and high rates of unemployment. Many physical and attitudinal barriers remain to their full participation in education, employment, and business opportunities available to the general public. The Americans with Disabilities Act (ADA) was passed in recognition of the discrimination faced by people with disabilities. It is plausible that many individuals with disabilities—especially persons with severe disabilities (e.g., significant mobility, vision, or hearing impairments)—may be socially and economically disadvantaged.

III. Under the laws concerning social and economic disadvantage, people with disabilities are not a group presumed to be disadvantaged. Nevertheless, recipients should look carefully at individual showings of disadvantage by individuals with disabilities, making a case-by-case judgment about whether such an individual meets the criteria of this appendix. As public entities subject to Title II of the ADA, recipients must also ensure their DBE programs are accessible to individuals with disabilities. For example, physical barriers or the lack of application and information materials in accessible formats cannot be permitted to thwart the access of potential applicants to the certification process or other services made available to DBEs and applicants.

Economic Disadvantage

(A) *General.* Economically disadvantaged individuals are socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same or similar line of business who are not socially disadvantaged.

(B) *Submission of narrative and financial information.*

(1) Each individual claiming economic disadvantage must describe the conditions which are the basis for the claim in a narrative statement, and must submit personal financial information.

(2) When married, an individual claiming economic disadvantage also must submit separate financial information for his or her spouse, unless the individual and the spouse are legally separated.

(C) *Factors to be considered.* In considering diminished capital and credit opportunities, recipients will examine factors relating to the personal financial condition of any individual claiming disadvantaged status, including personal income for the past two years (including bonuses and the value of company stock given in lieu of cash),

personal net worth, and the fair market value of all assets, whether encumbered or not. Recipients will also consider the financial condition of the applicant compared to the financial profiles of small businesses in the same primary industry classification, or, if not available, in similar lines of business, which are not owned and controlled by socially and economically disadvantaged individuals in evaluating the individual's access to credit and capital. The financial profiles that recipients will compare include total assets, net sales, pre-tax profit, sales/working capital ratio, and net worth.

(D) *Transfers within two years.*

(1) Except as set forth in paragraph (D)(2) of this appendix, recipients will attribute to an individual claiming disadvantaged status any assets which that individual has transferred to an immediate family member, or to a trust, a beneficiary of which is an immediate family member, for less than fair market value, within two years prior to a concern's application for participation in the DBE program, unless the individual claiming disadvantaged status can demonstrate that the transfer is to or on behalf of an immediate family member for that individual's education, medical expenses, or some other form of essential support.

(2) Recipients will not attribute to an individual claiming disadvantaged status any assets transferred by that individual to an immediate family member that are consistent with the customary recognition of special occasions, such as birthdays, graduations, anniversaries, and retirements.

(3) In determining an individual's access to capital and credit, recipients may consider any assets that the individual transferred within such two-year period described by paragraph (D)(1) of this appendix that are not considered in evaluating the individual's assets and net worth (e.g., transfers to charities).

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BILLING CODE 4910-62-P

procedure for processing "9-1-1" calls. Such procedure must recognize when a "9-1-1" call is made and, at such time, must override any programming in the mobile unit that determines the handling of a non-911 call and permit the call to be handled by other analog carriers. This special procedure must incorporate any one or more of the 9-1-1 call system selection processes endorsed or approved by the Commission.

[FR Doc. 99-16484 Filed 6-25-99; 8:45 am]
BILLING CODE 4712-01-P

DEPARTMENT OF TRANSPORTATION

Office of the Secretary

49 CFR Parts 23 and 26

[Docket OST-97-2550]

RIN 2105-AB92

Participation by Disadvantaged
Business Enterprises in Department of
Transportation Programs

AGENCY: Office of the Secretary, DOT.

ACTION: Final rule; correction.

SUMMARY: In its final disadvantaged business enterprise (DBE) rule, the Department intended to ensure the confidentiality of personal financial information submitted to recipients by owners of DBE firms. The Department inadvertently omitted the regulatory text language on this point. This correction document remedies this omission. In addition, this document corrects minor omissions concerning the threshold for Federal Transit Administration recipients to establish DBE programs and a requirement for transit vehicle manufacturers to have DBE programs, removes a potentially confusing word from the rule's provisions concerning DOT review of recipients' overall goals, clarifies language concerning the certification and personal net worth of airport concessionaires and others, and clarifies that a lease is viewed as a contract for purposes of the rule.

DATES: This rule is effective June 28, 1999.

FOR FURTHER INFORMATION CONTACT: Robert C. Ashby, Deputy Assistant General Counsel for Regulation and Enforcement, Department of Transportation, 400 7th Street, SW., Room 10424, Washington, DC 20590, phone numbers (202) 366-9306 (voice), (202) 366-9313 (fax), (202) 755-7687 (TDD), bob.ashby@ost.dot.gov (email).

SUPPLEMENTARY INFORMATION:

Privacy

In discussing the requirement of the DBE final rule that owners of DBE firms submit a statement of personal net worth, with supporting documentation, the Department addressed commenters' concerns about the confidentiality of the information. The preamble to the rule said the following:

One of the primary concerns of DBE firms commenting about submitting personal financial information is ensuring that the information remains confidential. In response to this concern, the rule explicitly requires that this material be kept confidential. It may be provided to a third party only with the written consent of the individual to whom the information pertains. This provision is specifically intended to pre-empt any contrary application of state or local law (e.g., a state freedom of information act that might be interpreted to require a state transportation agency to provide to a requesting party the personal income tax return of a DBE applicant who had provided the return as supporting documentation for his PNW statement). There is one exception to this confidentiality requirement. If there is a certification appeal in which the economic disadvantage of an individual is at issue (e.g., the recipient has determined that he or she is not economically disadvantaged and the individual seeks DOT review of the decision), the personal financial information would have to be provided to DOT as part of the administrative record. The Department would treat the information as confidential. (64 FR 5117; February 2, 1999).

Unfortunately, through editorial error on the Department's part, the regulatory text provision referred to was omitted from the final rule. We regret any confusion that this omission may have caused, and we are correcting the error by inserting the language in a new paragraph (a)(2)(iii) of § 26.67 of the rule.

FTA Requirements for DBE Programs

In § 26.21(a)(2) of the rule, the Department states that FTA recipients who receive more than \$250,000 in various forms of FTA assistance must have a DBE program. The phrase "exclusive of transit vehicle purchases" was inadvertently omitted from this paragraph. This omission has raised questions from some recipients, and we are reinserting the omitted language to avoid confusion. In addition, this provision did not make explicit that transit vehicle manufacturers must have DBE programs, so we are adding language to make this clear.

Review of Overall Goals

While operating administrations review recipients' overall goal submissions, recipients are not required to obtain prior concurrence by operating administrations with their overall goals (see § 26.45(f)(4)).

However, as the result of an editorial oversight, § 26.21(b)(1) of the rule makes a reference to overall goals being "approved" by operating administrations. Because prior concurrence is not required, this reference is incorrect and could be misleading. Therefore, we are removing it.

Concessionaires

In the February 2, 1999, final DBE rule, the Department removed all of former part 23 except the portion concerning airport concessionaires. The airport concession provisions were modified for consistency with the new 49 CFR part 26. In one respect, however, the amendment of the airport concessions provision failed to delete language concerning certification procedures that referred to the (now deleted) certification provisions of former part 23. While we have provided guidance to airports that they should follow part 26 procedures, we believe it would be useful to delete the language referring to former part 23's procedures. Therefore, this rule eliminates two paragraphs in § 23.95. Recipients should follow part 26 certification procedures for concessionaires as well as for other contractors.

Airports have expressed concern that the rule is unclear concerning the application to concessionaires of the \$750,000 personal net worth (PNW) cap and PNW statement requirements of § 26.67. The Department is currently working to complete a final rule concerning airport concessions. The PNW cap applicable to concessionaires is one of the matters being considered in this rulemaking. The PNW cap amount that the Department applies to concessionaires may or may not be \$750,000. Pending completion of the final rule on airport concessions, the Department believes it best to resolve the current uncertainty by making the \$750,000 cap amount and PNW statement requirement of § 26.67 inapplicable to airport concessionaires.

We are amending § 26.67(a)(2)(i) to specify that disadvantaged owners of airport concessionaires are not required to submit PNW statements. Consequently, the rebuttal of the presumption of economic disadvantage based on a PNW statement an individual is required to submit (see § 26.67(b)(1)) also does not apply to airport concessionaires.

Definition of "Contract"

The 49 CFR part 23 definition of "contract" specified that a lease was

viewed as a contract. The part 26 definition inadvertently omitted this sentence. To avoid any potential confusion on this point, this correction document adds a sentence on leases.

Clarification Concerning Personal Net Worth Documentation

The Department has received a number of questions and expressions of concern about the documentation it is appropriate for recipients to require in ascertaining the personal net worth of owners of DBE firms. The Department believes that it is important to clarify the rule to state that this documentation, and the PNW statement itself, should not be unduly lengthy, burdensome or intrusive.

The Department uses the Small Business Administration's implementation of its PNW requirements as a model for recipients' practices. SBA requires a two-page form, supported by two years' of personal and business tax returns. With respect to the information routinely collected from applicants or owners of currently certified DBEs for purposes of ascertaining PNW, the Department believes that recipients should not exceed the information sought by SBA in its programs. Consequently, while recipients are not required to use the SBA form verbatim, they should use a form of similar length and content. Recipients may appropriately collect and retain copies of two years' of the individuals personal and business tax returns.

On the other hand, the Department regards as unduly lengthy, burdensome, or intrusive such practices as using a form significantly longer or more complex than the SBA form (e.g., a multipage PNW form), requiring inventories of personal property or appraisals of real property. Such practices are contrary to part 26.

Regulatory Analyses and Notices

This set of amendments correcting part 26 is not a significant rule under Executive Order 12866 or the Department's Regulatory Policies and Procedures. The Department certifies that the amendments will not have significant economic impacts on a substantial number of small entities. This is because the amendments are technical corrections that will not impose costs on entities, regardless of their size. They do not have Federalism impacts sufficient to warrant the preparation of a Federalism impact statement. They do not impose information collection requirements.

These amendments relate to regulatory provisions that have already

been the subject of notice and comment (as part of the Department's May 1997 supplemental notice of proposed rulemaking concerning the DBE program).

Because the amendments merely correct accidental omissions from the regulatory text or remove a potentially confusing reference, we do not believe that additional notice and comment would be productive. Therefore, the Department has determined that further notice and comment would be impracticable, unnecessary, and contrary to the public interest. The Department has good cause to make the corrections effective immediately in order to avoid confusion and any adverse effects on DBEs or recipients from the absence of the omitted language.

List of Subjects

49 CFR Part 23

Administrative practice and procedure, Airports, Civil rights, Concessions, Government contracts, Grant programs—transportation, Minority businesses, Reporting and recordkeeping requirements.

49 CFR Part 26

Administrative practice and procedure, Airports, Civil rights, Government contracts, Grant programs—transportation, Highways and roads, Mass transportation, Minority businesses, Reporting and recordkeeping requirements.

Issued this 11th day of June, 1999, at Washington, D.C.

Rodney E. Slater,
Secretary of Transportation.

For the reasons set forth in the preamble, the Department amends 49 CFR parts 23 and 26 as follows:

PART 23—[AMENDED]

1. The authority citation for part 23 continues to read as follows:

Authority: 42 U.S.C. 200d et seq.; 49 U.S.C. 47107 and 47123; Executive Order 12138, 3 CFR, 1979 Comp., p. 393.

§ 23.95 [Amended]

2. In § 23.95, remove and reserve paragraphs (f)(2) and (f)(3).

PART 26—[AMENDED]

3. The authority citation for part 26 is revised to read as follows:

Authority: 23 U.S.C. 324; 42 U.S.C. 2000d, et seq.; 49 U.S.C. 1615, 47107, 47113, 47123; Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113.

4. In the definition of the term "Contract" in § 26.5, add a sentence at

the end of the definition, to read as follows:

§ 26.5 What do the terms used in this part mean?

* * * * *
Contract * * * For purposes of this part, a lease is considered to be a contract.
* * * * *

5. In § 26.21, revise paragraph (a)(2) to read as follows:

§ 26.21 Who must have a DBE program?

(a) * * *
(2) FTA recipients that receive \$250,000 in FTA planning, capital, and/or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49;
* * * * *

§ 26.21 [Amended]

5. In § 26.21(b)(1), in the parenthetical phrase, remove the words "and approved" following the word "reviewed".

§ 26.45 [Amended]

6. In § 26.45(c)(5), remove the words "Subject to the approval of the DOT operating administration, you" and add "You" in its place.

7. Amend § 26.67 as follows:
a. Revise paragraph (a)(2)(i); and
b. Redesignate paragraph (a)(2)(ii) as paragraph (a)(2)(iii), and add a new paragraph (a)(2)(ii), to read as follows:

§ 26.67 What rules determine social and economic disadvantage?

(a) * * *
(2)(i) You must require each individual owner of a firm applying to participate as a DBE (except a firm applying to participate as a DBE airport concessionaire) whose ownership and control are relied upon for DBE certification to submit a signed, notarized statement of personal net worth, with appropriate supporting documentation. This statement and documentation must not be unduly lengthy, burdensome, or intrusive.
(ii) Notwithstanding any provision of state law, you must not release an individual's personal net worth statement nor any documentation supporting it to any third party without the written consent of the submitter. Provided, that you must transmit this information to DOT in any certification appeal proceeding under § 26.89 in which the disadvantaged status of the individual is in question.
* * * * *

[FR Doc. 99-15866 Filed 6-24-99; 8:45 am] BILLING CODE 4910-02-P

CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
PREVAILING WAGE SCHEDULE

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005

John Ciardullo Associates
221 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer



Bureau of Labor Law

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

December 15, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 2, TO THE 220
PREVAILING WAGE SCHEDULE, WHICH COVERS THE
TITLES OF BOILERMAKER, SHEET METAL WORKER AND
BOILERMAKER APPRENTICE FOR THE PERIOD
DECEMBER 15, 2004 THROUGH JUNE 30, 2005. PLEASE
NOTIFY ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN,
DIRECTOR, CLASSIFICATION
AND DETERMINATIONS

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK

220 SCHEDULE OF PREVAILING WAGES AND SUPPLEMENTAL BENEFITS

ADDENDUM NO. 2, BOILERMAKER, SHEET METAL WORKER
AND BOILERMAKER APPRENTICE

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

CLASSIFICATION: BOILERMAKER

WAGE RATE PER HOUR: \$40.30

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$29.15 for new construction
\$27.15 for repair or
maintenance work.

***** OVERTIME: (2, 5, 8, 13 for repair or maintenance work, 4, 5, 8 for all new
work, 13 when any of the following holidays are worked - 2, 6, 8, 9, 11,
12, 15, 16, 20). See Overtime and Holiday Legends.

SHIFT RATES:

For New Construction Work requiring two (2) shifts, the first shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. The second shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. All hours worked on the second shift shall receive a 10% wage rate differential.

SHIFT RATES:

For Repair and Maintenance Work, when shifts are required the first shift shall work eight (8) hours at the regular straight-time rate. The second shift shall work seven and one-half (7 1/2) hours and receive eight (8) times the regular straight time hourly rate plus twenty-five (\$.25) cents. The third shift shall work seven (7) hours and receive eight (8) times the regular straight time hourly rate plus fifty (\$.50) cents. A thirty (30) minute lunch period shall not be considered as time worked.

(Local #5)

OFFICE OF THE COMPTROLLER CITY OF NEW YORK PREVAILING WAGE SCHEDULE

CLASSIFICATION: SHEET METAL WORKER

WAGE RATE PER HOUR: \$39.49
Effective August 1, 2004 \$39.99+

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.48
Effective August 1, 2004 \$29.23+

OVERTIME SUPPLEMENTAL BENEFIT RATE PER HOUR: \$45.16
Effective August 1, 2004 \$48.04

+Effective February 1, 2005 - \$2.00 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work that can only be performed outside regular working hours (seven hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second Shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

(Local #28)

OFFICE OF THE COMPTROLLER CITY OF NEW YORK PREVAILING WAGE SCHEDULE

Boilermaker Apprentice

Wage Rate Per Hour:

First Year:	65% of Journeyperson's rate
Second Year:	
1 st Six Months:	70% of Journeyperson's rate
2 nd Six Months:	75% of Journeyperson's rate
Third Year:	
1 st Six Months:	80% of Journeyperson's rate
2 nd Six Months:	85% of Journeyperson's rate
Fourth Year:	
1 st Six Months:	90% of Journeyperson's rate
2 nd Six Months:	95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:	<u>New Construction</u>	<u>Repair and Maintenance</u>
First Year:	\$20.38	\$18.38
Second Year:		
1 st Six Months	\$21.35	\$19.35
2 nd Six Months:	\$22.32	\$20.32
Third Year:		
1 st Six Months:	\$23.29	\$21.39
2 nd Six Months:	\$24.25	\$22.25
Fourth Year:		
1 st Six Months:	\$25.22	\$23.22
2 nd Six Months:	\$26.19	\$24.19

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4



Bureau of Labor Law

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OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

July 2, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 1, TO THE 220
PREVAILING WAGE SCHEDULE, WHICH COVERS THE
TITLES OF CEMENT MASON AND ELECTRICIAN
APPRENTICE (FIFTH YEAR) FOR THE PERIOD
JULY 2, 2004 THROUGH JUNE 30, 2005. PLEASE
NOTIFY ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN, DIRECTOR
CLASSIFICATION AND
DETERMINATIONS

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
220 SCHEDULE OF PREVAILING WAGES AND SUPPLEMENTAL BENEFITS

ADDENDUM NO. 1, CEMENT MASON
AND ELECTRICIAN APPRENTICE (FIFTH YEAR)

EFFECTIVE PERIOD JULY 2, 2004 THROUGH JUNE 30, 2005

CLASSIFICATION: CEMENT MASON

WAGE RATE PER HOUR: \$34.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.21

Supplemental benefits are paid at double the regular hourly rate when overtime hours are worked.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

SHIFT RATES: For an off shift day, (work at times other than the regular 8:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential.

(Local #780)

EFFECTIVE PERIOD: JULY 2, 2004 THROUGH JUNE 30, 2005

LABOR LAW §220 PREVAILING WAGE SCHEDULE

Pursuant to Labor Law §220 (3) the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work contracts. Contracting agencies anticipating doing work which requires the employment of a trade or classification not included in this schedule must request the Comptroller to establish a proper classification for the work pursuant to Labor Law §220 (3-a) (a). The prevailing rate schedule as promulgated by the Comptroller, must, in compliance with law, be annexed to and form part of the contract.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law §220 (3-a) (a).

This schedule is applicable for work performed from July 1, 2004 through June 30, 2005, unless otherwise noted. You will be notified of any changes to this schedule by addenda published on our web site www.comptroller.nyc.gov. The rate of wages and supplemental benefits to be paid or provided are those that prevail at the time the work is being performed. Preliminary schedules for future one-year periods are published annually in the City Record on or about June 1st of each succeeding year. Final schedules are published on or about July 1st in the City Record and on our web site www.comptroller.nyc.gov.

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such rates and practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4437, Monday through Friday between the hours of 9 a.m. and 5 p.m.

Answers to questions concerning the application of premium rates and or prevailing trade practices may be found in the collective bargaining agreements of the prevailing union or by requesting such information from the Bureau of Labor Law's Classification and Determination unit by calling William Helfman at (212) 669-4440.

All other inquiries concerning compliance with the Prevailing Wage Law, should be directed to; Bureau of Labor Law, ATT: William Helfman, Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 815-8672.

Office of the Comptroller, City of New York

Prevailing rates and ratios for apprentices are attached to this schedule as Appendix #1. Pursuant to Labor Law §220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be employed on a public work project. Trainees, Assistants and Helpers who are not journey persons or not registered apprentices pursuant to Labor Law §220 (3-e) may not be substituted for apprentices and must be paid as journey persons.

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Contractors are solely responsible for maintaining original payroll records which delineate, among other things, the hours each employee worked within a given classification. Contractors using rates and/or classifications not promulgated by the Comptroller do so at their own risk. Additionally, prior to bid, Agency Chief Contracting Officers must contact the Bureau of Labor Law when the need arises for a work classification not published in this schedule.

Prevailing Rate Schedule Information: The information below is intended to assist you in meeting your prevailing wage rate obligation.

Covered Workers: Any and all individuals who are engaged, employed or otherwise occupied as Workers, Laborers or Mechanics on the public work site.

Supplemental Benefits: Employers may meet supplemental benefits obligation by paying the hourly supplemental benefits rate to their employees in cash. Such cash payments are considered income to the employee. Employers who elect to provide bona fide supplemental benefits to their employees will be given hourly cash credit for such benefits up to the hourly benefits rate set forth in the applicable schedule for the relevant trade or occupation at issue.

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is for each hour worked, some classifications require the payment or provision of supplemental benefits for each hour paid. Consequently, some prevailing practices require benefits to be purchased at the overtime, shift differential, Holiday, Saturday, Sunday or other premium time rate.

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Contractors are advised to review the applicable Collective Bargaining Agreements and the Comptroller's Prevailing Wage Schedule before bidding on Public Work. If there are any questions concerning prevailing wages, benefits, overtime, Holiday pay, shift differentials or any prevailing practice, please contact this office.

Any error as to compensation under the prevailing wage law or other information as to trade classification made by the contracting agency in the contract documents or in any other communication will not preclude a finding against the contractor of prevailing wage violation.

**William Helfman, Director
Classifications and Determinations
Bureau of Labor Law**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

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HOLIDAY LEGEND

The Holidays listed below are to be paid at the prevailing rate the worker is classified.

- (1) None
- (2) New Years Day
- (3) Martin Luther King Jr. Day
- (4) Lincoln's Birthday
- (5) Washington's Birthday
- (6) President's Day
- (7) Good Friday
- (8) Memorial Day
- (9) Independence Day
- (10) Labor Day
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 day on Presidential Election Day
- (15) Veteran's Day
- (16) Thanksgiving Day
- (17) Day after Thanksgiving
- (18) Day before Christmas
- (19) 1/2 day before Christmas Day
- (20) Christmas Day
- (21) Day before New Year's Day
- (22) 1/2 day before New Year's Day
- (23) Personal day
- (24) Easter

OVERTIME LEGEND

Additional requirements may also be listed in the OVERTIME section

- (1) Time and one half the regular rate after a 7 hour day.
- (2) Time and one half the regular rate after an 8 hour day.
- (3) Double time the regular rate after a 7 hour day.
- (4) Double time the regular rate after an 8 hour day.
- (5) Time and one half the regular rate for Saturday.
- (6) Double time the regular time rate for Saturday.
- (7) Time and one half the regular rate for Sunday.
- (8) Double time the regular rate for Sunday.
- (9) Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
- (10) Saturday and Sunday may be used as a make-up day at straight time when a day is lost that week due to inclement weather.
- (11) Regular straight time rate for work on a holiday.
- (12) Time and one half the regular rate for work on a holiday.
- (13) Double time the regular rate for work on a holiday.
- (14) Triple time the regular rate for work on a holiday.

NOTE: Benefits are paid for EACH HOUR WORKED unless otherwise noted.

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**SECTION 220 PREVAILING WAGE INDEX
JULY 1, 2004 – JUNE 30, 2005**

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CLASSIFICATION: ASBESTOS HANDLER

(Disturbs, removes, encapsulates, repairs, or encloses friable asbestos material)

WAGE RATE PER HOUR: \$25.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$6.95

Effective December 1, 2004 - \$1.50 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: Overtime is paid for all hours worked in excess of eight hours per day or forty (40) hours per week at time and one half the wage rate per hour and straight time for supplemental benefits. (12 when any of the following holidays are worked - 2, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: None

(Mason Tenders District Council - Local 78)

CLASSIFICATION: BLASTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Blaster	\$33.41*	\$21.59*
Blaster (Hydraulic)	\$33.96*	\$21.59*
Trac Drill Hydraulic	\$30.26*	\$21.59*
Wagon: Air Trac: Quarry Bar Drillrunners	\$29.71*	\$21.59*
Operators of Jack Hammers: Chippers: Spaders: Concrete Breakers: and all other pneumatic tools of like usage: Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers: Hydro (Water) Demolition	\$29.02*	\$21.59*

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Powder Carriers	\$26.38*	\$21.59*
Hydraulic Trac Drill Chuck Tender	\$25.49*	\$21.59*
Chuck Tender & Nipper	\$25.00*	\$21.59*
Magazine Keepers: (Watch Person)	\$15.63*	\$21.59*

*Plus \$2.42 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (4, 5, 8, 13 when any of the following holidays are worked – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend

SHIFT RATES: A single shift shall be a continuous nine (9) hours, starting at 8:00 A.M. When two (2) shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three (3) shifts are employed, each shift will work seven and one-half (7 ½) hours, but will be paid for eight (8) hours, since only one-half (½) hour is allowed for mealtime. When two (2) or more shifts are employed, single time will be paid for each shift. The first eight (8) hours of any and all work performed Monday through Friday inclusive of any off-shift shall be at the single time rate.

(Local #29)

CLASSIFICATION: BOILERMAKER

WAGE RATE PER HOUR: \$39.50
Effective 9/1/04 \$41.90

SUPPLEMENTAL BENEFIT RATE PER HOUR:
\$7.44 per hour worked plus 48% of gross pay for new construction.
\$5.44 per hour worked plus 48% of gross pay for repair or maintenance work.

OVERTIME: (2, 5, 8, 13 for repair or maintenance work, 4, 6, 8 for all new work, 13 when any of the following holidays are worked – 2, 6, 8, 9, 11, 12, 15, 16, 20). See Overtime and Holiday Legends.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

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SHIFT RATES:

For New Construction Work requiring two (2) shifts, the first shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. The second shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. All hours worked on the second shift shall receive a 10% wage rate differential.

SHIFT RATES:

For Repair and Maintenance Work, when shifts are required the first shift shall work eight (8) hours at the regular straight-time rate. The second shift shall work seven and one-half (7 1/2) hours and receive eight (8) times the regular straight time hourly rate plus twenty-five (\$.25) cents. The third shift shall work seven (7) hours and receive eight (8) times the regular straight time hourly rate plus fifty (\$.50) cents. A thirty (30) minute lunch period shall not be considered as time worked.

(Local #5)

CLASSIFICATION: BRICKLAYER

WAGE RATE PER HOUR: \$38.32

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.31

OVERTIME: (1, 5, 8, 9, 13, when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Overtime rates to be paid outside the regular 8:00 A.M. to 4:00 P.M. work day.

(Bricklayer District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: CARPENTER - Heavy Construction

(Construction of Engineering Structures and Building Foundations.)

WAGE RATE PER HOUR: \$38.77

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: an off shift may commence between the hours of 5:00 P.M. and 10:00 P.M. The rate of pay shall be nine (9) hours pay including benefits at the straight time rate for eight (8) hours work.

(Carpenters District Council)

CLASSIFICATION: CARPENTER - Building Commercial

WAGE RATE PER HOUR: \$39.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked– 2, 6, 8, 9, 10, 11, 13, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift.

(Carpenters District Council)

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Office of the Comptroller, City of New York

CLASSIFICATION: CEMENT AND CONCRETE WORKER

WAGE RATE PER HOUR: \$31.90

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.90

SUPPLEMENTAL OVERTIME RATE FOR SATURDAYS: \$19.15

SUPPLEMENTAL OVERTIME RATE FOR SUNDAYS & HOLIDAYS: \$21.40

OVERTIME: (1, 2 for working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk (brick shelf), when working on the foundation and structure. 5, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22) See Holiday Legend.

SHIFT RATES: On shift work extending over a twenty-four-hour period all shifts are paid at straight time.

(Cement Concrete Workers District Council)

CLASSIFICATION: CEMENT MASON

WAGE RATE PER HOUR: \$34.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.21

***Plus \$2.50 to be allocated between hourly wage and supplemental benefit.**

Supplemental benefits are paid at double the regular hourly rate when overtime hours are worked.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

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SHIFT RATES: For an off shift day, (work at times other than the regular 8:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential.

(Local #780)

CLASSIFICATION: CORE DRILLER

WAGE RATE PER HOUR \$26.85*

CORE DRILLER HELPER: \$22.13+
First year in the industry - \$15.49
Second year in the industry - \$17.70
Third year in the industry - \$19.92

*Effective 10/17/04 - \$1.96 to be allocated between the hourly wage and supplemental benefit

+Effective 10/17/04 - \$1.71 to be allocated between the hourly wage and supplemental benefit.

SUPPLEMENTAL BENEFIT RATE PER HOUR:
\$ 11.11 (for both drillers and helpers)

OVERTIME: (2, 8,12). See Overtime Legend.

PAID HOLIDAYS: (2, 8, 9, 10, 16, 20). See Holiday Legend.

SHIFT RATES: The shift day shall be the continuous eight and one-half (8 1/2) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (1/2) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five (\$.75) cents per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 1/2) hours paid for eight (8) hours of labor and be permitted one-half (1/2) hour for mealtime.

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **DERRICKPERSON AND RIGGER - STONE**

WAGE RATE PER HOUR: \$36.31+

SUPPLEMENTAL BENEFIT RATE PER HOUR:

\$31.64*+ For work performed in Manhattan, Bronx, Brooklyn and Queens.

\$33.07*+ For work performed in Staten Island.

+Effective January 1, 2005 - \$1.67 to be allocated between the hourly wage and supplemental benefits.

NOTE!- The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct \$1.43 from the Staten Island hourly benefits rate before computing overtime.

OVERTIME: (8, 13 when any of the following holidays are worked - 2, 5, 7, 8, 9, 10, 16, 20. See Overtime and Holiday Legends.

PAID HOLIDAYS: (19 if work is performed in the A.M.) See Holiday Legend.

(Local #197)

(Contract expires June 30, 2005)

CLASSIFICATION: **DIVER**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Diver (Marine)	\$47.85	\$28.44
Diver Tender (Marine)	\$35.15	\$28.44

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OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: When three shifts are utilized each shift shall work seven and one half-hours and paid for 8 hours, allowing for one half hour for lunch.

(Carpenters District Council)

CLASSIFICATION: DOCKBUILDER - PILE DRIVER

WAGE RATE PER HOUR: \$38.77

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, and 13 when any of the following holidays are worked 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours but will be paid for 9 hours, allowing for one half hour for lunch.

(Carpenters District Council)

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CLASSIFICATION: ELECTRICIAN

(Including all low voltage cabling carrying voice, data, video or any combination thereof.)

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Electrician "A" (Regular Day)	\$42.00	\$31.93
Effective December 30, 2004	\$42.00	\$32.35
Effective May 12, 2005	\$43.00	\$33.93
Electrician "A" (Regular Day Overtime)	\$63.00	\$34.56
Effective December 30, 2004	\$63.00	\$34.98
Effective May 12, 2005	\$64.50	\$36.62
*Electrician "A" (First Shift – 8:00 a.m. to 4:30 p.m.)	\$42.00	\$31.93
Effective December 30, 2004	\$42.00	\$32.35
Effective May 12, 2005	\$43.00	\$33.93
*Electrician "A" (First Shift Overtime After 8 hours)	\$63.00	\$34.56
Effective December 30, 2004	\$63.00	\$34.98
Effective May 12, 2005	\$64.50	\$36.62
*Electrician "A" (Swing Shift – 4:30 p.m. to 12:30 a.m.)	\$49.28	\$33.37
Effective December 30, 2004	\$49.28	\$33.79
Effective May 12, 2005	\$50.45	\$35.46
*Electrician "A" (Swing Shift Overtime After 7.5 hours)	\$73.92	\$35.93
Effective December 30, 2004	\$73.92	\$36.35
Effective May 12, 2005	\$75.68	\$38.02

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*Electrician "A" (Graveyard Shift – 12:30 a.m. to 8:00 a.m.)	\$55.20	\$34.72
Effective December 30, 2004	\$55.20	\$35.14
Effective May 12, 2005	\$56.51	\$36.91
*Electrician "A" (Graveyard Shift – Overtime After 7 hours)	\$82.80	\$37.04
Effective December 30, 2004	\$82.80	\$37.46
Effective May 12, 2005	\$84.77	\$39.16

***WHEN THE STARTING TIME OF A SHIFT BEGINS AT OTHER THAN 8:00 A.M. (DAY SHIFT), 4:30 P.M. (SWING SHIFT) OR 12:30 A.M. (GRAVEYARD SHIFT) THE ENTIRE SHIFT SHALL BE PAID AT THE HIGHER SHIFT RATE.**

**Electrician "M" (First 8 hours)	\$24.30	\$12.86
Effective May 12, 2005	\$24.80	\$14.12
**Electrician "M" Overtime - (After first 8 hours)	\$36.45	\$14.38
Effective May 12, 2005	\$37.20	\$15.68

*****"M" rated work shall be defined as jobbing.**

****Jobbing** is defined as, "Electrical work of limited duration and scope, performed by an electrician who travels to various locations during the course of the workday, (may include 2 electricians for a maximum of 2 days) consisting of repairs and/or replacement of electrical equipment." Benefits include supplemental workers compensation and supplemental disability, which are paid to a worker in excess of statutory workers compensation and disability benefits. How these benefits are calculated and eligibility for these benefits is on file in the Bureau of Labor Law Determinations and Classifications Unit and will be made available to you for review upon request.

OVERTIME:

Electrician "A" - (1, 5, 7, 12). See Overtime Legend.

Electrician "M" - (2, 5, 7, 12). See Overtime Legend.

PAID HOLIDAYS: (NONE)

(Local #3)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: STREET LIGHTING WORKER

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Electro Pole Maintainer	\$27.28	\$23.20
Effective January 1, 2005	\$27.28	\$23.47
Effective May 19, 2005	\$27.93	\$24.53
Electro Pole Foundation Installer	\$31.85	\$26.07
Effective January 1, 2005	\$31.85	\$26.39
Effective May 19, 2005	\$32.61	\$27.61

OVERTIME: (1, time and one half the regular hourly for work performed after the fifth consecutive day worked, 9, 12 when any of the following holidays are worked – 2, 3, 5, 8, 9, 10, 11, 12, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #3)

CLASSIFICATION: ELEVATOR CONSTRUCTOR

<u>Construction</u>	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Elevator Constructor	\$40.89	\$19.92**

OVERTIME: For New Construction: (3, 6, 8, 13) all work performed between the hours of 3:30 P.M. and 8:00 A.M. shall be paid at the double time rate. See Overtime Legend.

OVERTIME: For work in Existing Buildings: (2, 6, 8, 13). All work performed after the regular workday and/or between the hours of 4:30 P.M. and 8:00 A.M. shall be paid at double time. See Overtime Legend.

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PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Holiday Legend.

**VACATION: Six months or more, but less than five years - 4% of gross wages earned each hour. Five years but less than 15 years - 6% of gross wages earned each hour. 15 years or more - 8% of gross wages earned each hour.

(Local #1)

(Contract expires March 16, 2005)

CLASSIFICATION: **ELEVATOR REPAIR - MAINTENANCE**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
"A" Elev. Repair Mechanic	\$30.87	\$20.46
Effective February 28, 2005	\$31.80	\$20.92
Elev. Machinist Mechanic	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"A" Elev. Winder	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"B" Elev. Repair Mechanic	\$27.92	\$18.98
Effective February 28, 2005	\$28.76	\$19.40
"A" Elev. Main. Mechanic	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"A" Elev. Machinist	\$27.92	\$16.48
Effective February 28, 2005	\$28.76	\$16.90
"B" Elev. Main. Mechanic	\$27.21	\$18.62
Effective February 28, 2005	\$28.03	\$19.03

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Office of the Comptroller, City of New York

"B" Elev. Machinist	\$24.24	\$14.64
Effective February 28, 2005	\$24.97	\$15.00
"A" Elevator Helper	\$22.88	\$13.96
Effective February 28, 2005	\$23.57	\$14.30

OVERTIME: (2, 5, 7, 12 if holiday is worked) Repair Jobs (8, 12). See Overtime Legend.

HOLIDAYS: (2, 3, 5, 8, 9, 10, 11, 12, 15, 16, 17, 20). See Holiday Legend.

For Modernization Work - regular hourly rate plus a fifteen (15%) per cent differential.

(Local #3 Elevator Division)

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Operating Engineers

Cherry pickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

WAGE RATE PER HOUR: \$43.22

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, and 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$69.15

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Maintenance Engineers

Installing, Repairing, Maintaining, Dismantling and Manning of all equipment including Steel Cutting, Bending and Heat Sealing Machines, Mechanical Heaters, Grout Pumps, Bentonite Pumps & Plants, Screening Machines, Fusion Coupling Machines, Tunnel Boring Machines Moles and Machines of a similar nature, Power Packs, Mechanical Hydraulic Jacks; all drill rigs including but not limited to Churn, Rotary Caisson, Raised Bore & Drills of a similar nature; Personnel, Inspection & Safety Boats or any boats used to perform functions of same, Mine Hoists, Whirlies, all Climbing Cranes, all Tower Cranes, including but not limited to Truck Mounted and Crawler Type and machines of similar nature; Maintaining Hydraulic Drills and machines of a similar nature; Well Point System-Installation and dismantling (Foreman plus crew of four men). After system has been installed operation on day shift only; Where ejector or recharge system is used with separate piece of equipment in conjunction with Well Point System, an additional Maintenance Engineer shall be employed on all shifts; Burning, Welding, all Pumps regardless of size and/or motor power, except River Cofferdam Pumps and Wells Point Pumps; When two or more Air Pumps are used, a Maintenance Engineer shall be employed; Operation of Accumulator for Shield-Driven Tunnels, Handling Installation, Jointing; Coupling of all permanent cast iron, steel and plastic piping; and all temporary Pipe Fitting and such other work as by custom has been performed by the Maintenance Engineer; Motorized Buggies (three or more); equipment used in the cleaning and televising of sewers, but not limited to jet-rodder/vacuum truck, vacall/vactor, closed circuit television inspection equipment; high powered water pumps, jet pumps; screed machines and concrete finishing machines of a similar nature; vermeers. A Maintenance Engineer shall also be assigned to work on Overtime, Saturdays, Sundays and Holidays when necessary. A Maintenance Engineer shall be employed on Autogrades (C.M.I.), On-site Crushing Plants, On-Site Concrete Plants, Vermeers and machines of a similar nature. A Working Maintenance Foreman shall be employed on all jobs when required and any job where a Master Mechanic is employed. He shall also be employed and act as Assistant Master Mechanic on the second and third shifts.

WAGE RATE PER HOUR: \$41.81

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95

\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) see overtime legend

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See holiday legend.

SHIFT WAGE RATE: \$66.90.

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title
Maintenance Engineer On
Base Mounted Tower Cranes

WAGE RATE PER HOUR: \$54.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) see overtime legend

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See holiday legend.

SHIFT WAGE RATE: \$86.80

CLASSIFICATION: **ENGINEER - HEAVY CONSTRUCTION**

Title
Maintenance Engineers
On Generators, Power Pack Light Towers

WAGE RATE PER HOUR: \$28.32

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$45.31

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title

Maintenance Engineer

On Pumps and Mixers including mudsucking

WAGE RATE PER HOUR: \$28.98

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$46.37

CLASSIFICATION: **ENGINEER - HEAVY CONSTRUCTION**

Title

Operating Engineer

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempster Dumpers.

WAGE RATE PER HOUR: \$39.95

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, and 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$63.92

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title

Fireperson

Steam operated Water Rigs, Steam Shovels and Cranes; Power Boilers; Pile Drivers; Derrick Boats: Plus one hour at Overtime Rate for Steam equipment. When one generator and console for Vibratory Hammer are mounted on Pile Driving Rig, one additional hour shall be paid to crew at the premium time rate. If Generator or Console for Vibratory Hammer is off machine and placed on the ground an additional crew of Local 14 and 15 shall be employed. If one compressor is used along with auxiliary equipment, Jet Pipe and Auger, the crew shall receive one additional hour at the premium time rate for mounting of such equipment. When two or more compressors are used along with auxiliary equipment, an additional two hours at the premium time rate will be paid.

WAGE RATE PER HOUR: \$39.95

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) see Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$63.92

Title

Oilers

Gradalls, Cold Planer Grader, Concrete Pumps, and their duties shall be to assist the Engineers in Oiling, Greasing and Repairing of all machines, giving signals when necessary, Chaining Buckets and Scale Boxes, Driving Truck Cranes, Driving and Operating Fuel and Grease Trucks. Plus one-half hour at Overtime rate when ordered by Employer at starting time. When three to seven Compressors are utilized in Battery it requires an Oiler. When eight to 12 Compressors are utilized in Battery it requires two Oilers.

WAGE RATE PER HOUR: \$37.89

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$60.62

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Oilers

All gasoline, electric, diesel or air operated Shovels, Draglines, Backhoes, Keystones, Pavers, Guniting Machines, Battery of Compressors, Crawler Cranes, two-person Trenching Machines.

WAGE RATE PER HOUR: \$26.86

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13). See Overtime Legend

PAID HOLIDAYS: Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). See Holiday Legend.

SHIFT WAGE RATE: \$42.98

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - STEEL ERECTION

Title

Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

WAGE RATE PER HOUR: \$42.87

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$68.59

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
<u>Oiler</u> On a Truck Crane	\$40.32	\$19.95 \$34.75 on overtime

OVERTIME: (4, 6, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$64.51

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
<u>Oiler</u> On a Crawler Crane	\$31.86	\$19.95 \$35.75 on overtime

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATES: \$50.98

CLASSIFICATION: ENGINEER - BUILDING WORK

Title

Maintenance Engineers

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights)-driving maintenance trucks and truck-mounted welding machines-all pumps (regardless of size and motor power except River Cofferdam Pumps and Well Point Pumps)-when three or more motorized concrete buggies (ride type) are utilized on the Job sites they shall be serviced, maintained and repaired by the Maintenance Engineer, skid steer machines of a similar nature including bobcat.

WAGE RATE PER HOUR: \$42.64

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - BUILDING WORK

Title

Maintenance Engineers

Maintenance Engineers on Pumps, Generators, Mixers and Heaters

WAGE RATE PER HOUR: \$33.77

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate.

Title

Oilers

All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.

WAGE RATE PER HOUR: \$39.15

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - BUILDING WORK

Title

Oilers

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors (three or more in Battery).

WAGE RATE PER HOUR: \$29.87

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate.

(LOCAL #15)

**CLASSIFICATION: FIELD ENGINEER – BUILDING
CONSTRUCTION**

(Construction of Building Projects, Concrete Superstructures, etc.)

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$43.28	\$19.00
Instrument Person	\$34.23	\$19.00
Rodperson	\$23.08	\$19.00

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Overtime Benefit Rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (1, 5 for the first seven hours worked, 6 for work performed in excess of seven hours, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 6, 7, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

(LOCAL #15-D)

CLASSIFICATION:

**CITY SURVEYOR AND CONSULTANT
ENGINEER**

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$28.75	\$11.65
Instrument Person	\$24.11	\$11.65
Rodperson	\$21.16	\$11.65

Overtime Benefit Rate - \$15.90 per hour (time and one-half) \$20.15 per hour (double time).

OVERTIME: (1, 5 for the first seven hours worked, 6 for work performed in excess of seven hours, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

LOCAL #15-D)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: FIELD ENGINEER - HEAVY CONSTRUCTION

(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)

	<u>Wage Rate</u>	<u>Supplemental Benefit Rate</u>
Party Chief	\$44.28	\$19.00
Instrument Person	\$32.34	\$19.00
Rodperson	\$28.00	\$19.00

*Overtime benefit rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (2, 5 for the first eight hours worked, 6 for work performed in excess of eight hours, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday legend.

(Local #15-D)

CLASSIFICATION: FIELD ENGINEER - STEEL ERECTION

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$43.91	\$19.00
Instrument Person	\$34.72	\$19.00
Rodperson	\$24.09	\$19.00

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

*Overtime benefit rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (2, 5 for the first eight hours worked, 6 for work performed in excess of eight hours, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20) Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

(Local #15-D)

CLASSIFICATION: OPERATING ENGINEER - ROAD AND HEAVY CONSTRUCTION

Title

Mucking Machines, Back Filling Machines, Cranes (Including but not limited to those utilizing scale boxes and mucking buckets), Paver Dual Drum.

WAGE RATE PER HOUR: \$44.99 OFF SHIFT WAGE RATE: \$71.98

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

WAGE RATE PER HOUR: \$46.63 OFF SHIFT WAGE RATE: \$74.61

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

WAGE RATE PER HOUR: \$48.12 OFF SHIFT WAGE RATE: \$76.99

Gradealls, Keystones, Cranes on land or water (with digging buckets), Bridge Cranes, Vermeer Cutter and machines of a similar nature, Trenching Machines.

WAGE RATE PER HOUR: \$46.98 OFF SHIFT WAGE RATE: \$75.17

Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

WAGE RATE PER HOUR: \$46.03 OFF SHIFT WAGE RATE: \$73.65

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways,
Land Derricks, Power Houses (Low Air Pressure Units).

WAGE RATE PER HOUR: \$43.67 OFF SHIFT WAGE RATE: \$69.87

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

WAGE RATE PER HOUR: \$35.06 OFF SHIFT WAGE RATE: \$56.10

Utility Compressors

WAGE RATE PER HOUR: \$26.99

Off Shift Compressors

WAGE RATE PER HOUR: \$34.29

Horizontal Boring Rig

WAGE RATE PER HOUR: \$41.47 OFF SHIFT WAGE RATE: \$66.35

Elevators (manually operated as personnel hoist).

WAGE RATE PER HOUR: \$38.05 OFF SHIFT WAGE RATE: \$60.88

Compressors (Portable 3 or more in battery), Driving of Truck Mounted
Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill.

WAGE RATE PER HOUR: \$29.33 OFF SHIFT WAGE RATE: \$46.93

All Drills, and Machines of a similar nature.

WAGE RATE PER HOUR: \$44.14 OFF SHIFT WAGE RATE: \$70.62

Concrete Pumps, Concrete Plant, Well Drilling Machines, Stone Crushers,
Double Drum Hoist, Power Houses (other than above).

WAGE RATE PER HOUR: \$42.70 OFF SHIFT WAGE RATE: \$68.32

Concrete Mixer

WAGE RATE PER HOUR: \$40.82 OFF SHIFT WAGE RATE: \$65.31

Boilers (High Pressure), Compressors (Portable Single or two in Battery, not
over 100 feet apart, Pumps (River Cofferdam) and Welding Machines (except
where Arc is operated by Members of Local #15), Push Button Machines, All
Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment,
Air, Hydraulic, etc.

WAGE RATE PER HOUR: \$27.16 OFF SHIFT WAGE RATE: \$43.46

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Concrete Breaking Machines, Single Drum Hoists, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

WAGE RATE PER HOUR: \$38.89 OFF SHIFT WAGE RATE: \$62.22

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

WAGE RATE PER HOUR: \$39.22 OFF SHIFT WAGE RATE: \$62.75

Tower Crane

WAGE RATE PER HOUR: \$56.75 OFF SHIFT WAGE RATE: \$90.80

CLASSIFICATION: OPERATING ENGINEER - PAVING

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

WAGE RATE PER HOUR: \$43.67 OFF SHIFT WAGE RATE: \$69.87

Asphalt Roller

WAGE RATE PER HOUR: \$42.49 OFF SHIFT WAGE RATE: \$67.98

Asphalt Plants

WAGE RATE PER HOUR: \$35.79 OFF SHIFT WAGE RATE: \$57.26

CLASSIFICATION: OPERATING ENGINEER - CONCRETE

Cranes

WAGE RATE PER HOUR: \$47.13

Compressors

WAGE RATE PER HOUR: \$27.65

Micro-traps (Negative Air Machines), Vac-All Remediation System.

WAGE RATE PER HOUR: \$38.86

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: OPERATING ENGINEER - STEEL ERECTION

Three Drum Derricks

WAGE RATE PER HOUR: \$51.64 OFF SHIFT WAGE RATE: \$82.62

Cranes, 2 Drum Derricks, Hydraulic Cranes and Fork Lifts.

WAGE RATE PER HOUR: \$49.58 OFF SHIFT WAGE RATE: \$79.33

Compressors, Welding Machines.

WAGE RATE PER HOUR: \$30.41 OFF SHIFT WAGE RATE: \$48.66

Compressors - Public Works Only (Not Combined with Welding Machine).

WAGE RATE PER HOUR: \$28.99 OFF SHIFT WAGE RATE: \$46.38

CLASSIFICATION: OPERATING ENGINEER - BUILDING WORK

Forklifts, House Cars, Rack a Pinion, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

WAGE RATE PER HOUR: \$41.41

Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), House Car (settlement basis only), All Engines irrespective of Power (Power-Pac) used to drive Auxilliary Equipment, Air, Hydraulic, etc. Boilers.

WAGE RATE PER HOUR: \$31.43

Double Drum

WAGE RATE PER HOUR: \$46.56

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

WAGE RATE PER HOUR: \$49.36

Dismantling and Erection of Cranes, Relief Engineer.

WAGE RATE PER HOUR: \$45.74

4 Pole Hoist, Single Drum Hoists.

WAGE RATE PER HOUR: \$45.01

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT RATES: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work **ONLY:** Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Local #14)

CLASSIFICATION: FLOOR COVERER

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

WAGE RATE PER HOUR: \$39.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 17, 20) See Overtime and Holiday legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

SHIFT RATES: Two shifts may be utilized with the first shift working 8:00 A.M. to the end of the shift at the straight time of pay. The second shift will receive one hour at double time rate for the last hour of the shift. (eight for seven, nine for eight).

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: GLAZIER

(New Construction, Remodeling, and Alteration)

WAGE RATE PER HOUR: \$33.60

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.92

Supplemental Benefit Overtime Rate: \$28.42

OVERTIME: (3, 6, 8, An optional 8th hour can be worked at straight time rate. 13 when any of the following are holidays are worked – 2, 6, 8, 9, 10, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAY: (1). See Holiday Legend.

SHIFT RATES: Shifts shall be any 7 hours beyond 4:00 P.M. for which the glazier shall receive 8 hours pay for 7 hours worked.

(Local #1281)

(Contract expires April 30, 2005)

CLASSIFICATION: GLAZIER - Repair & Maintenance

For the Installation of Glass - All repair and maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$100,000. Except where enumerated (i.e. plate glass windows) does not apply to non-residential buildings.

Craft Jurisdiction for repair, maintenance and fabrication:

Plate glass replacement, Residential glass replacement, Residential mirrors and shower doors, Storm windows and storm doors, Residential replacement windows, Herculite door repairs, Door closer repairs, Retrofit apartment house (non commercial buildings), Glass tinting.

WAGE RATE PER HOUR: \$20.55

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$13.04

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8, and 12 in addition to a day's pay at the regular straight time rate) See Overtime Legend.

PAID HOLIDAY: (2, 6, 8, 9, 10, 16, 17, and 20). See Holiday Legend.

(Local #1281)

(Contract expires April 30, 2005)

CLASSIFICATION: HEAT AND FROST INSULATOR

WAGE RATE PER HOUR: \$40.36+

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.86+

+Effective January 3, 2005 - \$2.20 to be allocated between the hourly wage and supplemental benefit.

Note: double time shall be paid for supplemental benefits during overtime work.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, and 20 - triple time the regular hourly rate if Labor Day is worked). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The First shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours and receive seven times the regular straight time hourly rate plus fourteen percent wage and benefit premium.

Off hour work in occupied or retail buildings may be worked on weekdays with an increment of \$1.00 per hour and eight hours pay for seven (7) hours worked. Double time will apply for over seven (7) hours on weekdays and on weekends or holidays.

(Local #12)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: HOUSE WRECKER

WAGE RATE PER HOUR:

Tier A# - \$28.00*

Tier B# - \$17.70*

SUPPLEMENTAL BENEFIT RATE PER HOUR:

Tier A# - \$14.84*

Tier B# - \$ 8.65*

*Effective January 1, 2005 - \$.60 to be allocated between the hourly wage and supplemental benefits.

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

#On all work sites the first, second, eleventh and every third House Wrecker thereafter shall be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th, 17th etc). Other House Wreckers shall be Tier B House Wreckers.

(Mason Tender District Council)

CLASSIFICATION: IRON WORKER - ORNAMENTAL

WAGE RATE PER HOUR: \$37.24#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$31.06#

#Effective January 1, 2005 - \$2.35 to be allocated between the hourly wage and supplemental benefit.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

OVERTIME: (1 – for a maximum of two hours on any regular work day (the 8th and 9th hour) and double time shall be paid for all work on a regular work day thereafter, 5 – for the first seven hours of work and double time shall be paid for all work on a Saturday thereafter, 8, 13 when work is performed on any of the following holidays – 2, 7, 8, 9, 10, 16, 20). See Overtime and Holiday legends.

HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: for off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

CLASSIFICATION: IRON WORKER - STRUCTURAL

WAGE RATE PER HOUR: \$37.15#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$40.13#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$40.51# (Staten Island)

#Effective January 1, 2005 - \$2.25 to be allocated between the hourly wage and supplemental benefit.

Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8, 13 when work is performed on any of the following holidays – 2, 7, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on these days). See Holiday Legend.

SHIFT RATES: Monday through Friday – First Shift: First eight hours are paid at straight time, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter

(Local #40 & #361)

CLASSIFICATION: LABORER

(BUILDING, CONCRETE, EXCAVATING AND COMMON)

Excavation and foundation work for buildings, landscaping in connection with building projects (original installation and re-construction), heavy construction and engineering work, landscaping in connection with heavy construction and engineering work (work performed on projects OTHER than building foundations including but not limited to pollution plants, sewers, parks, subways, bridges, highways, etc. (original installation and re-construction))

WAGE RATE PER HOUR: \$32.44

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$17.56

PAID HOLIDAYS: (10, 16) See Holiday Legend.

OVERTIME: (2, 5, 8, 13 when work is performed on any of the following holidays – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

SHIFT RATES: When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half-hours, but shall be paid for eight hours of labor, and be permitted one half hour for lunch.

(Local #731)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: LANDSCAPING

(Gardening in connection with the planting of street trees and the planting of trees in Parks but not as part of or in connection with other construction or reconstruction projects.)

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Gardener	\$ 13.95	\$ 1.42

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit rate.

CLASSIFICATION: MARBLE MECHANIC

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Marble Setter	\$39.00	\$22.00
Effective January 1, 2005	\$40.15	\$22.40
Marble Finisher	\$33.18	\$21.72
Effective January 1, 2005	\$33.68	\$22.27
Marble Polisher	\$28.98	\$16.58

NOTE: Supplemental Benefit contributions are to be made at the applicable overtime rates.

OVERTIME: (1 or 2, 5, 8, 13 when work is performed on any of the following holidays—2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #7)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: MASON TENDER

WAGE RATE PER HOUR: \$28.00#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$15.99#

#Effective January 1, 2005, \$.75 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The Employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for Seven (7) hours work at the straight time wage rate or nine (9) hours paid for eight (8) hours' work, at the straight time wage rate. In addition, members of the second shift shall be allowed one-half (1/2) hour to eat, with this time being included in the seven (7) or eight (8) hours of work. In order to work the second shift, there must be a first shift, and shift work must be for a minimum of three (3) contiguous weekdays duration.

(Mason Tenders District Council – Local #79)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION:

MASON TENDER

(INTERIOR DEMOLITION WORKER)

Interior demolition work, shall include but not be limited to: The erection, building, moving, servicing and dismantling of all enclosures, scaffolding, barricades, protection and site safety structures etc. , on Interior Demolition jobs; the operation and servicing of all tools and equipment normally used in Interior Demolition work, including, without limitation, hand tools electric and pneumatic guns and drills; the demolition of walls, partitions, ceilings, suspension systems, floorings, concrete slabs with steel framing (where such slabs are removed in their entirety), storefronts, facades, roofing, parapets, sidewalks, curbs, and vaults (except for full depth saw cutting and core drilling of slabs); the dropping of duct work, electrical piping, plumbing piping, sprinkler piping, toilet fixtures, light fixtures, radiators and air conditioning equipment, where removals are in their entirety (i.e., a complete gut) and after (but not including) proper disconnection's and capping are performed by others; the carting of all such demolished and/or dropped walls, partitions, ceilings, suspension systems, flooring, concrete slabs with steel framing, storefronts, facades, roofing, parapets, sidewalks, curbs, vaults, duct work, electrical piping, plumbing piping, sprinkler piping, toilet fixtures, light fixtures, radiators and air conditioning equipment; the removal of non-hazardous fire proofing (such as required for beam pockets), window treatment (such as blinds, drapes and hardware), including related work performed by licensed burners and related fire watch duties; the removal of stairs, escalators, elevators, dumbwaiters, and conveyors; the sorting, salvaging, labeling, packaging and movement of such materials for disposal; the clean up of the work site and all other work and stand-by time incidental to the demolition, dropping, carting and removal of such materials; and the performance of hand excavation work and duties by flagmen on job sites where work is performed under this job specification.

WAGE RATE PER HOUR:

Tier A# - \$27.80

Tier B# - \$17.50

SUPPLEMENTAL BENEFIT RATE PER HOUR:

Tier A# - \$14.44

Tier B# - \$ 8.25

OVERTIME: (2, 7, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: None

On Interior Demolition job sites 33 1/3 % of the employees shall be classified as Tier A Interior Demolition Workers and 66 2/3 % shall be classified as Tier B Interior Demolition Workers; provided that the employer may employ more than 33 1/3 % Tier A Interior Demolition Workers on the job site. Where the number of employees on a job site is not divisible by 3, the first additional employee (above the number of employees divisible by three) shall be a Tier B Interior Demolition Worker, and the second additional employee shall be a Tier A Interior Demolition Worker.

(Mason Tenders District Council)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: METALLIC LATHER

WAGE RATE PER HOUR: \$34.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$33.03

Supplemental benefits for overtime are paid at the appropriate overtime rate.

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 5, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half is worked on these days). See Holiday Legend.

SHIFT RATES: There shall be either two (2) or three (3) shifts, each shift shall be eight (8) hours with nine (9) hours pay, including one half (1/2) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00 A.M. The first consecutive seven (7) hours shall be at straight time with a differential of twelve (\$12.00) dollars per hour. Fringes shall be paid at the straight time rate.

(Local #46)

CLASSIFICATION: MILLWRIGHT

WAGE RATE PER HOUR: \$37.55

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$32.94

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

PAID HOLIDAYS: (19, 22 if a half day is worked on these days). See Holiday Legend.

SHIFT RATES: The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one-half (1/2) hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

CLASSIFICATION: MOSAIC MECHANIC

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Mosaic & Terrazzo Mechanic	\$33.98	\$21.25
Mosaic & Terrazzo Finisher	\$32.67	\$21.25
Machine Operator Grinder	\$32.67	\$21.25

Supplemental benefits for overtime to be paid at the rate of \$26.89 per hour.

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked - 2, 5, 7, 9, 10, 11, 15, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Contract expired June 30, 2003)

(Local #7)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PAINTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Brush & Roller	\$32.25	\$16.67
Spray & Scaffold	\$35.25	\$16.67
Decorative	\$35.25	\$16.67
Sandblast	\$35.25	\$16.67

Supplemental benefits are to be paid at the appropriate straight time and overtime (either time and one half or double time) rate.

OVERTIME: (1, 5, 7, 12 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Evening shift - 4:30 P.M. to 12 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one-half the regular base rate of pay.

(District Council of Painters)

(Contract expires April 30, 2005)

CLASSIFICATION: PAPERHANGER

WAGE RATE PER HOUR: \$34.45

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.78

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Supplemental benefits are to be paid at the appropriate straight time and overtime (either time and one half or double time) rate.

OVERTIME: (1, 5, 7, 12 when any of the following holidays are worked - 2, 6, 8, 9, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.

(District Council of Painters)

(Contract expires April 30, 2005)

CLASSIFICATION: **STRIPERS**

WAGE RATE PER HOUR:

<u>Senior Classifications</u>	
Striper (paint):	\$23.06
Effective June 1, 2005	\$23.64
*Striper (helper):	\$20.84
Effective June 1, 2005	\$21.36
Linerperson (thermoplastic):	\$27.79
Effective June 1, 2005	\$28.49
<u>Junior Classifications</u>	
*Striper (paint):	\$16.67
Effective June 1, 2005	\$17.09
*Striper (helper):	\$13.89
Effective June 1, 2005	\$15.84

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

*Linerperson (thermoplastic): \$19.45
Effective June 1, 2005 \$19.94

*These titles pending apprentice application to the New York State Department of Labor.

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$6.38
Effective June 1, 2005 \$7.14

PAID HOLIDAYS: (8, 9, 10, 11, 15, 16). See Holiday Legend.

OVERTIME: (2, 12 as well as one day of holiday pay). See Overtime Legend. Work performed on an employee's 6th consecutive day of work day shall be paid at the rate of time and one-half. All work performed on an employee's 7th consecutive day shall be paid at a rate of double time. The first eight hours of work performed on a Saturday and/or Sunday as the result of a consistent and regular five-day work schedule shall not be compensated at the overtime rate. In the case of work on a Friday which does not constitute an employee's 6th or 7th consecutive day of work, such Friday shall be paid at an employee's regular rate of pay provided that a majority of the hours worked that day are worked on Friday and not on the following Saturday.

SHIFT RATES: 10% night shift premium differential for all work performed after 9:00 P.M. and before 5:00 A.M.

VACATIONS:

- A. ALL EMPLOYEES EMPLOYED FOR A PERIOD OF TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR SHALL RECEIVE TWO WEEKS VACATION WITH FULL PAY.
- B. EACH EMPLOYEE EMPLOYED FOR A PERIOD OF LESS THAN TWENTY SIX WEEKS IN A CALENDAR YEAR SHALL RECEIVE VACATION PAY BASED ON SEVEN PERCENT OF HIS TOTAL BASE PAY.
- C. EMPLOYEES WITH AT LEAST TEN YEARS OF SERVICE WITH THE EMPLOYER SHALL RECEIVE THREE WEEKS VACATION WITH FULL PAY IF EMPLOYED FOR TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR.
- D. ALL EMPLOYEES WITH AT LEAST TWENTY YEARS OF SERVICE WITH THE EMPLOYER SHALL RECEIVE FOUR WEEKS OF VACATION WITH PAY IF EMPLOYED TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR.

(Local #8A-28A)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PAINTER - STRUCTURAL STEEL

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Painters on Structural Steel	\$40.25	\$23.45
Effective October 1, 2004	\$42.00	\$24.77
Power Tool	\$46.25	\$23.45
Effective October 1, 2004	\$48.00	\$24.77

OVERTIME: (1, 5, 7, 13 when any of the following holidays are worked - 2, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Regular hourly rates plus a ten per cent (10%) differential.

(Local #806)

CLASSIFICATION: SIGN PAINTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Designer	\$32.00	\$ 9.66
Journey person	\$29.75	\$ 9.66

OVERTIME: (2, 5, 7, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 6, 8, 9, 10, 11, 12, 16, 17, 20). See Holiday Legend.

SHIFT RATES: all work performed outside the regular 8 hour work day (either 7:00 A.M to 3:30 P.M or 8:00 A.M. to 4:30 P.M) shall be paid at time and one half the regular hourly rate.

(Local 8A-28A)

(Contract expires March 31, 2005)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PAVER AND ROADBUILDER – ASPHALT

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Asphalt Raker	\$35.36	\$20.45
Tamper	\$32.92	\$20.45
ScreedBperson, Micro Paver	\$35.73	\$20.45

PAID HOLIDAYS: (8, 9, 10, 11, 12, 15, and 16). See holiday legend.

OVERTIME: (2, 5, 8) If employees work on holiday #2, #6, and #20 they receive the single time the regular applicable hourly rate plus one days pay and no pay if the day is not worked. See Overtime and Holiday Legend.

SHIFT RATES: Night Work - the regular applicable hourly rate plus a 25% differential.

(Local #1018)

CLASSIFICATION: PAVER AND ROADBUILDER - CONCRETE

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Form Setter	\$34.14	\$20.45
Laborer (Paving & Roadbuilding)	\$31.04	\$20.45

PAID HOLIDAYS: (8, 9, 10, 11, 12, 16) See Holiday Legend.

OVERTIME: (2, 5, 8) if employees work on holiday #2, and #20 they receive the single time the regular applicable hourly rate plus one days pay and no pay if the day is not worked. See Overtime and Holiday Legend.

SHIFTS: A single shift shall be a continuous nine (9) hours, starting at 8:00 A.M. The mealtime shall be one (1) hour, but it may be curtailed by one-half (1/2) hour. When two (2) shifts are employed the work period for each shift shall be a continuous eight (8) hours. When three (3) shifts are employed, each shift will work seven and one-half (7 ½) hours but will be paid for eight (8) hours, since only one-half (1/2) is allowed for mealtime. When two (2) or more shifts are employed single time will be paid for each shift.

SHIFT RATES: Night Work - the regular applicable hourly rate plus a 15% differential.

(Local #1010)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLASTERER

WAGE RATE PER HOUR: \$32.45
Effective August 4, 2004 \$33.24

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.90 for Manhattan, Bronx
and Staten Island.
Effective February 2, 2005 \$21.69

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$17.51 for Brooklyn and
Queens.
Effective February 2, 2005 \$18.30

OVERTIME: (1, 5, 8, 9, 13 when any of the following holidays are worked – 2,
3, 6, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: When it is not possible to conduct alteration work during
regular work hours, in a building occupied by tenants, said work shall
proceed on a shift basis: however work over seven (7) hours in any twenty
four (24) hour period, the time after seven (7) hours shall be considered
overtime.

The second shift shall start at a time between 3:30 p.m. and 7:00 p.m. and
shall consist of seven (7) working hours and shall receive eight (8) hours of
wages and benefits at the straight time rate. The workers on the second shift
shall be allowed one-half (1/2) hour to eat with this time being included in the
seven (7) hours of work.

(Local #530)

CLASSIFICATION: PLASTERER TENDER

WAGE RATE PER HOUR: \$28.00#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$15.99#

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

#Effective January 1, 2005 \$.80 to be allocated between hourly wage and supplemental benefits.

OVERTIME: (2, 5, 8, 9, and 13 when any of the following holidays are worked 2, 5, 8, 9, 10, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: When work commences outside regular work hours, workers receive an hour additional (differential) wage and supplement payment. Eight hours pay for seven hours work or nine hours pay for eight hours work.

(Mason Tender District Council)

CLASSIFICATION: PLASTERER – SKIMCOATER

WAGE RATE PER HOUR: \$31.00
Effective February 2, 2005 \$32.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$15.55
Effective February 2, 2005 \$16.30

OVERTIME: (4, 6, 8, 9, 13 when any of the following holidays are worked – 2, 3, 5, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

When performing alteration, repair or rehabilitation work in an occupied building and when it is not possible to perform work during regular work hours, (work shall proceed during off hours) but starting no later than 8:30 P.M. see shift rate below for rate of pay.

SHIFT RATE: Eight hours pay for seven hours of work at the straight time wage and supplemental benefit rate or nine hours pay for eight hours of work at the straight time wage and supplemental benefit rate. The lunch period shall be paid.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

THE WORK OF SKIMCOATING OR APPLYING ANY OTHER SIMILAR PREPARATION ON NEW PARTITIONS, WALLS OR CEILINGS IN NEWLY CONSTRUCTED OR RENOVATED STRUCTURES IS ASSIGNED TO THE PLASTERER.

THE WORK OF SKIMCOATING OR APPLYING ANY OTHER SIMILAR PREPARATION ON PREVIOUSLY PAINTED OR OTHERWISE FINISHED PARTITION WALLS OR CEILINGS IS ASSIGNED TO THE PAINTER.

WHEN SUCH SKIMCOATING IS REQUIRED TO CORRECT SURFACE IMPERFECTIONS IN PREPARATION FOR PAINTING AND/OR WALL COVERING IT IS THE WORK OF THE PAINTER.

(Local #530)

CLASSIFICATION: **POINTER - WATERPROOFER, CAULKER
MECHANIC (EXTERIOR BUILDING RENOVATION)**

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

*Residential Mechanic

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

*RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLUMBER

WAGE RATE PER HOUR: \$41.91

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$26.45

(Note: double time shall be paid for supplemental benefits during overtime work).

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Double time shall be paid for all hours worked outside the regular workday (seven hours of work between the hours of 7:00 A.M. and 3:30 P.M.), except when directly specified in New York City Transit Authority and/or New York City Department of Transportation contracts. Contact the office for rates.

(Plumbers Local #1)

(Contract expired June 30, 2004)

CLASSIFICATION: PLUMBER

(RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)

WAGE RATE PER HOUR: \$ 29.96

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$18.04

OVERTIME: (4, 6, 8, and 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Double time shall be paid for all hours worked outside the regular workday (seven hours of work between the hours of 7 A.M. and 3:30 P.M.)

(Plumbers Local #1)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **PLUMBER**

***MECHANICAL EQUIPMENT AND SERVICE**

*(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

WAGE RATE PER HOUR: \$24.38

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 9.36

OVERTIME: (2, 5, 7, 12 if any of the following holidays are worked: 2, 6, 8, 9, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Time and one half the regular hourly rate to be paid for all work outside the regular 8:00 A.M. to 4:30 P.M. workday.

(Plumbers Local # 1)

(Contract expired September 30, 2001)

CLASSIFICATION: **PLUMBER: PUMP & TANK**

(INSTALLATION and MAINTENANCE)

WAGE RATE PER HOUR: \$39.87

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$24.54

OVERTIME: (2, 5, 7, and 12 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate.

(Plumbers Local #1)

(Contract expires August 9, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLUMBER LABORER - PIPE LAYER
(CAST IRON, STEEL SEWER)

WAGE RATE PER HOUR: \$32.44
SUPPLEMENTAL BENEFIT RATE PER HOUR: \$17.56

PAID HOLIDAYS: (10, 16) See Holiday Legend.

OVERTIME: (2, 5, 8, and 13 when work is performed on any of the following holidays – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

SHIFT RATES: when two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

CLASSIFICATION: ROOFER

WAGE RATE PER HOUR: \$32.08
SUPPLEMENTAL BENEFIT RATE PER HOUR: \$21.32

OVERTIME: (1, 5, 7, an eighth hour can be worked at straight time, 12 when any of the following holidays are worked – 2, 6, 8, 9, 10, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

**SHIFT RATES: Second shift - Regular hourly rate plus a 10% differential.
Third shift - Regular hourly rate plus a 15% differential.**

(Local #8)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION:

SANDBLASTER

(EXTERIOR BUILDING RENOVATION)

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

***Residential Mechanic**

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

***RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.**

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

CLASSIFICATION:

STEAMBLASTER

(EXTERIOR BUILDING RENOVATION)

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

***Residential Mechanic**

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

***RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.**

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

CLASSIFICATION: SHEET METAL WORKER

WAGE RATE PER HOUR: \$39.49**

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.48 for straight time hours worked.
\$54.96 for overtime hours worked.**

***Effective August 1, 2004 – Plus \$2.00 to be allocated between the hourly wage and supplemental benefit.**

+Effective February 1, 2005 - \$2.00 to be allocated between the hourly wage and supplemental benefit.

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work that can only be performed outside regular working hours (seven hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second Shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

(Local #28)

CLASSIFICATION: Sheet Metal Specialty Worker*

(Decking & Siding)

*The first three workers to perform this work must be paid at the rate of the Sheet Metal Worker. The fourth worker shall be paid at this Specialty Worker Rate. One Specialty Worker for each Sheet Metal Worker can be utilized thereafter.

WAGE RATE PER HOUR: \$34.93

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$13.35 for straight time
hours worked.
\$16.98 for overtime
hours worked.**

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 3, 6, 8, 9, 10, 11, 15, 16, 20). See Overtime and Holiday legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #28)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **SIGN ERECTOR**

(Sheet Metal, Plastic, Electric, and Neon)

WAGE RATE PER HOUR: \$36.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.49

OVERTIME: (1, 5, 7) (12 when any of the following holidays are worked 2, 5, 8, 9, 10, 11, 12, 16, 17, and 20). See Overtime and Holiday Legend.

SHIFT RATE: time and one half the regular hourly rate is to be paid for all hours worked outside the regular workday either (7:00 A.M. through 2:30 P.M.) or (8:00 A.M. through 3:30 P.M.).

(Local #137)

(Contract expired June 30, 2004)

CLASSIFICATION: **STEAMFITTER**

WAGE RATE PER HOUR: \$40.82#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.57#

Overtime supplemental benefit rate: \$59.00

#Effective December 29, 2004 – \$2.25 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work performed between 3:30P.M. and 7:00A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

FOR HEATING, VENTILATING, AIR CONDITIONER AND MECHANICAL PUBLIC WORKS CONTRACTS WITH A DOLLAR VALUE NOT TO EXCEED \$7,500,000 AND FOR FIRE PROTECTION/SPRINKLER PUBLIC WORKS CONTRACTS NOT TO EXCEED \$750,000.

OVERTIME: (4, 6, 8, and 13).

SHIFT RATES: May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a thirty percent premium together with fringe benefits.

ON TRANSIT AUTHORITY PROJECTS, WHERE WORK IS PERFORMED IN THE VICINITY OF TRACKS ALL SHIFT WORK ON WEEKENDS AND HOLIDAYS MAY BE PERFORMED AT THE REGULAR SHIFT RATES.

(Local #638)

CLASSIFICATION: STONE MASON - SETTER

WAGE RATE PER HOUR: \$39.98

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.68

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 5, 7, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19 if a half day is worked). See Holiday Legend.

SHIFT RATES: for all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: TAPER

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Drywall Taper	\$34.32	\$16.09
Overtime Rate	\$51.48	\$23.89
Effective July 7, 2004	\$34.82	\$16.83
Overtime Rate	\$52.23	\$24.75

OVERTIME: (1, 5, 7) See Overtime Legend.

PAID HOLIDAYS: (19, 22). See Holiday Legend. Also time and one half the regular rate is due when the following holidays are worked - (2, 5, 7, 8, 9, 11, 16, 20). See Holiday Legend.

SHIFT RATES: time and one half the regular rate outside the regular work hours (8:00 A.M. through 3:30 P.M.).

(Local #1974)

CLASSIFICATION: TEAMSTER

<u>Title</u>	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Automobile Chauffeur (Dump Truck Chauffeur)	\$30.69	\$23.60
Heavy Equipment Trailer Driver	\$32.19	\$23.60
Euclid & Turnapull Operator Six Wheeler (3 Axle) Tractors & Trailers	\$31.25	\$23.60
Boom Truck Driver	\$31.69	\$23.60
	\$31.94	\$23.60

PAID HOLIDAYS: (2, 6, 8, 9, 10, 11, 12, 15, 16, 20). Employees working two (2) days in the calendar week in which the holiday falls are to be paid for these holidays, provided they shape each remaining workday during that calendar week). See Holiday Legend.

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8,) (13 for holidays #6, #11, #12, #15), (14 for holidays #2, #8, #9, #10, #13, #16, #20). See Overtime and Holiday Legends.

FOR WAGE RATES AND BENEFITS FOR HOURS GREATER THAN FORTY MONDAY – FRIDAY AND/OR WEEKEND RATES AND BENEFITS CONTACT THIS OFFICE.

(Local #282)

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Redi-Mix Driver (Sand & Gravel)	\$29.01	\$24.55

PAID HOLIDAYS: (2, 6, 8, 9, 10, 11, 12, 15, 16, 20) (Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week). See Holiday Legend.

OVERTIME: (2, 5, 8, (13 for holidays #6, #11, #15), (14 for holidays #2, #8, #9, #10, #16, #20). See Overtime and Holiday Legend.

(Local #282)

Office of the Comptroller, City of New York

CLASSIFICATION: TELECOMMUNICATION WORKER

Telephone Installation Only

Telecommunication Worker: \$30.45
Effective August 1, 2004 \$31.06

SUPPLEMENTAL BENEFIT RATE PER HOUR :(Manhattan, Bronx, Brooklyn, Queens)

\$ 11.69
Effective January 1, 2005 \$ 12.13

(Staten Island Only)

\$ 11.14
Effective January 1, 2005 \$ 11.58

VACATION:

- After 6 months, one week.
- After 12 months, two weeks;
- After two or more but less than seven years, two weeks.
- After seven or more but less than 15 years, three weeks.
- After 15 years or more but less than 25 years, four weeks.

PAID HOLIDAYS: (2, 4*, 5, 8, 9, 10, 11, 12, 15, 16, 20)*employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday. See holiday legend.

SHIFT RATES: for any workday that starts before 8 A.M. or ends after 6:00 P.M. there are a 10% differential for the applicable telecommunication worker's hourly rate.

INCIDENTAL ABSENCE DUE TO PERSONAL ILLNESS:

An employee with two or more years of net credited service at the beginning of his absence shall be paid for all incidental absence due to personal illness. Incidental absence shall be understood to be an absence on scheduled working days occurring within a period of seven consecutive calendar days or less beginning with the first day of absence.

OVERTIME: (1, 5, 7, 12 plus a days pay for the holiday). See Overtime Legend.

(C.W.A.)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: TILE LAYER – SETTER

WAGE RATE PER HOUR: \$36.42
Effective December 1, 2004 \$37.42
Effective June 1, 2005 \$38.88

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.55
Effective December 1, 2004 \$21.21

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

CLASSIFICATION: TILE FINISHER

WAGE RATE PER HOUR: \$25.74

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$18.48

OVERTIME: (1, 6, 8, 13 when any of the following holidays are worked - 2, 5, 7, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Contract expired June 1, 2003)

(Local #7)

Office of the Comptroller, City of New York

CLASSIFICATION: TIMBERPERSON

WAGE RATE PER HOUR: \$35.38

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours but will be paid for 9 hours, allowing for one half hour for lunch.

(Local #1536)

CLASSIFICATION: TUNNEL WORKER

Compressed Air Rates

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefits Per Hour</u>
Blasters, Mucking Machine Operators	\$34.10	\$35.45
Tunnel Workers	\$32.89	\$34.33
Top Nipper	\$32.28	\$33.71

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Outside Lock Tender,
Outside Gauge Tender,
Muck Lock Tender \$31.70 \$33.11

Bottom Bell & Top Bell
Signal Person: Shaft
Person \$31.70 \$33.11

Changehouse Attendant:
Powder Watchperson \$27.12 \$31.67

PAID HOLIDAYS : (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, and 20). See Holiday Legend.

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

CLASSIFICATION: **TUNNEL WORKERS**

Free Air Rates

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefits Per Hour</u>
Blasters	\$32.53	\$33.92
Tunnel Workers	\$31.11	\$32.47
All Others	\$28.74	\$30.05

PAID HOLIDAYS : (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, and 20). See Holiday Legend.

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

For Repair-Maintenance Work on Existing Equipment and Facilities - (2, 5, 7, 13). See Overtime Legend.

(Local #147)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **WELDER**

**TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE
PERFORMING THE WORK.**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

**§220 PREVAILING APPRENTICESHIP RATES &
RATIOS**

APPENDIX # 1

JULY 1, 2004 – JUNE 30, 2005

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
§220 PREVAILING APPRENTICESHIP RATES & RATIOS
APPENDIX # 1

<u>Asbestos Handler (Local 78)</u>	
Wage Rate Per Hour:	
First 1000 Hours:	78% of Journeyperson rate
Second 1000 Hours:	80% of Journeyperson rate
Third 1000 Hours:	83% of Journeyperson rate
Fourth 1000 Hours:	89% of Journeyperson rate
Supplemental Benefit Rate Per Hour:	\$6.95
Ratio of Apprentice Journeyperson:	1 to 1, 1 to 3

<u>Boilermaker</u>	
Wage Rate Per Hour:	
First Year:	65% of Journeyperson's rate
Second Year:	
1 st Six Months:	70% of Journeyperson's rate
2 nd Six Months:	75% of Journeyperson's rate
Third Year:	
1 st Six Months:	80% of Journeyperson's rate
2 nd Six Months:	85% of Journeyperson's rate
Fourth Year:	
1 st Six Months:	90% of Journeyperson's rate
2 nd Six Months:	95% of Journeyperson's rate
Supplemental Benefit Rate Per Hour:	
First Year:	\$18.65 (Effective September 1, 2005 - \$19.41)
Second Year:	
1 st Six Months:	\$19.67 (Effective September 1, 2005 - \$20.48)
2 nd Six Months:	\$20.68 (Effective September 1, 2005 - \$21.55)
Third Year:	
1 st Six Months:	\$21.70 (Effective September 1, 2005 - \$22.63)
2 nd Six Months:	\$22.71 (Effective September 1, 2005 - \$23.70)
Fourth Year:	
1 st Six Months:	\$23.72 (Effective September 1, 2005 - \$24.78)
2 nd Six Months:	\$24.75 (Effective September 1, 2005 - \$25.85)
Ratio of Apprentice to Journeyperson:	1 to 1, 1 to 4

Appendix #1 cont'd.

Bricklayer

Wage Rate Per Hour:

First 750 Hours:	50% of Journeyperson's rate
Second 750 Hours:	60% of Journeyperson's rate
Third 750 Hours:	70% of Journeyperson's rate
Fourth 750 Hours:	80% of Journeyperson's rate
Fifth 750 Hours:	90% of Journeyperson's rate
Six 750 Hours:	95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$12.38

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Carpenter

Wage Rate Per Hour:

First Year:	40% of Journeyperson's rate
Second Year:	50% of Journeyperson's rate
Third Year:	65% of Journeyperson's rate
Fourth Year:	80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Cement and Concrete Worker

First Year:	1000 hours	50% of Journeyperson's rate
Second Year:	1000 hours	65% of Journeyperson's rate
Third Year:	1000 hours	75% of Journeyperson's rate
Fourth Year:	1000 hours	85% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:	\$ 8.92
Second Year:	\$15.36
Third Year:	\$15.81
Fourth Year:	\$16.26

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Cement Mason

Wage and Supplemental Benefit Rate Per Hour:

First Year: 50% of Journeyperson's rate

Second Year: 60% of Journeyperson's rate

Third Year: 70% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Derrickperson & Rigger (stone)

First Year: 50% of Journeyperson's rate

Second Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 80% of Journeyperson's rate

Third Year: 90% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: 50% of Journeyperson's rate

Second Year: 75% of Journeyperson's rate

Third Year: 75% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Dockbuilder/Pile Driver

Wage Rate Per Hour:

First Year: 40% of Journeyperson's rate

Second Year: 50% of Journeyperson's rate

Third Year: 65% of Journeyperson's rate

Fourth Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Appendix #1 cont'd

Electrician

Wage Rate Per Hour:

First Year:	\$12.75
Effective May 12, 2005	\$13.25
Second Year:	\$15.55
Effective May 12, 2005	\$16.05
Third Year:	\$17.65
Effective May 12, 2005	\$18.15
Fourth Year:	\$19.60
Effective May 12, 2005	\$20.10

Overtime Wage Rate Per Hour

For "A" rated Apprentices (work in excess of 7 hours per day) and
For "M" rated Apprentices (work in excess of 8 hours per day):

First Year:	\$19.13
Effective May 12, 2005	\$19.88
Second Year:	\$23.33
Effective May 12, 2005	\$24.08
Third Year:	\$26.48
Effective May 12, 2005	\$27.23
Fourth Year:	\$29.40
Effective May 12, 2005	\$30.15

Supplemental Benefit Rate Per Hour:

First Year:	\$ 9.87
Effective May 12, 2005	\$10.47
Second Year:	\$11.53
Effective May 12, 2005	\$12.19
Third Year:	\$12.78
Effective May 12, 2005	\$13.48
Fourth Year:	\$13.93
Effective May 12, 2005	\$14.69

Overtime Supplemental Benefit Rate Per Hour

For "A" rated Apprentices (work in excess of 7 hours per day) and
For "M" rated Apprentices (work in excess of 8 hours per day):

First Year:	\$10.68
Effective May 12, 2005	\$11.30
Second Year:	\$12.50
Effective May 12, 2005	\$13.20
Third Year:	\$13.88
Effective May 12, 2005	\$14.62
Fourth Year:	\$15.16
Effective May 12, 2005	\$15.95

Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3

Appendix #1 cont'd

Elevator (Constructor)

Wage Rate Per Hour:

First Year: 45% of Journeyperson rate
Second Year: 55% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 75% of Journeyperson rate
Fifth Year: 75% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$14.26
Second Year: \$15.44
Third Year: \$16.43
Fourth Year: \$17.42
Fifth Year: \$17.42

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2

Floor Coverer

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1

Glazier

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 60% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$ 6.95
Second Year: \$14.04
Third Year: \$15.81
Fourth Year: \$19.37

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Heat & Frost Insulator

Wage and Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson's rate
Second Year: 60% of Journeyperson's rate
Third Year: 70% of Journeyperson's rate
Fourth Year: 80% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Iron Worker (Structural)

Wage Rate Per Hour:

1 st Six Months	\$19.40
7- 18 months	\$20.00
19 - 36 months	\$20.60

Supplemental Benefit Rate Per Hour: \$27.18

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Iron Worker (Ornamental)

Wage Rate Per Hour:

First Year:

1 st Six Months	60% of Journeyperson's rate
2 nd Six Months	65% of Journeyperson's rate

Second Year:

1 st Six Months	70% of Journeyperson's rate
2 nd Six Months	80% of Journeyperson's rate

Third Year

1 st Six Months	85% of Journeyperson's rate
2 nd Six Months	95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First six months:	\$23.74
Second six months	\$24.48
Third six months	\$25.24
Fourth six months	\$26.72
Fifth six months	\$27.47
Sixth six months	\$28.97

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Appendix #1 cont'd

Laborer (Building, Concrete, Excavating & Common)

Wage Rate Per Hour:
First 1000 Hours: 50% of Journeyperson's rate
Second 1000 Hours: 60% of Journeyperson's rate
Third 1000 Hours: 75% of Journeyperson's rate
Fourth 1000 Hours: 90% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$17.56

Ratio Apprentices to Journeyperson's: 1 to 1, 1 to 3

Laborer (Paver and Roadbuilder)

Wage Rate Per Hour:
First Year: \$23.27
(Minimum 1000 Hours)
Second Year: \$26.37
(Minimum 1000 Hours)
Third Year: \$29.47
(Minimum 1000 Hours)

Supplemental Benefit Rate Per Hour: \$9.90

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Marble Mechanics (Polisher, Finisher)

Wage and Supplemental Benefit Rate Per Hour:
First 750 Hours: 50% of Journeyperson's rate
Second 750 Hours: 60% of Journeyperson's rate
Third 750 Hours: 75% of Journeyperson's rate
Fourth 750 Hours: 90% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST 750 HOURS (PROBATIONARY PERIOD)

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Appendix #1 cont'd.

Marble Mechanics (Cutters & Setters)

Wage and Supplemental Benefit Rate Per Hour:

First 750 Hours:	50% of Journeyperson rate
Second 750 Hours:	55% of Journeyperson rate
Third 750 Hours:	65% of Journeyperson rate
Fourth 750 Hours:	75% of Journeyperson rate
Fifth 750 Hours:	85% of Journeyperson rate
Sixth 750 Hours:	95% of Journeyperson rate

**NO BENEFITS PAID DURING THE FIRST TWO MONTHS (2) OF FIRST 750 HOURS
(PROBATIONARY PERIOD)**

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Mason Tender (Local 79) House Wrecking

Wage Rate Per Hour:

First 500 Hours:	
1 st Year:	\$17.00
2 nd Year First 1000 Hours:	\$18.00
3 rd Year First 2000 Hours:	\$19.50
4 th Year First 3000 Hours:	\$22.00

Supplemental Benefit Rate Per Hour: \$9.10 \$8.65

Ratio of Apprentices to Journeypersons: 1 to 1, 1 to 3

Metallic Lather

Wage Rate Per Hour:

First Year:	\$24.00
Second Year:	\$27.50
Third Year:	\$31.50
Fourth Year:	\$35.50

Supplemental Benefit Rate Per Hour:

First Year:	\$18.53
Second Year:	\$20.03
Third Year:	\$21.03
Fourth Year:	\$22.03

Ratio of Apprentices to Journeypersons: 1 to 1, 1 to 5

Appendix #1 cont'd.

Millwright

Wage Rate Per Hour:

First Year: 55% of Journeyperson rate
Second Year: 65% of Journeyperson rate
Third Year: 75% of Journeyperson rate
Fourth Year: 95% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$21.39
Second Year: \$23.57
Third Year: \$26.58
Fourth Year: \$30.08

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 4

Operating Engineer (Local 15 I.U.O.E.)

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 55% of Journeyperson rate
Fourth Year: 60% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$11.45

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 5

Operating Engineer (Local 14 I.U.O.E.)

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 60% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$12.90

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 5

Appendix #1 cont'd.

Painters (brush & roller)

Wage Rate Per Hour:

First Year: \$11.30
Second Year: 50% of Journeyperson's rate
Third Year: 60% of Journeyperson's rate
Fourth Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: \$ 5.90
Second Year: \$ 8.51
Third Year: \$10.98
Fourth Year: \$15.45

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Painters/Structural Steel

Wage Rate Per Hour:

First Year: 40% of Journeyperson's rate
Second Year: 60% of Journeyperson's rate
Third Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)
Second Year: 60% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)
Third Year: 80% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Plasterer (Manhattan, Bronx, S.I.)

Wage Rate Per Hour:

First Year:

1st Six Months: 40% of Journeyperson's rate

2nd Six Months: 45% of Journeyperson's rate

Second Year:

1st Six Months: 55% of Journeyperson's rate

2nd Six Months: 60% of Journeyperson's rate

Third Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$ 9.23

2nd Six Months: \$10.22

Second Year:

1st Six Months: \$12.15

2nd Six Months: \$13.12

Third Year:

1st Six Months: \$15.06

2nd Six Months: \$16.05

Ratio of Apprentice to journeyperson: 1 to 1, 1 to 3

Plasterer (Brooklyn & Queens)

Wage Rate Per Hour:

First Year:

1st Six Months: 40% of Journeyperson's rate

2nd Six Months: 45% of Journeyperson's rate

Second Year:

1st Six Months: 55% of Journeyperson's rate

2nd Six Months: 60% of Journeyperson's rate

Third Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$8.03

2nd Six Months: \$8.86

Second Year:

1st Six Months: \$10.49

2nd Six Months: \$11.32

Third Year:

1st Six Months: \$12.96

2nd Six Months: \$13.79

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 3

Appendix #1 cont'd

Plasterer – Skimcoater

Wage and Supplemental Benefit Rate Per Hour:

First Year:	
1 st Six Months:	40% of Journeyperson's rate
2 nd Six Months:	45% of Journeyperson's rate
Second Year:	
1 st Six Months:	55% of Journeyperson's rate
2 nd Six Months:	60% of Journeyperson's rate
Third Year:	
1 st Six Months:	70% of Journeyperson's rate
2 nd Six Months:	75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:	
1 st Six Months:	\$6.27 (Effective February 1, 2005 - \$6.57)
2 nd Six Months:	\$7.05 (Effective February 1, 2005 - \$7.39)
Second Year:	
1 st Six Months:	\$8.62 (Effective February 1, 2005 - \$9.03)
2 nd Six Months:	\$9.40 (Effective February 1, 2005 - \$9.85)
Third Year:	
1 st Six Months:	\$10.97 (Effective February 1, 2005 - \$11.49)
2 nd Six Months:	\$11.75 (Effective February 1, 2005 - \$12.32)

Ratio of Apprentices to Journey's: 1 to 1, 1 to 3

Pointer/Cleaner/Caulker (mason)

Wage Rate Per Hour:

First Year:	\$16.80
Second Year:	\$19.69
Third Year:	\$25.75
Fourth Year:	\$31.30

Supplemental Benefit Rate Per Hour:

First Year:	\$2.50
Second Year:	\$5.91
Third Year:	\$6.50
Fourth Year:	\$6.50

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 4

Appendix #1 cont'd.

Plumber

Wage Rate Per Hour:

First Year:	\$ 8.21
Second Year:	\$13.04
Third Year:	\$15.14
Fourth Year:	\$17.99
Fifth Year:	
1 st Six Months:	\$19.39
2 nd Six Months:	\$31.46

Supplemental Benefit Rate Per Hour:

First Year:	
1 st Six Months:	\$.94
2 nd Six Months:	\$ 2.94
Second Year:	\$10.85
Third Year:	\$10.85
Fourth Year:	\$10.85
Fifth Year:	\$10.85

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 3

Roofer

Wage and Supplemental Benefit Rate Per Hour:

First Year:	40% of Journeyperson's rate
Second Year:	50% of Journeyperson's rate
Third Year:	75% of Journeyperson's rate

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 2

Appendix #1 cont'd.

Sheet Metal Worker

Wage Rate Per Hour:

First Year:		
1 st Six Months:		30% of Journeyperson's rate
2 nd Six Months:		35% of Journeyperson's rate
Second Year:		
1 st Six Months:		40% of Journeyperson's rate
2 nd Six Months:		45% of Journeyperson's rate
Third Year:		
1 st Six Months:		50% of Journeyperson's rate
2 nd Six Months:		55% of Journeyperson's rate
Fourth Year:		
1 st Six Months:		60% of Journeyperson's rate
2 nd Six Months:		70% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:		
1 st Six Months:		\$10.69
2 nd Six Months:		\$12.01
Second Year:		
1 st Six Months:		\$13.24
2 nd Six Months:		\$14.52
Third Year:		
1 st Six Months:		\$15.74
2 nd Six Months:		\$16.87
Fourth Year:		
1 st Six Months:		\$18.48
2 nd Six Months:		\$21.57

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Sign Erector

Wage Rate Per Hour:

First Year:

1st Six Months: 35% of Journeyperson's rate

2nd Six Months: 40% of Journeyperson's rate

Second Year:

1st Six Months: 45% of Journeyperson's rate

2nd Six Months: 50% of Journeyperson's rate

Third Year:

1st Six Months: 55% of Journeyperson's rate

2nd Six Months: 60% of Journeyperson's rate

Fourth Year:

1st Six Months: 65% of Journeyperson's rate

2nd Six Months: 70% of Journeyperson's rate

Fifth Year:

75% of Journeyperson's rate

Sixth Year:

80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$4.95

2nd Six Months: \$5.49

Second Year:

1st Six Months: \$6.03

2nd Six Months: \$6.57

Third Year:

1st Six Months: \$7.41

2nd Six Months: \$7.94

Fourth Year:

1st Six Months: \$8.78

2nd Six Months: \$9.32

Fifth Year:

1st Six Months: \$10.16

2nd Six Months: \$10.70

Ratio of Apprentices to Journeyperson's:

1 to 1, 1 to 3

Appendix #1 cont'd

Steamfitter

Wage Rate Per Hour:

First Year:	40% of Journeyperson rate
Second Year:	50% of Journeyperson rate
Third Year:	65% of Journeyperson rate
Fourth Year:	80% of Journeyperson rate
Fifth Year:	85% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year:	\$12.12
Second Year:	\$15.09
Third Year:	\$19.50
Fourth Year:	\$23.92
Fifth Year:	\$25.40

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Stone Mason/ Setter

Wage Rate Per Hour:

First 750 Hours:	50% of Journeyperson rate
Second 750 Hours:	60% of Journeyperson rate
Third 750 Hours:	70% of Journeyperson rate
Fourth 750 Hours:	80% of Journeyperson rate
Fifth 750 Hours:	90% of Journeyperson rate
Sixth 750 Hours:	100% of Journeyperson rate

Supplemental Benefit Rate Per Hour: 50% of Journeyperson rate

Ratio Apprentices of Journeyperson: 1 to 1, 1 to 2

Appendix #1 cont'd

Taper (Drywall)

Wage and Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 60% of Journeyperson rate
Third Year: 80% of Journeyperson rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Tile Layer (Setter)

Wage and Supplemental Benefit Rate Per Hour:

First 750 Hours: 50% of Journeyperson rate
Second 750 Hours: 55% of Journeyperson rate
Third 750 Hours: 65% of Journeyperson rate
Fourth 750 Hours: 75% of Journeyperson rate
Fifth 750 Hours: 85% of Journeyperson rate
Sixth 750 Hours: 95% of Journeyperson rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Timberperson

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6



Bureau of Labor Law

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

December 15, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 1, TO THE 230 PREVAILING WAGE
SCHEDULE, WHICH COVERS THE TITLES OF EXTERMINATOR
AND AIR CONDITIONING AND REFRIGERATION FOR THE PERIOD
DECEMBER 15, 2004 THROUGH JUNE 30, 2005. PLEASE NOTIFY
ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN
DIRECTOR, CLASSIFICATION
AND DETERMINATIONS

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK

230 SCHEDULE OF PREVAILING WAGES AND SUPPLEMENTAL BENEFITS

ADDENDUM NO. 1, EXTERMINATOR AND AIR CONDITIONING AND
REFRIGERATION

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

CLASSIFICATION: EXTERMINATOR

WAGE RATE PER HOUR:	\$17.74
Effective February 1, 2005	\$18.57
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 4.83

OVERTIME: (2, 8) If an employee works six (6) consecutive days the 6th day is paid at time and on half. All work performed before regular starting time, or after eight (8) hours on any day, or on the sixth (6th) day of the regular work week, shall be paid for at time one-half the regular rate of pay. If required to work before the regular starting time, the employee shall never the less be paid for the eight (8) hour day beginning the regular starting time, in addition to the overtime pay for the work before the regular starting time. All work performed on Sunday shall be paid for at double the rate of pay except that employees hired on or after September 15, 1993 can be assigned any five (5) consecutive day work week without the requirement of double-time for Sunday. (See Overtime Legend).

Paid Holidays: (2, 5, 8, 9, 10, 11, 16, 20) Plus employee's birthday and two (2) additional holidays as floating holidays and one (1) additional day either for Martin Luther King's Birthday or Yom Kippur. All employees hired on or after February 1, 2001 shall not be entitled to floating holidays or a day off for their Birthday. See Holiday Legend.

Regular Work Day shall be any **Eight consecutive hours from 6:00 A.M. - 8:00 P.M.** with one hour off for lunch. A second shift can be worked and paid at an additional twelve dollars (\$12.00) per week.

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

The Regular Work Week of day workers shall consist of forty (40) hours in any five (5) consecutive days Monday through Saturday, with two (2) consecutive days off. If a day worker works a split week by working one (1) or more days and one (1) or more nights, time and one half shall be paid for each night's work. If a day worker splits a week by working one (1) day and one or more nights, time and one-half shall be paid for each nights work.

The Regular Work Week of Night Workers shall consist of five (5) consecutive nights totaling forty (40) hours. Any employee required to work between 5:00 P.M. and 7:00 A.M. for any given eight (8) hours consecutively shall receive an additional forty (\$.40) cents per hour above the employees' regular straight time hourly rate. If a Night Worker works a split week by working one (1) or more nights and one (1) or more days, time and one-half the night rate shall be paid for each day worked. A night worker required to work on Saturday night shall be paid at time one half regardless of the number of nights the employee has worked during his regular work week.

Vacation: All employees hired before February 1, 2001 shall be be entitled to paid vacations as follows:

During the employees first 52 weeks of employment.....1 week 5 days
During the employees second 52 weeks of employment..2 weeks 10 days
After (5) years employment.....3 weeks 15 days
After (15) years employment.....4 weeks 20 days
After (21) years employment.....21 working days
After (22) years employment.....22 working days
After (23) years employment.....23 working days
After (24) years employment.....24 working days
After (25) years employment.....5 weeks 25 days

Employees hired on or after February 1, 2001 shall receive the following vacation benefits:

During the first (52) weeks of employment.....1 week 5 days
During the second (52) weeks of employment and thereafter..2 weeks 10 days
After ten (10) years of employment.....3 weeks 15 days

Continued on following page

Sick Leave:

Ten (10) paid sick days in each calendar year after one year of service. Employees who have continued employment to the end of the calendar year and have not used all sickness benefits shall be paid in the succeeding January for all unused sick leave. Unused sick leave paid in cash in January of each calendar year.

(Local 32 B/J)

CLASSIFICATION:

**REFRIGERATION AND AIR CONDITIONER
MAINTENANCE AND INSTALLATION
SERVICE PERSON**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Journeyman	\$28.20	\$7.46
Effective January 1, 2005	\$28.70	\$7.71
Fourth Year of Employment	\$23.16	\$6.93
Effective January 1, 2005	\$23.57	\$7.15
Third Year of Employment	\$19.20	\$6.46
Effective January 1, 2005	\$19.54	\$6.66
Second Year of Employment	\$16.49	\$6.12
Effective January 1, 2005	\$16.78	\$6.30

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

First Year (2nd six months of Employment)	\$13.70	\$5.83
Effective January 1, 2005	\$13.94	\$5.99
First Year (1st six months of Employment)	\$8.51	\$5.49
Effective January 1, 2005	\$8.66	\$5.65

1. **No First or Second year serviceperson employed on service or repair work shall be allowed to do any work in the field unless the worker is accompanied and supervised by one or more service mechanics except in the event of emergency arising when the Employer must use his own discretion as to sending First or Second year men out to answer calls.**

2. **For every three (3) servicemen or maintenance mechanics steadily employed, the Employer may employ one (1) First year or Second year person, and if acceptable to the Employer, shall be continuously employed for one (1) year.**

3. **First and Second year persons shall be allowed to perform the following work:**
 - 1) **Filter changing and maintenance thereof.**
 - 2) **Oil and greasing.**
 - 3) **Tower and coil cleaning, scraping and painting.**
 - 4) **General housekeeping.**
 - 5) **Delivery and truck driving of parts and/or equipment trucks.**
 - 6) **Taking of water samples.**

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

VACATION:

Employees who have worked for Six (6) monthsone week.

Employees who have worked for One (1) year.....one week.

Employees who have worked for Sixty (60) months.....three weeks.

It is agreed however, that the third week of this vacation shall not be taken consecutively with the first two (2) weeks vacation.

Employees who have been employed six (6) months and who leave or are discharged prior to the period when they would have been entitled to their next vacation shall be paid accrued vacation money of one-twelfth (1/12) of the vacation pay he is entitled to for each month worked before his next vacation time. An employee will not be considered absent from work insofar as continuity of employment is concerned in the following instances: proven illness, jury duty, temporary military or navel training service, an agreed leave of absence.

SICK LEAVE:

Employees who have worked for one (1) year.....three days.

Employees who have worked for two (2) years.....five sick days.

In the event any employee has any unused sick leave, the full amount of unused sick leave shall be payable to the said employee on the Anniversary date of his employment.

PAID HOLIDAYS: (2, 3#, 4, 5#, 8#, 9, 10, 11#, 15, 16, 20) See Holiday Legend. # Double time and one half the regular hourly rate for work performed on these holidays.

OVERTIME: (2, 5, 8, 13,) See Overtime Legend.

(Local #638B)

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

This schedule of prevailing wages and supplemental fringe benefits must be posted at the public work site as required by New York State Labor Law § 231 (6).

LABOR LAW § 230 BUILDING SERVICE EMPLOYEES

In accordance with Labor Law §230 et seq. the Comptroller of the City of New York has promulgated this schedule of prevailing wages and supplemental benefits for building service employees engaged on building service contracts in excess of \$1,500.00. Prevailing rates are required to be annexed to and form part of the contract pursuant to §231 (4); however, only rates for trades anticipated by the contracting agency to be required on the work need be annexed to the contract.

Pursuant to §231 (4) contracting agencies that anticipate doing work that may require building service trades or classifications not included in this schedule, must request the Comptroller to establish a proper classification and wage determination for the work. Contractors using trades and/or classifications for which the Comptroller has not promulgated wages and benefits do so at their own risk.

Labor Law § 231 (6) requires contractors to post on the site of the work a current copy of this schedule of wages and supplements.

This schedule is applicable to work performed from July 1, 2004 through June 30, 2005, unless otherwise noted. Changes to this schedule are published on our web site www.comptroller.nyc.gov . Contractors must pay the wages and supplements in effect when the building service employee performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on the our web site www.comptroller.nyc.gov .

Building service employees on public contracts must receive not less than the prevailing rate of wage and supplements for the classification of work performed. Contractors are solely responsible for maintaining original payroll records delineating, among other things, the hours worked by each employee within a given classification.

Employers may pay cash supplements; however, cash payments made in lieu of providing bona fide benefits is considered income to the employee. Employers providing bona fide benefits are credited for the cost of such benefits up to the hourly rate for benefits in the schedule for the trade or occupation at issue. Employers may combine cash supplements with in-kind supplements to meet the prevailing rate minimum.

Office of the Comptroller, City of New York

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is tied to hours worked, some classifications require the payment or provision of supplemental benefits at overtime or premium time rates. Contractors are advised to review the applicable collective bargaining agreements and the Comptroller's Prevailing Wage Schedule before bidding on public work. Any Prevailing Wage Rate error made by the Contracting Agency, whether in a contract document or other communication, will not preclude a finding against the contractor of prevailing-wage violation.

Because this schedule may not list each prevailing wage practice, contractors should familiarize themselves with the prevailing collective bargaining agreements. Please make appointments to inspect such agreements by calling (212) 669-4437, Monday through Friday between the hours of 9:00 A.M. and 5:00 P.M.

Answers to questions concerning premium rates and or prevailing trade practices may also be obtained from the Classification and Determination Unit by calling William Helfman, Director, at (212) 669-4440. Please direct all other compliance issues to; Bureau of Labor Law, Attn: William Helfman, Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 815-8672.

**William Helfman, Director
Classifications and Determinations
Bureau of Labor Law**

Office of the Comptroller, City of New York

HOLIDAY LEGEND

The Holidays listed below are to be paid at the prevailing rate the worker is classified.

- (1) None
- (2) New Years Day
- (3) Martin Luther King Jr. Day
- (4) Lincoln's Birthday
- (5) Washington's Birthday
- (6) President's Day
- (7) Good Friday
- (8) Memorial Day
- (9) Independence Day
- (10) Labor Day
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 day on Presidential Election Day
- (15) Veteran's Day
- (16) Thanksgiving Day
- (17) Day after Thanksgiving
- (18) Day Before Christmas
- (19) 1/2 day before Christmas Day
- (20) Christmas Day
- (21) Day before New Year's Day
- (22) 1/2 day before New Year's Day
- (23) Employees' Birthday

OVERTIME LEGEND

The following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in this prevailing rate schedule. Additional requirements may also be listed in the OVERTIME section.

- (1) Time and one half the regular rate after a 7 hour day.
- (2) Time and one half the regular rate after an 8 hour day.
- (3) Double time the regular rate after a 7 hour day.
- (4) Double time the regular rate after an 8 hour day.
- (5) Time and one half the regular rate for Saturday.
- (6) Double time the regular time rate for Saturday.
- (7) Time and one half the regular rate for Sunday.
- (8) Double time the regular rate for Sunday.
- (9) Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
- (10) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather.
- (11) Regular straight time rate for work on a holiday.
- (12) Time and one half the regular rate for work on a holiday.
- (13) Double time the regular rate for work on a holiday.
- (14) Triple time the regular rate for work on a holiday.

NOTE: Benefits are paid for EACH HOUR WORKED unless otherwise noted.

SECTION 230 PREVAILING WAGE INDEX
JULY 1, 2004 – JUNE 30, 2005

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Office of the Comptroller, City of New York

CLASSIFICATION: ALARM TECHNICIAN (REPAIR AND MAINTENANCE)

(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)

WAGE RATE PER HOUR: \$24.37
Effective July 10, 2004 \$25.07

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$9.28
Effective July 10, 2004 \$9.50

OVERTIME: (2, 5, 8, 14) See Overtime Legend.

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 17, 20, plus one personal day per year). See Holiday Legend.

NIGHT DIFFERENTIAL is based upon a 10% differential between the hours of 4:00 P.M. and 12:00 P.M. and a 15% differential for the hours 12:00 P.M. to 8:00 A.M.

VACATION:

At least one year of employment - 2 weeks vacation
Five years or more of employment - 3 weeks vacation
Ten Years of employment - 4 weeks vacation

SICK DAYS: One day per year.

(Local #3)

CLASSIFICATION: BOILER SERVICEPERSON/TANK CLEANER MECHANIC

(LOW PRESSURE)

WAGE RATE PER HOUR: \$18.30

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.49

PAID HOLIDAYS: (2, 3, 5, 8, 9, 10, 11, 12, 15, 16, 20, plus employees birthday)
See Holiday Legend.

Continued on following page -

Office of the Comptroller, City of New York

VACATION:

Six months of service - three days.

Eight months of service - four days

Ten months of service - five days

Two years of service - two weeks.

Seven years of service with the same employer - three weeks.

SICK LEAVE:

6 sick days in each calendar year for employees who have been employed for at least one year, but less than two years; 8 sick days in each calendar year for employees who have been employed between two and three years; 10 sick days in each calendar year for employees who have been employed for more than three years.

OVERTIME: (2, 5, 8, and 13). See Overtime Legend.

(Contract Expired February 29, 2004)

(Local #32 B/J)

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "A": (Over 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.35
Foreperson	\$20.25
Starter	\$20.25
Cleaner/Porter, Elevator Operator	\$18.54

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.

Continued on following page

Office of the Comptroller, City of New York

- * May be exchanged for Yom Kippur or a personal day
- # May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.
Six months of work but less than one year of work - three days.
One year of work but less than five years of work - two weeks.
15 years of work but less than 25 years of work - four weeks.
Five years of work but less than 15 years of work - three weeks.
25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE New York CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

Office of the Comptroller, City of New York

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "B": (Over 120,000 and less than 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.28
Foreperson	\$20.21
Starter	\$20.21
Cleaner/Porter, Elevator Operator	\$18.49
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day)
See Holiday Legend.**

* May be exchanged for Yom Kippur or a personal day.

May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay). See Overtime Legend.

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Office of the Comptroller, City of New York

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "C": (Less than 120,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.15
Foreperson	\$20.06
Starter	\$20.06
Cleaner/Porter, Elevator Operator	\$18.45

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.

Continued on following page

Office of the Comptroller, City of New York

- * May be exchanged for Yom Kippur or a personal day
- # May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

- Less than six months of work - no vacation.
- Six months of work but less than one year of work - three days.
- One year of work but less than five years of work - two weeks.
- Five years of work but less than 15 years of work - three weeks.
- 15 years of work but less than 25 years of work - four weeks.
- 25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

(Local #32 B/J)

(Contract expires December 31, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "A": (Over 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.40
Foreperson	\$20.29
Starter	\$20.29
Cleaner/Porter, Elevator Operator	\$18.57
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

- * May be exchanged for Yom Kippur or a personal day.
- # May be exchanged for Lincoln's birthday, Veteran's Day, and/or day after Thanksgiving.

VACATION:
Less than six months of work - no vacation.
Six months of work but less than one year of work - three days.
One year of work but less than five years of work - two weeks.
Five years of work but less than 15 years of work - three weeks.
15 years of work but less than 25 years of work - four weeks.

SICK LEAVE:
Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

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Office of the Comptroller, City of New York

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "B": (Over 120,000 and less than 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.37
Foreperson	\$20.25
Starter	\$20.25
Cleaner/Porter, Elevator Operator	\$18.54

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

*** May be exchanged for Yom Kippur or a personal day.**

May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

Continued on following page

Office of the Comptroller, City of New York

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full days pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay). See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

Office of the Comptroller, City of New York

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "C": (Less than 120,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.32
Foreperson	\$20.11
Starter	\$20.11
Cleaner/Porter, Elevator Operator	\$18.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

*** May be exchanged for Yom Kippur or a personal day.**

**# May be exchanged for Lincoln's birthday, Veteran's Day and/or day
after Thanksgiving.**

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

**Ten sick days per year. Unused sick leave paid in the succeeding January,
one full days pay for each unused sick day.**

OVERTIME: (2, 5, 7, 12 in addition to the day's pay). See Overtime Legend.

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Office of the Comptroller, City of New York

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

(Local #32 B/J)

(Contract expires December 31, 2004)

CLASSIFICATION: RESIDENTIAL CLEANING

RESIDENTIAL BUILDINGS CLASS "A": Residential Buildings Class "A": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$4000.00 a room.

<u>Title</u>	<u>Wage Rate Per Hour</u>
Handyperson	\$19.22
Effective April 20, 2005	\$19.77
Cleaner/Porter	\$17.44
Effective April 20, 2005	\$17.94
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 4.76

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Office of the Comptroller, City of New York

VACATION:

6 Months3 working days
1 Year.....2 weeks
5 Years.....3 weeks
15 Years4 weeks
21 Years.....21 working days
22 Years.....22 working days
23 Years.....23 working days
24 years.....24 working days
25 years.....5 weeks

SICK LEAVE: After one year of service - 10 days per year.

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday,
Good Friday, Yom Kippur or a Muslim Holiday.

OVERTIME: (2, time and one half for the 6th day, 8, 13). See Overtime Legend.

(Local 32B/J)

CLASSIFICATION: RESIDENTIAL CLEANING

RESIDENTIAL BUILDINGS CLASS "B": Residential Buildings Class "B": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$2000.00 a room and not over \$4000.00 a room.

<u>Title</u>	<u>Wage Rate Per Hour</u>
Handyperson	\$19.16
Effective April 20, 2005	\$19.71
Cleaner/Porter	\$17.38
Effective April 20, 2005	\$17.88
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$4.76

Continued on following page

Office of the Comptroller, City of New York

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday,
Good Friday, Yom Kippur or a Muslim Holiday.

VACATION:

6 Months3 working days
1 Year.....2 weeks
5 Years.....3 weeks
15 Years4 weeks
21 Years.....21 working days
22 Years.....22 working days
23 Years.....23 working days
24 years.....24 working days
25 years.....5 weeks

SICK LEAVE: After one year of service - 10 days per year.

OVERTIME: (2, time and one half for the 6th day, 8, 13) See Overtime Legend.

CLASSIFICATION: RESIDENTIAL CLEANING

RESIDENTIAL BUILDINGS (CLASS "C") Residential Buildings Class "C":
buildings where the assessed value of the land and building, based upon the 1935
assessment, divided by the number of rooms in the building, gives An assessed
value of \$2000.00 or less a room.

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$19.10
Effective April 20, 2005	\$19.65
Cleaner/Porter	\$17.33
Effective April 20, 2005	\$17.83
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 4.76

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Office of the Comptroller, City of New York

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday,
Good Friday, Yom Kippur or a Muslim Holiday.*

VACATION:

6 Months3 working days
1 Year.....2 weeks
5 Years.....3 weeks
15 Years4 weeks
21 Years.....21 working days
22 Years.....22 working days
23 Years.....23 working days
24 years.....24 working days
25 years.....5 weeks

SICK LEAVE:

After one year of service - 10 days per year.

OVERTIME: (2, time and one half for the 6th day, 8, 13) See Overtime Legend

(Local #32 B/J)

CLASSIFICATION: PARKING LOT CLEANER - FLOOR PERSON

Wage Rate Per Hour

"A" Level Worker	\$13.81
"B" Level Workers	
-Hired prior to 2/6/92	\$ 8.81
-Hired on or after 2/6/92	\$ 7.50
-Hired on or after 3/4/96	\$ 7.30
-Hired on or after 3/3/97	\$ 7.10
-Hired on or after 3/2/98	\$ 6.90
-Hired on or after 3/6/99	\$ 6.80

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$1.28 (after six months
of employment.)
\$2.07 (after three years
of employment.)

Continued on following page

Office of the Comptroller, City of New York

The Regular Work Week of day workers shall consist of forty (40) hours in any five (5) consecutive days Monday through Saturday, with two (2) consecutive days off. If a day worker works a split week by working one (1) or more days and one (1) or more nights, time and one half shall be paid for each night's work.

Shift Rate: The regular workweek of night workers shall consist of five (5) consecutive nights totaling forty (40) hours. Any employee required to work between 5:00 P.M. and 7:00 A.M. for any given eight (8) hours consecutively shall receive an additional forty (\$.40) cents per hour above the employees' regular straight time hourly rate. A night worker required to work on Saturday night shall be paid at time one half regardless of the number of nights the employee has worked during his regular workweek.

Vacation: All employees hired before February 1, 2001 shall be entitled to paid vacations as follows:

During the employees first 52 weeks of employment.....	1 week 5 days
During the employees second 52 weeks of employment.....	2 weeks 10 days
After (5) years employment.....	3 weeks 15 days
After (15) years employment.....	4 weeks 20 days
After (21) years employment.....	21 working days
After (22) years employment.....	22 working days
After (23) years employment.....	23 working days
After (24) years employment.....	24 working days
After (25) years employment.....	5 weeks 25 days

Employees hired on or after February 1, 2001 shall receive the following vacation benefits:

During the first (52) weeks of employment.....	...1 week 5 days
During the second (52) weeks of employment and thereafter.....	2 weeks 10 days
After ten (10) years of employment.....	3 weeks 15 days

Sick Leave:

Ten (10) paid sick days in each calendar year after one year of service. Unused sick leave paid in cash in January of each calendar year.

(Contract Expired January 31, 2004)

(Local 32 B/J)

Office of the Comptroller, City of New York

CLASSIFICATION: FUEL OIL

<u>Title</u>	<u>Wage Rate per Hour</u>
Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur	\$25.01
Oil Burner Installer	\$25.261
Oil Burner Installer Helper (employed less than 12 months in the industry)	\$16.63
Oil Burner Installer Helper (employed at least 12 months in the industry)	\$18.61
Serviceperson "Class A" (employed in the industry for three years or longer)	\$25.26
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 11.14

VACATION:

Less than 75 days worked - no vacation.

75 days worked in a calendar year but less than 110 days worked in a calendar year - five days the following year.

110 days or more worked in a calendar year - 10 days the following year.

SICK LEAVE: One day sick leave earned for each 40 days worked in the preceeding calendar year for a maximum of five days per calendar year.

OVERTIME: (2, 5, 8, 13, 14). See Overtime Legend.

PAID HOLIDAYS: (2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 20). See Holiday Legend.

(Local #553)

(Contract expires December 15, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: LANDSCAPING

(Gardening, tree pruning and/or tree removing, spraying and park maintenance not included in a construction or reconstruction project.)

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Gardener	\$ 13.95	\$ 1.42
Groundsperson	\$ 13.41	\$ 2.61
Tree Remover \ Pruner	\$ 23.34	\$ 4.73
Landscape Sprayer (Pesticide Applicator)	\$ 18.36	\$.57

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit.

CLASSIFICATION: MEDICAL WASTE REMOVAL

<u>Title</u>	<u>Wage Rate per Hour</u>
Driver (Chauffeur)	\$18.86
Helper	\$12.90
Tractor Trailer Driver	\$22.19
Roll off Driver	\$22.19
Line Haul Driver	\$18.59
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$5.90

Continued on following page

Office of the Comptroller, City of New York

OVERTIME: (2, the sixth day of work in a workweek is paid at time and one half the regular hourly rate, the seventh day of work in a workweek is paid at double time the regular hourly rate, 12 plus days pay). See Overtime Legend.

PAID HOLIDAYS: (2, 6, 8, 9, 10, 16, 20, plus four personal days).
See Holiday Legend.

VACATION:

One year of service but less than five years	- 10 days
Five years of service but less than 10 years	- 15 days
Ten years of service	- 16 days
Eleven years	- 17 days
Twelve years	- 18 days
Thirteen years	- 19 days
Fourteen years	- 20 days
Twenty years	- 21 days
Twenty one years	- 22 days
Twenty two years	- 23 days
Twenty three years	- 24 days
Twenty four years	- 25 days

(Local #813)

(Contract expires November 30, 2004)

CLASSIFICATION: MOVER

MOVING: All services involved in the packing and moving of office furniture and equipment.

<u>TITLE</u>	<u>WAGE RATE</u> <u>PER HOUR</u>	<u>SUPPLEMENTAL</u> <u>BENEFIT RATE</u> <u>PER HOUR</u>
Furniture Mover, Driver	\$20.85	\$10.81
Casual Rate (A)*	\$13.00	none
Casual Rate (B)*	\$13.00	\$3.96
Casual Rate (C)*	\$13.00	\$8.36

Continued on following page

Office of the Comptroller, City of New York

Furniture Mover, Assistant	\$19.68	\$10.81
Casual Rate (A)*	\$12.00	none
Casual Rate (B)*	\$12.00	\$3.96
Casual Rate (C)*	\$12.00	\$8.36

*Casual (A) workers shall include only those workers who have been paid less than 800 hours during the calendar year. Casual (A) workers do not receive paid vacations or paid holidays.

*Casual (B) workers shall include only those workers who have been paid more than 800 hours in the prior calendar year. Casual (B) workers do not receive paid vacations or paid holidays.

*Casual (C) workers shall include only those workers who have been paid more than 800 hours in each of the two prior calendar years. Casual (C) workers do not receive paid vacations or paid holidays.

OVERTIME: (2, 5, 8, 12) See Overtime Legend.

PAID HOLIDAYS: (for workers with more than 5 years or longer: 2, 8, 9, 10, 16, 20; Workers who have worked three days during the calendar week in which the Holiday occurs: 3, 5, 7, 15, 17; For workers with less than five years who have worked three days during the calendar week in which the holiday occurs: 3, 5, 7, 15, 17). See Holiday Legend.

<u>Days Worked</u>	<u>Vacation Days Earned Per Day Worked</u>
30 to 124 days	.0333
125 to 144 days	.0400
145 to 154 days	.0483
155 to 174 days	.0516
175 days	.0571

(Maximum 10 days)

(Contract Expires April 30, 2005)

(Local #814)

**Office of the REFRIGERATION AND AIR CONDITIONER
 MAINTENANCE AND INSTALLATION
 SERVICE PERSON**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Journey person	\$27.45	\$7.46
Fourth Year of Employment	\$22.54	\$6.93
Third Year of Employment	\$18.69	\$6.46
Second Year of Employment	\$16.05	\$6.12
First Year (2nd six months of Employment)	\$13.34	\$5.83
First Year (1st six months of Employment)	\$8.28	\$5.49

1. No First or Second year serviceperson employed on service or repair work shall be allowed to do any work in the field unless the worker is accompanied and supervised by one or more service mechanics except in the event of emergency arising when the Employer must use his own discretion as to sending First or Second year men out to answer calls.
2. For every three (3) servicemen or maintenance mechanics steadily employed, the Employer may employ one (1) First year or Second year person, and if acceptable to the Employer, shall be continuously employed for one (1) year.
3. First and Second year persons shall be allowed to perform the following work:
 - 1) Filter changing and maintenance thereof.
 - 2) Oil and greasing.
 - 3) Tower and coil cleaning, scraping and painting.
 - 4) General housekeeping.
 - 5) Delivery and truck driving of parts and/or equipment trucks.
 - 6) Taking of water samples.

**PAID HOLIDAYS: (2, 3#, 4, 5#, 8#, 9, 10, 11#, 15, 16, 20) See Holiday Legend.
 # Double time and one half the regular hourly rate for work performed on these holidays.**

OVERTIME: (2, 5, 8, 13,) See Overtime Legend.

(Local #638B) (Contract expired June 30, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: REFUSE REMOVER

A. Rubbish and Garbage Route Trucks

1. On open-trucks, rack body, or trucks which have no self contained mechanical loading device, up to 22-yard capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$22.67
Effective December 1, 2004	\$23.41

Helper	\$22.45
Effective December 1, 2004	\$23.19

2. On 10-wheel, open trucks, container loaders, dinomaster, over-cab loaders, rack body trucks, or any trucks 22 yards to and including 25 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$22.82
Effective December 1, 2004	\$23.56

Helper	\$22.45
Effective December 1, 2004	\$23.20

3. On rubbish and garbage trucks (except as provided in section "B" Below) 24 yards to and including 31 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$23.19
Effective December 1, 2004	\$23.93

Helper	\$22.88
Effective December 1, 2004	\$23.63

B. Roll-Off Trucks

1. Single axle working non-compactor containers up to 15 yards capacity on rubbish and garbage removal only:

Continued on following page

Office of the Comptroller, City of New York

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$23.37
Effective December 1, 2004	\$24.12

2. Roll-Off Trucks other than those described in (1) above up to and including 42 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$24.36
Effective December 1, 2004	\$25.10

3. On any Roll-Off Truck with more than 42 yards capacity or any Tractor Trailer Trucks:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$25.58
Effective December 1, 2004	\$26.33

SUPPLEMENTAL BENEFIT RATE PER HOUR	
FOR ALL REFUSE REMOVER TITLES:	\$ 6.09
Effective December 1, 2004	\$ 6.34
Effective June 1, 2005	\$ 6.59

PAID HOLIDAYS: (2, 3#, 6#, 8, 9, 10, 11#, 16, 20, the employee's birthday, four personal days). See Holiday Legend.

VACATION:

Annual vacations with pay in advance on the pay day before the vacation shall be given by the Employer to each employee as follows (not less than 40 hours for each week) at the Employee's regular rate of pay:

- Those employed 1 year but less than 2 years - 1 week.
- Those employed 2 years but less than 5 years - 2 weeks in each year.
- Those employed 5 years but less than 15 years - 3 weeks in each year.
- Those employed 15 years but less than 25 years - 4 weeks in each year.
- Those employed 25 years or more - 5 weeks in each year.

Continued on following page

Office of the Comptroller, City of New York

SICK LEAVE:

- (a) Employees shall be entitled to 7 paid leave days for each contract year. Unused sick leave shall be paid to employees as an attendance incentive bonus at the end of each contract year.
- (b) During the first year of employment, employees shall be paid two (2) days sick leave after completing six months of employment. Following such six months of employment, such employee shall then receive pro-rata sick leave pay on the basis of one (1) day sick leave pay for each two (2) months or major portion of two (2) months worked until the following December 1st. Once an employee has completed 6 months or more of employment by December 1st, he shall be treated like other employees as set forth in (a) above.
- (c) Once an employee has used up his sick leave, the employee must, upon request of the employer, put in writing the nature of the illness for which the employee was absent.

OVERTIME: (2, 5, triple time for Sunday, 13 for (#) designated holidays, all other holidays triple time). See Overtime Legend.

(Local #813)

CLASSIFICATION: SECURITY

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Security Guard (Unarmed)	\$ 9.10	\$ 1.50
Security Guard (Armed)	\$ 16.90	-----

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit rate.

Office of the Comptroller, City of New York

CLASSIFICATION: WINDOW CLEANER

<u>TITLE</u>	<u>WAGE RATE PER HOUR</u>
Window Cleaner	\$21.84
Power Operated Scaffolds, Manual Scaffolds, and Boatswain Chairs	\$23.47
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$6.02
Effective December 31, 2004	\$6.25

PAID HOLIDAYS: (2, 3, 5, 7, 8, 9, 10, 11, 16, 17, 20, plus one personal day).
See Holiday legend.

VACATION:

After seven months but less than one year of service - one week.
One year but less than five years of service- two weeks.
Five years of service but less than 15 years of service- three weeks.
15 years of service but less than 25 years of service- four weeks.
21 years - 21 days.
22 years - 22 days.
23 years - 23 days.
24 years - 24 days.
25 years or more of service - five weeks.
Plus one day per year for medical visit.

SICK LEAVE:

Ten days after one year worked. Unused sick days to be paid in cash. An employee who is entitled to and receive a payment of 10 days of unused sick days shall also receive a hundred-dollar bonus.

OVERTIME: (2, 5, 8, 12 plus the days pay). See Overtime legend.

(Local No. 32BJ)

(Contract expires February 28, 2005)

U.S. DEPARTMENT OF LABOR DAVIS-BACON WAGE DETERMINATIONS

SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005

John Ciardullo Associates
221 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer

GENERAL DECISION: NY20030003 12/24/2004 NY3

Date: December 24, 2004

General Decision Number: NY20030003 12/24/2004

Superseded General Decision Number: NY020003

State: New York

Construction Types: Building, Heavy, Highway and Residential

Counties: Bronx, Kings, New York, Queens and Richmond
Counties in New York.

BUILDING & RESIDENTIAL CONSTRUCTION PROJECTS (includes single
family homes and apartments up to and including 4 stories),
HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	06/13/2003
1	05/14/2004
2	05/28/2004
3	07/16/2004
4	07/23/2004
5	07/30/2004
6	09/24/2004
7	10/01/2004
8	10/15/2004
9	12/03/2004
10	12/24/2004

ASBE0012-001 06/28/2004

	Rates	Fringes
Asbestos Workers/Insulator includes application of all insulating materials, protective coverings, coatings and finishing to all types of mechanical systems.....	\$ 40.36	22.86
Hazardous Material Handler.....	\$ 24.00	6.20

BOIL0005-001 09/01/2004

	Rates	Fringes
Boilermaker.....	\$ 41.90	25.55+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial
Day, Independence Day, Labor Day and Good Friday, Friday
after Thanksgiving, Christmas Eve Day and New Year's Eve

* BRNY0001-001 07/01/2004

	Rates	Fringes
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Bricklayer.....	\$ 39.32	18.46
Stonemason.....	\$ 37.36	18.03

* BRNY0001-002 07/01/2004

	Rates	Fringes
Pointer, cleaner and caulker....	\$ 33.50	17.10

* BRNY0003-001 07/01/2004

	Rates	Fringes
Terrazzo Finisher.....	\$ 38.17	18.55
Terrazzo Worker.....	\$ 39.48	18.55

* BRNY0004-001 07/01/2004

	Rates	Fringes
Marble Setter.....	\$ 44.20	16.40

* BRNY0020-001 07/01/2004

	Rates	Fringes
Marble Finisher.....	\$ 37.53	17.02

* BRNY0024-001 07/01/2004

	Rates	Fringes
N/A		
MARBLE POLISHERS.....	\$ 34.83	13.48

* BRNY0052-001 07/01/2004

	Rates	Fringes
Tile Layer.....	\$ 39.85	18.43

* BRNY0088-001 07/01/2004

	Rates	Fringes
Tile Finisher.....	\$ 33.29	15.00

CARP0001-009 07/01/2003

	Rates	Fringes
Carpenters:		
Carpenters & Soft floor		
layers.....	\$ 38.78	26.05

CARP0740-001 07/01/2003

	Rates	Fringes
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Lineman and Cable Splicer...	\$ 35.20	12.60
Material Man.....	\$ 30.62	12.60
Tree Trimmer.....	\$ 22.28	7.76

 ELEVO001-002 03/17/2004

	Rates	Fringes
Elevator Mechanic		
Elevator Constructor.....	\$ 41.10	19.697+a
Modernization and Repair....	\$ 32.95	18.563+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

PAID VACATION: Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 5 years of service, and 6% for employees with less than 5 years of service.

 ENGI0014-001 07/01/2004

	Rates	Fringes
Pavement equipment operator		
Asphalt Plants.....	\$ 35.79	20.75+a
Asphalt roller.....	\$ 42.49	20.75+a
Asphalt spreader.....	\$ 43.67	20.75+a
Power Equipment Operator (HEAVY & HIGHWAY)		
GROUP 1.....	\$ 56.75	20.75+a
GROUP 2.....	\$ 46.63	20.75+a
GROUP 3.....	\$ 48.12	20.75+a
GROUP 4.....	\$ 46.98	20.75+a
GROUP 5.....	\$ 46.03	20.75+a
GROUP 6.....	\$ 44.14	20.75+a
GROUP 7.....	\$ 44.99	20.75+a
GROUP 8.....	\$ 43.67	20.75+a
GROUP 9.....	\$ 42.70	20.75+a
GROUP10.....	\$ 40.82	20.75+a
GROUP11.....	\$ 38.05	20.75+a
GROUP12.....	\$ 38.89	20.75+a
GROUP13.....	\$ 39.22	20.75+a
GROUP14.....	\$ 29.33	20.75+a
GROUP15.....	\$ 27.16	20.75+a
Steel erector		
Compressors, Welding Machines.....		
	\$ 30.41	20.75+a
Cranes, Hydraulic Cranes, 2 drum derricks, Forklifts,		
Boom Trucks.....	\$ 49.58	20.75+a
Three drum derricks.....	\$ 51.64	20.75+a
Utility Laborer		
Horizontal boring rig.....	\$ 41.47	20.75+a
Off shift compressors.....	\$ 34.29	20.75+a
Utility Compressors.....	\$ 26.99	20.75+a

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Tower crane

GROUP 2: Backhoes, power shovel, Hydraulic clam shells, moles and machines of a similar type

GROUP 3: Mine hoists and crane, etc. used as mine hoists

GROUP 4: Gradalls, keystones, cranes (with digging buckets), bridge cranes, trenching machines, vermeer cutter and machines of a similar nature

GROUP 5: Piledrivers, derrick boats, tunnel shovels

GROUP 6: Raise bore drill, and machines of a similar nature

GROUP 7: Back filling machines, cranes, mucking machines, dual drum pavers

GROUP 8: Mixers (concrete w/loading attachments), concrete pavers, cableways, land derricks, power house (low pressure units), concrete pumps

GROUP 9: Concrete plants, well drilling machines, stone crushers double drum hoist, power house (other than above)

GROUP 10: Concrete mixers

GROUP 11: Elevators

GROUP 12: Concrete breaking machine, Hoists (single drum), load masters, locomotive and dinkies over 10 tons

GROUP 13: Vibratory console

GROUP 14: Compressors (portable 3 or more in battery), tugger machine (caissons), well point pumps, chum drill

GROUP 15: Boilers, (high pressure, compressors (portable, single, or 2 in battery, not over 100' apart), pumps (river cofferdam and welding machines (except where arc is operated by members of local 15) push button machines, all engines irrespective of power (power pac) used to drive auxilliary equipment, air, hydraulic etc.

PREMIUMS ON CRANES (Crawler or Truck):

100' to 149' boom - add .50
 150' to 249' boom - add .75
 250' to 349' boom - add 1.00
 350' to 450' boom - add 1.50

Premiums for Cranes on Steel Erection:

100' to 149' boom - add 1.75
 150' to 249' boom - add 2.00
 250' to 349' boom - add 2.25
 350' to 450' boom - add 2.75
 Tower crane - add 2.00

FOOTNOTE:

a. Paid Holidays: New Year's Day; Lincoln's Birthday; Washington's Birthday; Memorial Day; Independence Day; Labor Day; Veterans Day; Columbus Day; Election Day; Thanksgiving Day; and Christmas Day; provided the employee works one day the payroll week in which the holiday occurs.

ENGI0014-002 07/01/2004

	Rates	Fringes
Power Equipment Operator		
BUILDING & RESIDENTIAL		
GROUP 1.....	\$ 46.56	20.75+a
GROUP 2.....	\$ 49.36	20.75+a
GROUP 3.....	\$ 45.01	20.75+a
GROUP 4.....	\$ 41.41	20.75+a
GROUP 5.....	\$ 31.43	20.75+a

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Double drum

GROUP 2: Stone derrick, cranes, hydraulic cranes, boom trucks

GROUP 3: 4 pole Hoist, Single Drum Hoists

GROUP 4: Fork lift, house cars, plaster (platform machine), plaster bucket, concrete pump and all other equipment used for hoisting material

GROUP 5: Compressors, welding machines (cutting concrete work), paint spraying, sand blasting, pumps (with the exclusion of concrete pumps), house car (settlement basis only), all engines irrespective of power (power pac) used to drive auxiliary equipment, air, hydraulic, etc., boilers

Premiums for Cranes:

100'-149' boom - add 1.75
 150'-249' boom - add 2.00
 250'-349' boom - add 2.25
 350'-450' boom - add 2.75
 Tower cranes add 2.00

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

IRON0040-002 07/01/2003

BRONX, NEW YORK, RICHMOND

	Rates	Fringes
Ironworker, Structural.....	\$ 36.20	36.93

IRON0046-003 07/01/2002

	Rates	Fringes
Ironworker METALLIC LATHERS.....	\$ 31.05	23.03

IRON0197-001 07/01/2003

	Rates	Fringes
Ironworker STONE DERRICKMAN.....	\$ 35.76	29.07

IRON0361-002 07/01/2003

KINGS, QUEENS

	Rates	Fringes
Ironworkers: (STRUCTURAL).....	\$ 36.20	36.93

IRON0580-001 07/01/2003

	Rates	Fringes
Ironworker, Ornamental.....	\$ 35.65	28.50

LABO0006-001 07/01/2003

	Rates	Fringes
Laborers: BUILDING CONSTRUCTION CEMENT AND CONCRETE WORKERS	\$ 31.50	15.27

LABO0029-001 07/01/2001

	Rates	Fringes
Laborers: Heavy Blasters (hydraulic trac drill).....	\$ 32.08	16.70
Blasters.....	\$ 31.53	16.70
Hydraulic Trac Drill.....	\$ 28.38	16.70
Jackhammers, Chippers, Spaders, Concrete Breakers, All Other Pneumatic Tools, Walk Behind Self-Propelled Hydraulic Asphalt and Concrete Breaker.....	\$ 27.14	16.70
Powder Carriers.....	\$ 24.50	16.70
Wagon; Airtrac; Quarry Bar Drill Runners.....	\$ 27.83	16.70

LABO0078-001 12/01/2003

	Rates	Fringes
Asbestos Worker ASBESTOS (Removal, Abatement, Encapsulation or Decontamination of asbestos); LEAD; & HAZARDOUS WASTE LABORERS (Hazardous Waste, Hazardous Materials, Biochemical and Mold Remediation, HVAC, Duct Cleaning, Re-spray Fireproofing, etc.....	\$ 25.50	6.81

LABO0079-001 01/01/2004

	Rates	Fringes
Laborers Building Construction Mason Tenders.....	\$ 27.80	15.09
Demolition Laborers Tier A.....	\$ 27.80	14.09
Tier B.....	\$ 17.50	8.05

CLASSIFICATIONS

TIER A: Responsible for the removal of all interior partitions and structural partitions that can consist of sheet rock, block or masonry. Also, all structural slab openings for ducts, mechanical, shafts, elevators, slab openings and exterior walls where the building is not being completely demolished.

TIER B: Responsible for shoveling of debris into containers, pushing containers from the inside to the outside of the building.

LABO0147-001 07/01/2003

	Rates	Fringes
Laborers: LABORERS.....	\$ 28.86	30.51

FREE AIR TUNNEL WORKERS Tunnel Workers (including Maintenance Men, Inside Muck Lock Tenders, Pump Men, Electricians, Cement Finishers, Caulkers, Hydraulic Men, Shield Men, Monorail Operators, Motor Men, Conveyor Men, Powder Carriers, Pan Men, Riggers, Chuck Tenders, Track Men Painters, Nippers, Brakemen, Cable Men, Hose Men, Grout Men, Gravel Men, Form Workers, Concrete Workers, Tunnel Laborers, Mole Nipper (one (1) Mole Sipper per Working Shaft per Shift for up to and including Two (2) Moles)

LABO0731-001 07/01/2001

	Rates	Fringes
Laborers:		

Building, Heavy and Residential

UNSKILLED.....	\$ 28.74	14.64
UTILITY LABORER.....	\$ 28.59	14.64

Paid Holidays: Labor Day and Thanksgiving Day

LABO1010-001 07/01/2001

	Rates	Fringes
Laborers:		
HIGHWAY CONSTRUCTION		
Fence Installer & Repairer.....	\$ 28.84	15.55+a
FORMSETTERS.....	\$ 32.04	15.55+a
LABORERS.....	\$ 28.94	15.55+a
Landscape Planting & Maintenance.....		
Maintenance.....	\$ 28.84	15.55+a
Maintenance Safety Surface.....	\$ 28.44	15.55+a
Slurry/Sealcoater/Play Equipment Installer.....		
Equipment Installer.....	\$ 28.69	15.55+a
Small Equipment Operator (Not Operating Engineer).....		
Small Power Tools Operator.....	\$ 28.44	15.55+a

FOOTNOTES:

a. PAID HOLIDAYS: Memorial Day, Fourth of July, Labor Day, Columbus Day, Election Day and Thanksgiving Day, provided the employee has worked one (1) day in the calendar week in which the said holiday occurs.

LABO1018-001 07/01/2001

	Rates	Fringes
Laborers:		
Asphalt Rakers.....	\$ 32.36	15.55+a
Asphalt Tampers.....	\$ 29.92	15.55+a
Landscape Planting & Maintenance Fence Installer/Maintenance.....		
Installer/Maintenance.....	\$ 29.81	15.55+a
Line Striping Installers...	\$ 29.56	15.55+a
Play Equipment/Safety Surface Installer.....		
Surface Installer.....	\$ 29.31	15.55+a
Screedman/Micropaver.....	\$ 32.73	15.55+a
Shoveler, General Laborers/ All other incidental work.....		
incidental work.....	\$ 29.81	15.55+a
Slurry/Sealcoater.....	\$ 29.31	15.55+a
Small Equipment Operator...	\$ 29.56	15.55+a

FOOTNOTE:

a. Paid Holidays: Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans Day, and Thanksgiving Day

PAIN0009-001 05/01/2002

Rates	Fringes
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Glazier.....	\$ 32.20	20.17
All repair and maintenance work on particular building, whenever performed, where the total cumulative contract is under \$100,000.00.		
GLAZIERS.....	\$ 19.05	11.44
Painters:		
Painters, Drywall Finishers, Lead Abatement Worker (Bridge Work).....	\$ 30.25	15.42
Spray, Scaffold and Sandblasting.....	\$ 33.25	15.42

PAIN0806-001 10/01/2004

	Rates	Fringes
Painters:		
Structural steel & Bridge...	\$ 42.00	25.37

PAIN1974-001 07/03/2002

	Rates	Fringes
Painters:		
Drywall Tapers/Pointers.....	\$ 33.82	

PLAS0260-001 07/01/1999

BRONX, NEW YORK AND RICHMOND COUNTIES:

	Rates	Fringes
Plasterer.....	\$ 27.91	15.55

PLAS0260-002 07/01/1999

KINGS AND QUEENS COUNTIES

	Rates	Fringes
Plasterer.....	\$ 27.91	15.16

PLAS0530-001 02/04/2004

	Rates	Fringes
Plasterer		
DRYWALL PLASTERERS.....	\$ 31.00	15.55

PLAS0780-001 07/01/2004

	Rates	Fringes
Cement Mason.....	\$ 40.00	21.10

PLUM0001-001 07/01/2004

	Rates	Fringes
Plumber		
JOBING AND ALTERATIONS		
Any repair and/or replacement of the present plumbing system that does not change the existing roughing.....		
	\$ 20.97	7.43
PLUMBERS:.....	\$ 41.91	27.30

PLUM0638-001 06/30/2004

	Rates	Fringes
Plumber		
SERVICE FITTERS.....	\$ 26.30	2.55
SPRINKLER FITTERS, STEAMFITTERS.....	\$ 40.82	29.82

Service Fitter work shall consist of all repair, service and maintenance work on domestic, commercial and industrial refrigeration, air conditioning and air cooling, stoker and oil burner apparatus and heating apparatus etc., including but not exclusively the charging, evacuation, leak testing and assembling for all machines for domestic, commercial and industrial refrigeration, air conditioning and heating apparatus. Also, work shall include adjusting, including capacity adjustments, checking and repairing or replacement of all controls and start up of all machines and repairing all defects that may develop on any system for domestic, commercial and industrial refrigeration and all air conditioning, air cooling, stoker and oil burner apparatus and heating apparatus regardless of size or type.

* ROOF0008-003 07/01/2004

	Rates	Fringes
Roofer.....	\$ 32.08	21.28

SHEE0028-002 07/29/2004

	Rates	Fringes
Sheet metal worker.....	\$ 39.99	28.28

TEAM0282-001 07/01/2004

	Rates	Fringes
Truck drivers:		
TRUCK DRIVERS:		
Asphalt.....	\$ 30.685	23.6025+a+b
Euclids & Turnapulls.....	\$ 31.25	23.6025+a+b
High Rise.....	\$ 32.31	23.6525+a+b

FOOTNOTES:

PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans' Day (Armistice Day), Thanksgiving Day and Christmas Day. Employees working two (2) days in the calendar week in which a holiday falls are to be paid for such holiday, provided that they shape each remaining workday during such calendar week.

b. VACATION: For each 15 days worked within the contract year an employee will receive one day's vacation with pay with a maximum vacation of 3 weeks per year.

TEAM0813-001 12/01/1998

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 19.49	3.61+a
GROUP 2.....	\$ 19.76	3.61+a
GROUP 3.....	\$ 19.90	3.61+a
GROUP 4.....	\$ 20.23	3.61+a
GROUP 5.....	\$ 20.40	3.61+a
GROUP 6.....	\$ 21.29	3.61+a
GROUP 7.....	\$ 22.40	3.61+a
GROUP 8.....	\$ 19.90	3.61+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s Birthday, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day, Christmas Day, Employee's Birthday, Two (2) Personal Days, and any holiday or day of mourning proclaimed as such by the State or Federal Government.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Closed body trucks with self contained loading unit up to and including 22 yard capacity

GROUP 2: Open trucks, rack body or trucks with no self contained mechanical loading device, up to 22 yard capacity. One-container tractor hoist

GROUP 3: 10 wheel, open trucks, container loaders, dino-master, over-cab loaders, rack body trucks, or any trucks 22 yards to and including 25 yards capacity

GROUP 4: Rubbish and garbage trucks, 26 yards to and including 31 yards

GROUP 5: Single axle working non-compactor containers up to 15 yards capacity on rubbish and garbage removal

GROUP 6: Roll-off trucks up to and including 42 yard capacity

GROUP 7: Roll-off truck with more than 42 yard capacity or any tractor trailer trucks

GROUP 8: One-container tractor hoist on construction and alteration debris removal

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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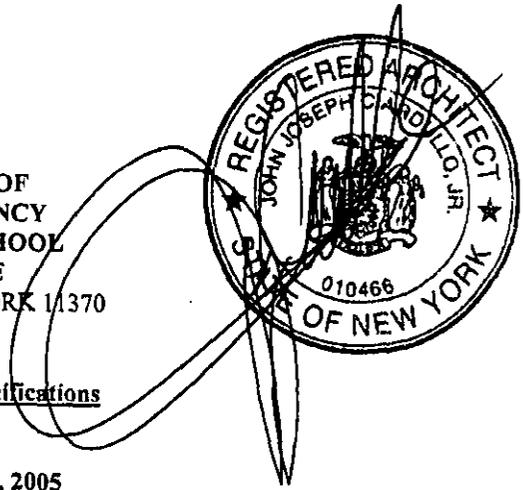
END OF GENERAL DECISION

MONSIGNOR McLANEY MEMORIAL BK 2 of 3

**SOUNDPROOFING OF
MONSIGNOR McCLANCY
MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Architectural Technical Specifications
Book 2 of 3**

Issue For Bid January 10, 2005



Owner:

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
In the Borough of Queens
In the City of New York**

Architect:

**John Ciardullo Associates
41 West 57th Street
New York, New York 10019**

Mech/Elec Engineer:

**Lakhani & Jordan Engineers
50 East 42nd Street
New York, NY 10017**

Asbestos Engineer:

**ATC Associates, INC.
104 East 25th Street
New York, NY 10010**

Acoustic Engineer:

**Peter George Associates
P.O. Box 688
Millbrook, NY 12545**

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SECTION 00900
MILESTONE SCHEDULE

1.01 GENERAL

- A. These supplemental requirements only add to the General Requirements. In no case shall the supplemental requirements take precedence over the General Requirements unless specifically noted.

1.02 DEFINITIONS

- A. Percent Complete

Percent complete is used as a guide for providing equitable compensation to the Contractor for work completed and/or material purchased and stored (if approved) in accordance with Contract Documents.

The cost-load CPM should be the basis for the construction cost monitoring. By adding the values in a series, dividing the distribution of the activities in the series into one hundred groups of equal frequency, the percent complete for every activity can be estimated.

- B. Substantial Completion

The project can be used for the purpose it was intended for, and all remaining incomplete work is comprised of relatively minor items that the Contractor agrees to correct while the facility is occupied and/or all systems are operational. Training session shall be complete and all manuals turned over to the SMC Representative.

The date of substantial completion of a project is the date when all construction is sufficiently completed, in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the Owner can occupy all spaces in the project and operate the specified system for the use for which it was intended.

1.03 TIME FOR CLOSE-OUT ACTIVITIES

The following time durations shall be allowed for the close-out activities of this project:

<u>Activity</u>	<u>Consecutive Calendar Days Allowed</u>
Construction start to substantial completion	519
Substantial completion to punch list completion	42
Substantial completion to Administration completion (change order, etc)	56
Substantial completion to Final Acceptance by NYC Building Department	84
Substantial completion to final payment	119

1.04 PHASING SCHEDULE

The following phasing schedule represents the Order of Work, Section 01900, Existing Structures Work, and is not intended to be all-inclusive, but represents specific work that must be completed within a specific time frame.

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<u>PHASING SCHEDULE</u>	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	
ACTIVITY	20	P	A	U	U	U	E	C	O	E	20	F	A	P	A	U	J	U	G	P	T	V	C	07
	05	R	Y	N	L	G	P	T	V	C	06	B	R	R	Y	N	L	G	P	T	V	C	07	
All construction items with the exception of items listed below																								
Contractor's staging area temporary chain link fence & gates																								
Contractor's trailer & temporary electric power																								
Temporary classroom trailers, associated site work & temporary electric power																								
Asbestos removal basement pipe tunnel (NIC)																								
Asbestos containing existing window sealant & vat removal (NIC)																								
Asbestos containing existing main roofing system removal (NIC)																								
All main roof membrane waterproofing work																								
Sample Room Work																								
All auditorium work																								
Substantial completion to punch list completion																								
Substantial completion to administration completion																								
Substantial completion to final acceptance by NYC Building Department																								
Substantial completion to final payment																								

END OF SECTION

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SECTION 01000
SPECIFICATIONS FORMAT

1.01 FORMAT

- A. These Specifications generally follow the Construction Specifications Institute format:

Divisions
Sections
Articles
Paragraphs
Subparagraphs

- B. Generally each Section, except for Division 1 Sections, is divided into three (3) parts:

Part 1 - General
Part 2 - Products
Part 3 - Execution

Note: Certain Sections may contain a "Part 4 - Schedules".

1.02 LANGUAGE

- A. The Specifications language is written using both indicative mood and imperative mood.

Where the imperative mood is used, the language is directed to the Contractor, unless specifically indicated otherwise.

- B. Where a colon (:) is used after a subject, the phrase "shall be" (or variations thereof) is to be inferred.

- C. Where "MMMHS" is used, the term means Monsignor McClancy Memorial High School School.

- D. Where "MMMHS Representative" is used, the term means John Ciardullo Associates and his consultants.

- E. Instruction Terms

Wherever reference is made in the Contract to the Work or its performance, the terms "directed", "required", "permitted", "ordered", "designated", "prescribed", and words of similar import shall imply the direction, requirement, permission, order, designation or prescription of the MMMHS or MMMHS Representative.

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F. Approval and Acceptance Terms

"Approved", "acceptable" "satisfactory" and words of similar import shall mean and intend: approved by, acceptable to, or satisfactory to, the MMMHS or MMMHS Representative.

G. Where the words "furnished and installed" is used, the meaning shall be that the item or product shall be "furnished, delivered, and installed/erected/applied/connected for its intended use and as required for the completed Work".

H. Where the word "provide" is used, the meaning shall be that the item or product shall be "furnished, delivered, and installed/erected/applied/connected for its intended use and as required for the completed Work".

END OF SECTION

SECTION 01010
SUMMARY OF THE WORK

1.01 WORK UNDER THE CONTRACT

- A. The Work shall be as described in the Contract Documents including Work identified as ITEM 1 which generally consist of windows and unit ventilators in the Cafeteria. The Contractor shall provide two bid figures (Base Bid Amount excluding Item 1 and Bid Amount Item 1) in the BID AND CONTRACT AGREEMENT, which can be found in the GENERAL CONDITIONS section of this Specification in CHAPTER 1 - General Provisions.

1.02 ITEMS NOT INCLUDED

The following items shown on the Drawings or noted in the Specification are not included in the Work:

- A. Items Labeled "existing to remain".
- B. Removal of asbestos containing items i.e. existing VAT at chases, portions of existing window sealant, and all existing main roof membrane systems.
- C. Items indicated "N.I.C." (Not in Contract).

1.03 OPENINGS AND CHASES

- A. The Contractor shall cut/fill-in/build openings, including but not limited to channels and chases as required to complete the Work as set forth in the Contract and as directed by the MMMHS Representative before any work is installed.
- B. After the installation and completion of all work for which openings, including but not limited to channels and chases, have been provided by the Contractor, the Contractor shall build in, over, around and finish all such openings as required to complete the Work.
- C. If a contractor fails to furnish drawings and information required in connection with such openings before the Contractor performs any Work affected thereby, said contractor who so fails to furnish such Drawings and information shall bear the cost of all cutting and refinishing including that part of the Contractor's Work affected.

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- D. The Contractor shall furnish and install all sleeves, inserts, hangers and supports required for the execution of the Work.
- E. Specific instructions shall be obtained from the MMMHS Representative before cutting beams or other structural members, arches and lintels.
- F. The Contractor shall not endanger the Work and shall not cut or alter the Work unless prior approval and instructions are received from the MMMHS Representative.

1.04 SCHEDULING

- A. The Contractor shall deliver to the MMMHS Representative schedules and forms in accordance with the Contract.
- B. The MMMHS Representative may require the Contractor to modify schedules which the Contractor has submitted either before or after such schedules are approved so that:
 - 1. The Work shall not be delayed.
 - 2. Changes in the Work are reflected in the schedules of the Contractor.

1.05 CONTRACT DOCUMENTS

- A. Documents Furnished to the Contractor - After the award of the Contract, the Contractor will be furnished with five (5) sets of paper prints of all Construction Drawings and five (5) complete sets of specifications.
- B. Additional Copies of Drawings and Specifications, when requested, will be furnished to the Contractor by the MMMHS Representative at \$150.00 per set.
- C. Copies to Subcontractors - The Contractor shall furnish to each of the Subcontractors and Materialmen such copies of Contract Drawings, Supplementary Drawings, and copies of the Specifications as may be required for each to perform its respective work.

1.06 PROJECT WORKING HOURS

- A. The normal working hours for this Project shall be from 7:00 AM to 4:00 PM, Monday through Friday, except Legal Holidays. This period shall apply unless specifically indicated otherwise in the Contract Documents, or changed

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by the MMMHS Representative.

- B. Overtime work will be as defined in the NY State Labor Law Section 220.
- C. No overtime work shall be performed without prior approval by the School Principal, Director of Buildings and Grounds or the MMMHS Representative.

1.07 SECURITY

A. Employee Identification

- 1. The Contractor shall provide photo-identification badges for all of the Contractor's employees and, in addition, require that all Sub-contractors provide photo-identification badges for their employees. Badges are to be worn on outer clothing and be conspicuously displayed at all times while present on the premises of the MMMHS.

The badge is to include the Contractor's name, the employee's name, the employee's social security number, date of birth, height and weight, and a photograph of the employee.

- 2. The Contractor is hereby notified that any employee or representative of the MMMHS shall have the right to inspect the badge. If the Contractor's employee refuses to display or produce a badge for examination, the MMMHS Representative shall be notified, and the Contractor may be directed to remove the employee from the premises until such time as the employee is able or willing to produce said badge.

- B. No visitors shall be permitted on the Site without prior approval of the School Principal, Director of Buildings and Grounds or the MMMHS Representative.

END OF SECTION

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SECTION 01026
APPLICATIONS FOR PAYMENT

1.01 PAYMENT

A. Payment will be made in accordance with Payment Section of the General Conditions, pursuant to which the Contractor shall submit a detailed breakdown by trade for the MMMHS Representative's approval. The payment to the Contractor shall be contingent upon compliance with the following conditions:

1. First Application for Payment

Contractor shall submit to the MMMHS Representative the following documents:

- a. An acceptable summary breakdown of the applicable CSI Divisions. Submit the Breakdown sufficiently in advance of the first application for payment to allow for at least two iterations to be completed prior to the first payment. The MMMHS Representative will advise Contractor of the required corrections within 10 days of the submittal of the breakdown. In case there is no agreement between the MMMHS Representative and the Contractor after two iterations, Contractor has the option to request processing of the first payment based on the summary breakdown acceptable to the MMMHS Representative.
- b. An acceptable detailed breakdown of each CSI Division against which payment is requested. Contractor shall submit the detailed breakdown sufficiently in advance as per the procedure indicated in 1.01 A.1.a. If the MMMHS Representative and the Contractor do not agree on the detailed breakdown, Contractor has the option to request processing of the first application for payment based on a breakdown acceptable to the MMMHS Representative.
- c. An acceptable CPM, logic diagram, Activity reports and summary schedule as specified in Section 01311.

2. Subsequent Applications for Payment

Contractor shall submit the following documents to

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the MMMHS Representative:

- a. Current and acceptable CPM, summary schedule, current monthly update of the logic diagram and activity reports.
- b. Monthly Progress of Activities.
- c. An acceptable detailed breakdown of the CSI Divisions against which payment is requested sufficiently in advance as indicated in 1.01 A. 1. b. This shall be submitted and approved before the application for payment is submitted.
- d. Detailed breakdown of all CSI Divisions shall be submitted within 4 months from NTP.
- e. If Contractor fails to comply with any of the above requirements, the application for payment will not be processed by the MMMHS Representative.

END OF SECTION

SECTION 01045
CUTTING, PATCHING, AND REMOVALS

1.01 CUTTING AND PATCHING

- A. Contractor shall do all cutting and patching, painting and finishing of existing work which is disturbed while performing the Work. Contractor shall be responsible for restoring new work which is damaged. All work shall be restored to provide a new appearance and to be structurally sound.
- B. The work shall be done by competent workmen skilled in the trade required by the restoration.
- C. As soon as practicable after the commencement of work and prior to any imminent placing of concrete, steel, or masonry, the Contractor shall submit to the MMMHS Representative shop drawings indicating the location and size of all penetrations, including, but not limited to, sleeves and ducts, which will be required to accommodate the respective trades in order that it may be determined if such penetrations will materially weaken the building structure. The shop drawings will be stamped and returned if approved. If not approved, reasons will be stated and submitted to the Contractor. The Contractor shall continue to submit shop drawings as the work progresses and shall not proceed with portions of Work having penetrations until such penetrations are approved.
- D. Examination:
 - 1. Prior to cutting, drilling, or removal, investigate both sides of the surface involved. Determine the exact location of structural members.
 - 2. If unforeseen obstructions are encountered, take precautions necessary to prevent damage and obtain instructions from the MMMHS Representative before proceeding with the Work.
- E. Preparation:
 - 1. Provide temporary shoring and other supports necessary to prevent settlement or other damage to existing construction which is to remain.
 - 2. Prepare existing surfaces properly to receive, and where required, to bond with the Work.

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F. Removals, Cutting, Altering:

1. In addition to items indicated on the Contract Drawings to be removed, remove existing construction superseded by the Work except items such as pipes, conduits, recessed boxes, and ducts which are built into existing construction that is to remain. Cut off and conceal such items at face of remaining construction. Provide cover plates on recessed boxes.
2. Remove and alter existing construction as required to install and connect the Work to adjacent construction in an approved manner.
3. Cut and alter existing materials as required to perform the Work. Limit the cutting to the smallest amount necessary. Core drill for holes and saw-cut other openings.
4. Perform cutting, drilling, and removals in a manner which will prevent damage to construction which is to remain.

G. Patching:

1. Patch existing construction and finishes defaced, damaged, or left incomplete due to alterations or removals. Patching, except as otherwise indicated, shall be limited to the areas which have been cut or altered; match materials and finish of area patched.

END OF SECTION

SECTION 01060
PERMITS AND FEES

1.01 REQUIREMENTS

- A. Contractor shall make the necessary arrangements for, and obtain all permits required for the Work, including paying the costs and expenses thereof.
- B. Contractor shall be responsible for the payment of fees which are assessed by any City, State, or Federal agency having jurisdiction over the Work.
- C. Contractor shall be responsible for the renewal of all permits and associated renewal fees until completion of the related work or as required by the governing agency.
- D. Contractor shall pay all associated costs and fees and make all required arrangements through the appropriate utilities for temporary and permanent electrical power.
- E. Contractor shall employ a qualified licensed firm/individual, experienced with the New York City filing, approval and permit procedures; such firm/individual shall prepare and submit all required applications and related documentation to the appropriate agency for processing. The correct and timely submittal of the documentation is solely the responsibility of Contractor. Under no circumstances will time extensions be granted for delays caused by incomplete, incorrect, or untimely submissions of application documentation.
- F. Through the duration of the Work, Contractor shall arrange and coordinate all required inspections. No additional compensation will be paid for repairs, patching and replacement of work required to be removed, opened, or otherwise disturbed to facilitate such inspections.
- H. Before certificates of final payments are issued, Contractor will be required to arrange for all final inspections by the inspection staff of the New York City Building Department and others having jurisdiction, and secure all reports and proofs of inspections. Contractor shall coordinate and arrange for all such inspections. No additional compensation will be paid for repairs, patching, and replacement of work required to be removed, opened or otherwise disturbed to facilitate such inspections.

END OF SECTION

SECTION 01090
REFERENCES

1.01 LIST

Following is a list of organizations, trade associations, trade institutes, and other Standards, with the acronym for each.

Where reference is made in a technical Section to a specification or a requirement of a particular Standard, the date of the Standard is that in effect at the time of the Bid Date, or that in effect at the date of the Contract Award, if there are no bids.

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
ADC	Air Diffusion Council
AHA	American Hardboard Association
AIA	American Institute of Architects
A.I.A.	American Insurance Association
AIHA	American Industrial Hygiene Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALI	Associated Laboratories
ALSC	American Lumber Standards Committee

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AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
AOAC	Association of Official Agriculture Chemists
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	Acoustical Society of America
ASC	Adhesive and Sealant Council
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
BSA	Board of Standards and Appeals - New York City
BHMA	Builders Hardware Manufacturers Association
CAUS	Color Association of the United States
CAGI	Compressed Air and Gas Institute
CBM	Certified Ballast Manufacturers Association
CDA	Copper Development Association
CGA	Compressed Gas Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards, U.S. Department of Commerce
CTI	Ceramic Tile Institute of America
DHI	Door and Hardware Institute

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ECSA	Exchange Carriers Standards Association
EIA	Electronic Industries Association
FCI	Fluid Controls Institute
FGMA	Flat Glass Marketing Association
GA	Gypsum Association
HEI	Heat Exchange Institute
HI	Hydronics Institute
ICEA	Insulated Cable Engineers Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
MBMA	Metal Building Manufacturers Association
MEA	Material Equipment Acceptance - New York City
MCAA	Mechanical Contractors Association of America
ML/SFA	Metal Lath/Steel Framing Association
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
NAPA	National Asphalt Pavement Association
NBGQA	National Building Granite Quarries Association
NBHA	National Builders Hardware Association
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association

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N.F.P.A. National Forest Products Association
NPCA National Paint and Coatings Association
NRCA National Roofing Contractors Association
NSSEA National School Supply and Equipment Association
NYCRR New York Code Rules and Regulations
OSHA Occupational Safety and Health Administration
PCI Prestressed Concrete Institute
PS Office of Product Standards
National Bureau of Standards
U.S. Department of Commerce
RMA Rubber Manufacturers Association
SGCC Safety Glazing Certification Council
SIGMA Sealed Insulating Glass Manufacturers Association
SJI Steel Joist Institute
SMACNA Sheet Metal and Air Conditioning Contractors
National Association
SPRI Single Ply Roofing Institute
SWI Steel Window Institute
TCA Tile Council of America
TIMA Thermal Insulation Manufacturers Association
UL Underwriters Laboratories
USDA U.S. Department of Agriculture
USDC U.S. Department of Commerce
WRI Wire Reinforcement Institute
W.W.P.A. Woven Wire Products Association

END OF SECTION

REFERENCES 01090 - 4

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SECTION 01200
PROJECT MEETINGS

1.01 PURPOSE

Project meetings shall be held to accomplish the following:

- A. Coordinate the Work.
- B. Establish a sound working procedure and relationship between the Contractor, all other contractors, and the MMMHS Representative.
- C. Surface problem areas, assign responsibilities to appropriate parties: i.e., Designer, MMMHS Representative, or Contractor.
- D. Review the progress of the Work, review quality of work in place, review approval required by the Work and review delivery of materials.
- E. Expedite the Work to completion within the scheduled time limit.

1.02 INITIAL JOB MEETING (PRE-CONSTRUCTION MEETING)

- A. The MMMHS Representative will call a Pre-Construction meeting which the Contractor shall attend. This meeting will be called prior to the start of construction.

1.03 JOB PROGRESS MEETINGS

- A. Job progress meetings will be scheduled by the MMMHS Representative during the course of construction; the Representative will preside. The Contractor or the Contractor's duly authorized representative and such Subcontractors, materialmen and vendors as required by the Contractor or the MMMHS Representative shall be present at all job progress meetings. The Contractors and Subcontractors, materialmen and vendors shall answer questions on progress, workmanship, approvals required, delivery of material and other subjects concerning the Work.
- B. The MMMHS Representative will provide that minutes of these meetings will be recorded and typed, and copies will be distributed to all parties involved.

END OF SECTION

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SECTION 01300
SUBMITTALS

1.01 SCHEDULES AND RECORDS

- A. Within the time set forth in the Contract, the Contractor is required to complete and submit to the MMMHS Representative the following forms:
1. A preliminary construction progress schedule or bar chart, as applicable, no later than fifteen (15) calendar days after receipt by the Contractor of the Notice to Proceed.
 2. The date on which the Contractor proposes to award each subcontract, no later than fifteen (15) calendar days after receipt by the Contractor of the Notice to Proceed.
 3. On a form approved by the MMMHS Representative, a schedule of anticipated monthly requisition amounts. Such schedule shall be submitted from time to time as directed by the MMMHS Representative, the first such submission being required to be made by the Contractor within fifteen (15) calendar days of receipt by the Contractor of a written order to proceed issued by the MMMHS Representative. The amounts employed in preparing such schedules in no way shall be binding upon the MMMHS.

END OF SECTION

SECTION 01311
PROGRESS SCHEDULE

PART 1 - GENERAL

1.01 METHODS

- A. The Contractor shall comply with Project Progress Scheduling as specified herein.

1.02 PROGRESS SCHEDULE (BAR CHART)

- A. The Contractor shall submit four (4) sets of a detailed Bar Chart Schedule. As a minimum, the number of activities in the schedule shall match the number of Specification Sections in the Contract documents. The Contractor's schedule shall include all pertinent activities including but not limited to submittal dates, required approval dates of shop drawings, purchasing activities, ordering and delivery dates and activities interfacing or interacting with Subcontractor or services. The Schedule shall be updated every month and as required by the conditions of the Work.
- B. The Contractor shall provide a preliminary schedule within 15 working days from the award of the Contract. The Contractor shall then schedule a meeting with the Subcontractors and the MMMHS Representative, to review the preliminary schedule. Any revisions required by the MMMHS Representative as a result of this review or to eliminate conflicts or for compliance with the Contract completion dates will be made to the schedule by the Contractor and submitted for the MMMHS Representative's approval within seven (7) days of the review meeting. The Contractor shall submit a Final schedule within 15 days of the approval of the preliminary schedule or revisions thereof.
- C. If, in the opinion of the MMMHS Representative the Work falls behind schedule, the Contractor shall be required to submit, within seven days of notification, a revised schedule demonstrating a proposed plan to make up the slippage in the schedule and ensure the completion of Work within the Contract time. If the MMMHS finds the proposed plan not acceptable, the Contractor shall resubmit a revised schedule for approval within seven calendar days of the notification from the MMMHS Representative. The revised schedule shall require the Contractor to increase the work force, the construction

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plant and equipment and/or increase the number of work shifts at no additional cost to the MMMHS. The Contractor shall also bear all the cost for the preparation of the preliminary and all subsequent schedules as well as the cost of additional manpower and equipment.

- D. The Contractor's detailed Schedule of Work shall include, but not be limited to the following:
1. Sequencing (e.g., Excavation must precede Foundations).
 2. Testing Activities/Required Inspections (where applicable).
 3. Subcontractor submittals and approvals.
 4. Shop Drawing Preparation and Approval Activities.
 5. Procurement Schedule (Order Dates, Deliveries, etc.).
 6. Requirement for any On Site Shutdowns that may impact work.
 7. Training or Instruction of School Personnel.
 8. Anticipated Start and Completion Dates for each activity .
 9. Anticipated Durations in work days of each activity.
 10. Final Inspection/Beneficial Occupancy.
- E. In addition to this schedule, two days prior to every monthly job meeting, based on the current approved schedule, the Contractor shall submit a schedule showing all scheduled activities for the following four weeks and a report of progress in the previous four weeks. The schedule will be submitted in a format acceptable to the MMMHS Representative. The Contractor is responsible for reviewing these schedules and coordinate the same with the Subcontractors.

1.03 CONTRACTOR'S DAILY REPORT

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- A. As soon as the Contractor has started Work on the project, the Contractor shall submit weekly to the MMMHS Representative reports of the Work performed the previous day by any of the Contractor's employees, including the employees of the Subcontractors.
- B. The reports shall be prepared by the Contractor's Superintendent and shall bear the Contractor's signature. Each report shall contain the following information:
 - 1. The type of material and the major equipment being installed by the Contractor and the total number of employees worked in each category on that particular day.
 - 2. The names of the Subcontractors working and the type of materials and major equipment being installed, together with the total number employees working for each Subcontractor on that particular day.
 - 3. The major construction equipment being used by each Contractor and Subcontractor.
 - 4. Work pertaining to a Change Order and work being performed under protest.

END OF SECTION

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SECTION 01340
SHOP DRAWINGS AND SAMPLES

1.01 CONTRACTOR SUBMITTAL

- A. Contractor shall submit the Shop Drawings, technical data, and Samples required by the Contract. Contractor shall adhere to all submittal and scheduling requirements for Shop Drawings and Samples. After examination of such Shop Drawings and Samples by the MMMHS Representative and the return of such items by the MMMHS Representative to Contractor, it shall make corrections indicated and shall furnish to the MMMHS Representative the required number of corrected copies of Shop Drawings and Samples.

1.02 SHOP DRAWINGS

- A. Shop Drawings shall be accompanied by a letter of transmittal to the MMMHS Representative requesting approval. Transmittals shall contain submittal items from only one Specifications Section.
- B. Each Shop Drawings and letter of transmittal shall be identified with the following information:
1. Project title.
 2. Date of the drawing, including dates of any revisions.
 3. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable.
 4. Name of person or firm preparing Shop Drawings.
 5. Contract Drawing numbers and Specifications, Section Division and Paragraph numbers used as references in preparing Shop Drawings, and titles of items to which the Shop Drawings refer.
- C. Shop Drawings shall show the design, dimensions, connections and other details necessary to ensure that the Shop Drawings accurately interpret the Contract Documents, and shall also show adjoining Work in such Detail as required to provide proper connections with said adjoining Work. Where adjoining connected Work requires Shop Drawings, such Shop Drawings shall be submitted to the MMMHS Representative for approval at the same time so that connections can be checked.

- D. The Contractor shall verify all field measurements. Measurements available prior to submittal of Shop Drawings shall be shown and so noted on the Shop Drawings. Measurements not available prior to submission of Shop Drawings shall be noted on the Shop Drawings as not available and such measurements shall be obtained by the Contractor prior to fabrication.
- E. The Contractor shall submit manufacturer's drawings and specifications when necessary to fully explain apparatus and equipment required by the Work. These manufacturer's drawings and specifications shall be treated as Shop Drawings. Manufacturer's catalog numbers alone are not acceptable as sufficient information for compliance with this requirement.
- F. The Contractor shall submit original shop drawings specifically intended for the project and shall not submit photostatic reproductions or copies of the Contract Drawings as shop drawings.

1.03 PROCEDURE FOR SUBMITTAL AND APPROVAL OF ALL SHOP DRAWINGS

- A. The Contractor shall submit 8 prints of Shop Drawings and product data to the MMMHS Representative for review and approval. A satisfactory Shop Drawing will be stamped and dated; 3 prints will be returned to the Contractor.
- B. Should the Shop Drawings not be satisfactory, they will be stamped and noted accordingly and two sets of such Shop Drawings will be returned to the Contractor with the necessary corrections and changes to be made in accordance with the notations indicated thereon.
- C. The Contractor shall make such corrections and changes and again submit 8 prints of the Shop Drawings and product data for the approval of the MMMHS Representative. The Contractor shall revise and resubmit the Shop Drawings as required by the MMMHS Representative until approval thereof is obtained.

1.04 RESPONSIBILITY, SCHEDULE, PROCEDURES

- A. Variations - If the Shop Drawings show variations from the Contract requirements because of standard shop practice, or other reasons, the Contractor shall make specific mention of such variations in the letter of transmittal.
- B. Responsibility of Contractor

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1. The approval of Shop Drawings will be general and shall not relieve the Contractor of responsibility for the accuracy of such Shop Drawings, nor for the proper fitting and construction of the Work, nor of the furnishing of materials or Work required by the Contract and not indicated on the Shop Drawings. Approval of Shop Drawings shall not be construed as approving departures from the Contract Drawings, Supplementary Drawings or Specifications.
 2. Contractor shall be responsible for coordinating Shop Drawings of the various trades before submittal so as to avoid conflicting locations and conflicting routing of items and interference between items. Corrections resulting from such conflicts and interference shall be made by and at the expense of the Contractor.
- C. Shop Drawing and Sample Submittal Schedule - To enable the Work to be transacted in an orderly and expeditious manner, the Contractor shall within thirty (30) days after the Notice to Proceed submit a proposed progress schedule showing the anticipated time of commencement and completion of the submission of Shop Drawings and Samples for each of the various operations to be performed under the Contract.

This schedule shall be interfaced with the Construction Progress Schedule required by another Article in the General Requirements.

- D. Procedure for preparing, forwarding, checking and returning of all Shop Drawings shall be generally as follows:
1. The Contractor shall make available to the Contractor's Subcontractors the necessary Contract Documents and have them determine dimensions and conditions in the field, particularly with reference to coordination with other trades or work under other contracts;
 2. The Contractor shall direct the Subcontractors to prepare Shop Drawings for submission to the MMMHS Representative, in accordance with the requirements of these "General Requirements".
 3. The Contractor shall also direct the Contractor's Subcontractors to flag or circle corrections made on all resubmissions for approval, so as to be readily seen, and that the symbol "Sub" be used to

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identify the source of correction or information that has been added.

4. The Contractor shall:
 - a. Review and be responsible to the MMMHS for information shown on Subcontractor's shop and installation drawings and manufacturer's data, and also for conformity to Contract Documents.
 - b. Flag corrections made on all submissions for approval, so as to be readily seen, use the symbols "GC", "PL", "MECH" and "EL" to indicate that the correction and/or information added was made by the respective Subcontractor.
 - c. Clearly designate which trade is to perform the work when the use of "Work by Others" or other similar phrases are indicated on the Drawings before submission to the MMMHS Representative.
 - d. Stamp all submissions "Recommended for Approval", date and forward required copies to the MMMHS Representative.

E. In order to expedite shop drawing procedures, the Contractor shall write a bi-weekly Shop Drawing status letter to the MMMHS Representative containing the following subject matter:

1. A list of all Shop Drawings which have been sent to but not returned by the MMMHS Representative, giving name of the Subcontractor, Drawing number, title and date of submission.
2. An indication of the desired priority of the return, if necessary.

Note: The status letter shall be prepared and sent at a given time, preferably Friday morning, to enable the MMMHS Representative to receive the letter on Monday morning. This procedure shall be maintained throughout the active Shop Drawing period of construction.

1.05 SAMPLES

- A. Samples shall be accompanied by a letter of transmittal to the MMMHS Representative requesting approval.

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- B. Each sample shall be labeled with the following information:
1. Project title.
 2. Date of submission.
 3. Name and quality of the material.
 4. Name of Contractor, name of Subcontractor, Material Supplier and Manufacturer, as applicable.
 5. Contract Drawing numbers and Specification Section, Division and Paragraph numbers used as reference in preparing Samples.
- C. Samples shall be of sufficient size to show the quality, type, color, finish and texture of the material required to be furnished by the Contractor pursuant to the Contract. Furnish specific sizes and quantities where indicated in the respective technical Sections. Where quantities are not indicated, submit 3 samples. All products used on the project shall require a sample submission, whether so stated in the specification or not.
- D. Valuable Samples, such as windows, not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the Work after all questions of acceptability have been settled, providing suitable permanent records are made as to location of the Samples, their properties, and other pertinent information.

1.06 CONTRACTOR RESPONSIBILITY

- A. The MMMHS Representative's approval of Shop Drawings and samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract. The Contractor shall be responsible for the accuracy of the Shop Drawings and Samples and for the conformity of Shop Drawings and Samples with the Contract unless the Contractor has notified the MMMHS Representative of the deviation in writing at the time of submission and has received from the MMMHS Representative's written approval of the specified deviations. The MMMHS Representative's approval shall not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings and Samples.

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1.07 COMMENCEMENT OF WORK

- A. No portion of the Work shall be commenced until required Shop Drawings and Samples are approved by the MMMHS Representative.

END OF SECTION

SECTION 01380
PROGRESS PHOTOGRAPHS

1.01 PHOTOGRAPH SUBMISSION

- A. The Contractor shall take and submit to the MMMHS Representative, representative photographs of the Site and the Work being performed under this Contract. Photographs shall be taken prior to start of Work and thereafter on a monthly basis, and at the completion of the Work. The number and locations from which the photographs are taken shall be subject to the direction and approval of the MMMHS Representative and shall be sufficient to record the conditions existing prior to the commencement of Work and thereafter as directed by the MMMHS Representative to sufficiently document and record the overall progress of the Work Site, construction, architectural and structural details.
- B. All photographs shall be in 35mm color slide format and shall be concisely labeled with date, time, Project No. and subject. The slides shall be delivered in flexible, plastic, archival quality, slide files containing 20 pockets for 2" x 2" slides.
- C. In addition to the 35 mm slides, the Contractor shall furnish one 4" x 6" color print of each of the slides.
- D. The costs for taking, processing, labeling, mounting and delivering all slides and photographs shall be included in the Contractor's Bid Amount.
- E. Quantity of Photographs

Provide an average of 20 photographs per month over the life of the Project.

END OF SECTION

SECTION 01400
QUALITY CONTROL

1.01 SERVICES AND ITEMS INCLUDED

- A. Controlled inspections shall be performed by a Professional Engineer or Registered Architect (licensed in the State of NY) retained by the Contractor on behalf of the MMMHS. All costs related to the controlled inspections shall be the responsibility of the Contractor. All forms required for this purpose by the NYC Building Department or other agency shall be prepared and filed by the Engineer or Architect retained by the Contractor.

1.02 CONTROLLED INSPECTIONS

- A. Material and service equipment designated for "Controlled Inspection" under the provisions of the New York City Building Code shall be inspected, tested and witnessed by or under the supervision of a licensed Engineer or a licensed Architect.
- B. The Engineer or Architect employed for "Controlled Inspections" shall file all initial amendments or Statements of Responsibility Form TR-1, properly executed, before work commences and all final amendments immediately upon completion of work with the Building Department. A copy of each approved amendment or Form TR-1 must be on file with the New York City Building Department before work commences and copies of final amendments or TR-1 Forms must be on file before final acceptance of the Work.
- C. Contractor shall notify in writing the Engineer or Architect responsible for controlled inspections at least 48 hours before the specific work item commences.
- D. Inspections and tests performed under controlled inspection shall in no way relieve the Contractor of the responsibility to construct the project in accordance with the Drawings and Specifications.

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1.03 MANUFACTURERS' FIELD OBSERVATIONS AND TESTS

- A. Provide observations and tests as specified in the respective technical Sections.

1.04 MOCK-UPS AND FIELD SAMPLES

- A. Provide mock-ups and field samples as specified in the respective technical Sections.

1.05 ACCEPTANCE TESTS

- A. Governmental Agencies - All equipments and appliances furnished and installations made under the Contract shall conform to the requirements of the Specifications, and shall in any event be not less than that necessary to comply with the minimum requirement of all governmental agencies having jurisdiction.
- B. Notice of Tests - Whenever the Specifications or any governmental agency having jurisdiction requires the acceptance test, Contractor shall give written notice 48 hours in advance to all parties concerned of the time when these tests will be conducted.
- C. Utilities and Instruments - Contractor shall furnish energy, fuel, oil, water, air, smoke, light and electrical instruments as required for all testing.
- D. Contractor shall furnish labor and material necessary to conduct the acceptance tests at no additional cost to the MMMHS.
- E. Certificate - The final acceptance by the MMMHS shall be contingent upon the Contractor delivering to the MMMHS Representative all necessary certificates evidencing compliance in every respect with the requirements of the agencies having jurisdiction.

END OF SECTION

SECTION 01426
SAMPLE ROOM

1.01 PURPOSE

- A. A complete sample of a typical room that incorporates all of the individual materials, equipment and finishes shall be constructed.
- B. The Sample Room will serve to establish an acceptable level of quality.
- C. The MMMHS Representative will have an opportunity to view and approve the finished room before Contractor begins the finish production work for any other spaces within the building.

1.02 EXECUTION

- A. A room, designated by the MMMHS Representative, shall be constructed as the Sample Room. Contractor shall include within its base bid all costs associated with the construction of this room, including, but not limited to, the out-of-sequence construction of this room.
- B. The Sample Room shall include all work indicated in the Contract Documents for the specific classroom and shall include, but not be limited to, removals, replacement windows, gypsum board walls and ceilings, plaster patching, mechanical work, electrical work, and painting.
- C. All Submittals and Shop Drawings and Samples required for any of the components required to complete the Sample Room shall be scheduled, submitted and approved prior to constructing the Sample Room.
- D. Construction of the Sample Room shall be included in Contractor's Master Schedule.
- E. The Sample Room shall remain as a permanent part of the building. This room shall be accessible to the MMMHS and the MMMHS Representative at all times. All corrective work to achieve the level of quality required shall be the responsibility of Contractor.
- F. The MMMHS Representative's approval of Sample Room shall not relieve Contractor of responsibility for any deviation from the requirements of the Contract. Contractor shall be responsible for the conformity of the Sample Room with the Contract unless Contractor has

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notified the MMMHS Representative of the deviation in writing prior to constructing the Sample Room and has received from the MMMHS Representative's written approval of the deviations. The MMMHS Representative's approval shall not relieve Contractor of responsibility for errors or omissions in the Sample Room construction.

END OF SECTION

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

1.01 REQUIREMENTS

- A. The Contractor shall Provide the temporary facilities and controls as hereinafter specified and as required by law.

1.02 TEMPORARY LIGHTING AND ELECTRIC SERVICE

- A. The Contractor shall Provide and maintain all temporary lighting and power required, including exterior lighting and security lighting, in connection with the Contractor's operations from the commencement of the Work until the completion of the structure or for such other time as directed by the MMMHS Representative. When the use of such temporary lighting and power is no longer required, all temporary wiring and equipment shall be completely removed by the Contractor. The minimum temporary lighting to be provided is at the rate of one-quarter watt per square foot and is to be maintained in each room requiring Work. However, provide sufficient level of lighting to perform the Work. All temporary wiring and equipment shall be in conformity with the National Electric Code. Three-phase temporary power circuits shall be installed as required to operate construction equipment of the various trades and to install and test equipment. The Contractor shall install and maintain temporary or permanent service for the permanently installed building equipment, so that such equipment may be operated when required and so ordered by the MMMHS Representative. The Contractor may use the existing power within the School Building for construction within the facilities if available. The Contractor shall make the necessary application to the lighting company and pay for all charges, costs and expenses incidental to the installation and maintenance of temporary power as required in connection with the Contractor's office trailer and the temporary classroom trailers, and the Contractor shall pay for all power used. At the completion of each interior area of the Project, the Contractor shall remove the temporary lighting. At the completion of the entire Project, the Contractor shall remove the temporary lighting and power from the Site and shall restore the Site to its original condition.

1.03 TEMPORARY TOILET FACILITIES

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- A. The Contractor shall provide and maintain chemical toilet accommodations in the Contractor's Staging Area for all persons employed or engaged in the Work; such facilities shall meet any and all requirements of law, rule or regulation. The Contractor shall remove such facilities at the completion of the Work or at such earlier time as the MMMHS Representative may direct.

1.04 INTERRUPTION OF UTILITY SERVICES

- A. The Contractor shall submit to the MMMHS Representative, for approval, a proposed schedule of all utility shutdowns and cutovers of all types which may be required in connection with the Work. Utility shutdowns shall only be performed on weekends or days of the week when the school building is not being utilized. Such schedule shall provide a minimum of two (2) weeks advance notice to the MMMHS Representative prior to the item of the proposed shutdown or cutover.
- B. Any shutdowns or cutovers shall be at the sole expense of the Contractor.

1.05 TEMPORARY ENCLOSURES

- A. The Contractor shall provide and maintain temporary weather-resistant enclosures for all openings in exterior walls and roof that are not permanently enclosed.

1.06 TEMPORARY FENCE ENCLOSURES

- A. The Contractor shall provide and maintain temporary fence enclosures for the Contractor's Staging Area.
- B. Provide a construction fence as indicated on the Drawings and in accordance with the NYC Building Code. The construction fence, gates and all accessories shall be galvanized.
- C. Develop, and submit to the MMMHS Representative for approval, detailed fence shop drawings, indicating bracing, gates and other pertinent information.

1.07 EXISTING PARKING LOT

- A. The Contractor may only use area of the school's existing parking lot designated as the Contractor's Staging Area as indicated on the Drawings. The Contractor and his its forces shall not block off, use or park in the remaining portion of the school's parking lot.

1.08 FIRE PREVENTION CONTROL

- A. Comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to the Work and, particularly, in connection with any cutting or welding performed as part of the Work.

1.09 POLLUTION CONTROL

The Contractor shall:

- A. Comply with all laws, rules and regulations governing pollution control, including but not limited to those of the Department of Environmental Conservation of NYS.
- B. Refrain from the disposal of volatile fluid wastes into storm or sanitary sewer systems, approved sewage disposal systems or any waterway.
- C. Refrain from burning trash or waste materials.

1.10 TEMPORARY CLASSROOMS

- A. The Contractor shall provide temporary classroom trailers, comprising one classroom, including stairs, ramps, platforms and railings to access the trailers, as shown on the Contract Drawings, for the School's use during the course of the Work. The temporary classroom units will be funded by the F.A.A. and the P.A.
 - 1. The Contractor shall supply temporary classroom trailers in full compliance with the NYC Building Code and shall provide for all work necessary to provide the trailers with a temporary electric service from the local electric utility company.
 - 2. All toilet and sink facilities in the classroom trailers shall be self contained.
 - 3. At the completion of the Project, the Contractor shall remove the temporary classroom trailers and temporary electric service from the Site and shall restore the Site as indicated on the Drawings and directed by the MMMHS Representative.
 - 4. The Contractor shall provide temporary classroom trailers from a recognized leasing company such as GE Capital Modular Space in Farmingdale, NY 11735 or equal.

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5. The Contractor shall furnish and install a wall mounted telephone in each temporary classroom with intercom only capabilities connected to the school's main telephone board. Intercom phones shall be compatible with the school's existing telephone system. The Contractor shall run all intercom phone wiring on temporary supports at 10'-0" above finished grade. The Contractor shall maintain the intercom telephones and wiring for the duration of the Contract. Upon completion of the Project, the Contractor shall remove the equipment, wiring and temporary wiring support and restore the Site to its original condition.

1.11 TEMPORARY FIELD OFFICES

A. Contractor's Field Office

The Contractor shall provide a temporary office trailer, for the Contractor's and the MMMHS Representative's use during the course of the Work.

1. The Contractor shall supply a temporary office trailer in full compliance with the NYC Building Code and shall provide and pay for all work necessary to provide the trailers with a temporary electric service from the local electric utility company. The trailer shall be located within the Contractor's Staging Area.
2. All toilet and sink facilities in the office trailer shall be self contained.
3. At the completion of the Project, the Contractor shall remove the temporary office trailer from the Site and shall restore the Site and finish the area as indicated on the Drawings and directed by the MMMHS Representative.
4. The Contractor shall provide a lockable office within his temporary office trailer for the exclusive use of the MMMHS Representative. The MMMHS Representative shall have access to this office and the Contractor's Staging Area at all times.
 - a. Bear all costs in relation to the furnishings, construction and removal of such office.
 - b. Office shall be of sufficient size to include

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the following furniture/equipment/utilities which the Contractor shall provide, pay for, and maintain:

1. Heater and Air Conditioner with thermostatic controls, to provide for inside temperature of 70 degrees F.
2. Electrical System complete with fluorescent lighting and electric outlets.
3. Large aluminum windows and screens.
4. Plan table 36" X 72" and plan rack.
5. One kneehole desk and two office chairs.
6. Two lockable legal size 4-drawer metal filing cabinets, suspension type provided with follower and rod.
7. Fifty (50) vertical file guides and 50 manila folders.
8. Two Stanley mason's level, one 48" long and one 24" long, walnut and redwood stock 2 1/4" X 11/16" with aluminum tips and one Stanley 25 foot tape measure. Upon completion of contract, this equipment shall become property of Contractor.
9. Three (3) blue safety hats, of approved type, for use of the MMMHS Representatives. Upon completion of contract, safety hats to become property of Contractor.
10. Copy Machine: Provide and maintain Xerox #1012, or approved equal, table top copier, capable of coping sizes 8 1/2" X 11" and 8 1/2" X 14". Provide all supplies as required.
11. Install a telephone for the sole use of the MMMHS Representative and pay all service and toll charges incurred as a result of the use of such telephone service.

1.12 MAINTENANCE OF TEMPORARY CLASSROOMS AND FIELD OFFICE

A. Temporary classrooms

1. Maintain 70 degree temperature inside year round, during school hours.
2. Keep weatherproof and water-tight.
3. Replace burned out fluorescent tubes and incandescent bulbs.
4. Maintain all systems in proper working order.
5. Provide normal snow removal operations for the temporary classroom's exterior deck, steps and ramps and the temporary asphalt pavement leading to the temporary classroom trailers.
6. Normal cleaning operations will be by School Custodian.

B. Contractor's Field Office

1. Clean daily.
2. Wash, when required, and at least once every week.
3. Maintain 70 degree temperature inside year round, during work hours.
4. Keep weatherproof and water-tight.
5. Replace burned out fluorescent tubes and incandescent bulbs.

1.13 RUBBISH REMOVAL

A. The Contractor shall:

1. Keep the Work free from rubbish at all times.
2. Clean all enclosed structures daily.
3. Remove rubbish from the Site at least once a week.

B. The Contractor shall conform with the following:

1. Burning of rubbish will not be permitted.

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2. All rubbish shall be lowered by way of chutes or lowered in receptacles. Under no circumstances shall any rubbish be dropped or thrown from one (1) level to another inside or outside any building.
 3. Do not throw rubbish from the windows or other parts of the building. Wet down masonry rubbish, dirt and other dust-producing material from time to time.
 4. Remove from the site all surplus materials as the Work progresses.
 5. At the conclusion of the work, all erection plant tools, temporary structure and materials belonging to the Contractor shall be promptly taken away.
 6. In the event the Contractor fails to maintain the premises in a neat condition acceptable to the MMMHS Representative and postpones or delays the removal of rubbish, the MMMHS may order such rubbish or dirt removed by other parties, if in its opinion this failure results in the clear and present danger of fire or personal injury. In such event, there shall be withheld from any payment to the Contractor a sum determined by the MMMHS sufficient to cover the cost of removal by other parties.
- C. All materials, fixtures and equipment, removed in the process of the work under this Contract shall remain the property of the MMMHS. The MMMHS Representative will examine the materials, fixtures and equipment removed, and determine which items shall be retained by the MMMHS. The Contractor shall move and store such items where directed by the MMMHS Representative. All other materials, fixtures, and equipment shall be removed and be disposed of by the Contractor in the same manner as rubbish.

1.14 DISCONTINUE, CHANGES AND REMOVAL

The Contractor shall:

- A. Discontinue all temporary services required by the Contract when so directed by the MMMHS Representative. The discontinuance of any such temporary service prior to the completion of the Work shall not render the MMMHS liable for any additional cost entailed thereby.

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- B. Remove and relocate such temporary facilities without additional cost to the MMMHS, and restore the Site and the work to a condition satisfactory to the MMMHS Representative.

1.15 MOISTURE AND CONDENSATION CONTROL

- A. The Contractor shall provide for ventilation of all structures until Physical Completion and acceptance of the Work and shall control such ventilation to avoid excessive rates of drying of construction materials, including but not limited to concrete and to plaster, and to prevent condensation on sensitive surfaces.

1.16 STORAGE OF MATERIALS

- A. Provide and maintain adequate storehouses, material sheds, protection or other structures as may be required for any of the Work, or for the storage of materials. Adopt methods, procedures and ways and means to meet the conditions of all seasons. All materials must be stored in watertight structures, not tarps or covers exposed to the weather, unless acceptable to the MMMHS Representative.

1.17 CONCESSIONS ON SITE

- A. No restaurants, lunchrooms or other concessions of any kind whatsoever shall be operated on the site of this Project except with written permission of the School Principal.

1.18 TREE PROTECTION

- A. Provide adequate protection for the duration of the Project Work for existing trees which are to remain at the Site. Contractor shall bear the expense of replacing trees that are damaged.

1.19 SCAFFOLDING AND LADDERS

- A. The Contractor shall furnish and securely set scaffolding required for the Work.
- B. All scaffolding shall be of good, sound materials, of adequate dimensions for its intended use and substantially braced and tied to ensure absolute safety for its users.

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1.20 SIDEWALK SHEDS

- A. The Contractor shall provide sidewalk sheds of the type and in locations as required by the Work and the NYC Building Code.

END OF SECTION

SECTION 01513
HEAT DURING CONSTRUCTION

1.01 GENERAL

- A. All work shall be performed under such ambient temperature and humidity conditions as are necessary or required to satisfactorily carry out the Work of this Contract. The Contractor is responsible for arranging to have such temporary heat, as may be necessary or may be called for herein to maintain adequate ambient temperature (between 45 and 55 degrees F, except where higher temperatures are required) and humidity conditions in work areas and shall pay all expenses relating thereto. Spaces occupied by students and school staff shall be maintained at 70 degrees F and not be disrupted.
- B. The Contractor shall provide all connections, fittings, controls, piping and terminal units, and individual heating units as may be necessary to maintain adequate conditions as described above. Heating Units shall be of an approved type meeting applicable NYC codes and ordinances.
- C. Systems for temporary heat may be connected to the existing heating system (where applicable) to the extent and at such locations as designated by the MMMHS Representative.
- D. The cost of fuel shall be paid for by the Contractor unless such temporary heat is obtained from the existing heating system.
- E. Take precautions to protect all portions of the building from smoke and gas damage and to prevent hazardous conditions which may result in damage to property or injury to persons.
- F. At the completion of the project all piping shall be disconnected and capped and the existing system, if connected to, shall be restored to its original condition. All damages to the existing system shall be repaired by the Contractor at no additional cost to the MMMHS.

END OF SECTION

SECTION 01600
MATERIAL AND EQUIPMENT

1.01 DELIVERY, STORAGE AND PROTECTION

- A. Materials stored on the Site shall be neatly arranged and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work or with the daily functioning of the School.
- B. Should it become necessary during the course of the Work to move materials or equipment stored on the Site, the Contractor, at the direction of the MMMHS Representative, shall move such material or equipment.
- C. Contractor shall furnish to the MMMHS Representative a copy of each material order, indicating date of order and quantity of material, and shall also notify the MMMHS Representative when material has been delivered to the site and state the quantities.
- D. Ample quantities - Contractor shall deliver materials in ample quantities to ensure the most speedy and uninterrupted progress of the work so as to complete the Work within the Contract time.
- E. Manufacturer's containers shall be delivered with unbroken seals and shall bear proper labels.
- F. Contractor shall coordinate deliveries in order to avoid delay in, or the impeding of the progress of the Work. Deliveries shall be made during regular work hours, unless approved otherwise by the MMMHS Representative.
- G. Stackings - All materials shall be properly stacked in convenient places adjacent to the Work, or in other areas approved by the MMMHS Representative, and protected as recommended by the respective material manufacturer.
- H. Overloading - If approval is given to store materials in any part of the building area, they shall be so stored as to cause no overloading of the existing structure.
- I. No Interference - If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the Work or interfering with the work to be done by any other contractor, or interfering with the school's activities, Contractor shall remove and restack such materials at no additional cost to the MMMHS.

1.02 APPROVAL OF MATERIALS

- A. Local Laws - All materials, appliances and types of methods of construction shall be in accordance with the Contract Documents, and shall in no event be less than that necessary to conform to the requirements of the Administrative Code and the Charter of the City of New York.
- B. Repute of Manufacturer - No manufacturer will be approved for any materials to be furnished under the Contract unless the manufacturer shall be of good reputation, shall have a plant of ample capacity and shall have successfully produced similar products.
- C. All transactions with the Manufacturers and Subcontractors shall be through Contractor unless Contractor requests in writing to the MMMHS Representative that the manufacturer or subcontractor deal directly with the MMMHS Representative. Any such transactions shall not in any way release Contractor from full responsibility under the Contract.
- D. All Materials, fixtures, fittings, supplies and equipment furnished under the Contract shall be new and unused, of first-grade quality and of the best workmanship and design. Where existing work is removed or disturbed, all replacement materials shall match existing unless prior approval of variance is given in writing by the MMMHS Representative.

1.03 MANUFACTURER'S SHOP PAINT

- A. For all manufactured products and equipment requiring shop paint in the State of New York, paint used shall be:
 - 1. In compliance with Federal regulations and with the regulations of the State of New York and of the City of New York.

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2. In compliance with Part 205, "Architectural Surface Coatings", Department of Environmental Conservation, State of New York, governing the emission of Volatile Organic Compounds.
 3. In compliance with the non-photo chemical reactive solvents requirements of N.Y.C. Law 49.
 4. Be compatible with the finish painting for the respective product and the condition of use.
- B. The provisions of Art. 1.03-A, herein, shall supersede shop coat paints specified in the respective technical Sections of these Specifications, where in conflict.

END OF SECTION

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SECTION 01630
PRODUCT SUBSTITUTIONS AND OPTIONS

1.01 CONSIDERATION FOR APPROVAL

- A. Products, materials, systems and equipment specified herein shall be used for this Project unless approval for submitted substitutions is obtained from the MMMHS Representative.
- B. Consideration for approval of substituted products, materials, systems, and equipment will be as stipulated in Materials and Labor Section of the Special Conditions.
- C. Requests will not be considered if made for a certain item or items if made at such date which will not allow time for proper MMMHS Representative analysis and determination for decision before need for incorporation of item or items in the Work of the Project.
- D. Request for approval of substitute window manufacturer must comply with all submission requirements of Section 08524 of this Specification.

1.02 INFORMATION FOR SUBMITTAL

- A. Submit product literature, samples, drawings, life cycle cost data, maintenance data, and other pertinent documentation that the MMMHS Representative may require to make a proper analysis and determination.

1.03 APPROVAL DECISION

- A. The decision for approval or rejection of a product substitution shall rest solely with the MMMHS Representative.

1.04 ACCOMMODATIONS FOR SUBSTITUTIONS

- A. In the event substitute products, materials, systems and equipment which are accepted cause accommodations incurring additional costs, such costs shall be borne by the Contractor.

END OF SECTION

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SECTION 01650
FACILITY START-UP, DEMONSTRATION, TRAINING

1.01 START-UP AND DEMONSTRATION

Note: See 01730 for HVAC OPERATION, TRAINING, MANUAL for HVAC operation and training.

- A. Contractor shall start-up and demonstrate, in the presence of the MMMHS Representative and the Director of Buildings and Grounds, the proper operation of all equipment provided in this Contract; refer to respective technical Sections for detailed procedures. If procedures are not specified for specific items of equipment, follow that recommended by the item Manufacturer.

1.02 TRAINING

- A. Contractor shall provide the services of factory-trained representatives to instruct and train designated MMMHS personnel in the proper operation and maintenance of each item of equipment.
- B. Contractor and the MMMHS Representative shall mutually agree upon the times set for the instruction and training.

END OF SECTION

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SECTION 01700
PROJECT CLOSEOUT

1.01 FINAL CLEANUP

- A. Contractor shall leave the Work ready for use and occupancy without the need of further cleaning of any kind.
- B. Contractor shall remove all tools, appliances, project signs, material and equipment from the premises as soon as possible upon completion of the Work.
- C. The Work shall be turned over to the MMMHS in new condition, in proper repair and in perfect adjustment.

1.02 REQUIRED CLOSEOUT DOCUMENTATION

- A. Prior to final payment, the MMMHS Representative shall receive the following documents as required by the Contract:
 - 1. Contractor's general guarantee.
 - 2. Specific guarantees, warranties, material, equipment and other items of work.
 - 3. All certificates obtained in connection with the Work.
 - 4. All approvals from the NYC Building Department and other agencies have jurisdiction.
 - 5. Project Record Documents.
 - 6. All final photographs of the Work.
- B. The MMMHS Representative shall also receive from the Contractor prior to final payment:
 - 1. A complete listing of all Subcontractors, business addresses and items supplied by each such Subcontractor.
 - 2. A listing of manufacturers of major materials, equipment and systems installed in the Work.
 - 3. A copy of all test data taken in connection with the Work.

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4. At least 3 copies of all operation and maintenance manuals, but more than 3 copies if indicated otherwise in another Section.
5. All keys, tools, screens, spare construction material, finishing material and equipment required to be furnished to the MMMHS as part of the Work.

1.03 ORIENTATION INSTRUCTION

- A. Prior to final payment appropriate maintenance personnel of the MMMHS shall be oriented and instructed by the Contractor in the operation of all systems and equipment as required by the Contract.

1.04 PROJECT CLOSEOUT INSPECTIONS

- A. When the Work has reached such a point of completion that the building, equipment or apparatus or any part thereof required by the MMMHS for occupancy or use can be so occupied and used for the purpose intended, the MMMHS shall make a detailed inspection of the Work to ensure that all requirements of the Contract have been met and that the Work is complete and is acceptable.
- B. A copy of the report of the inspection shall be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.
- C. When the items appearing on the report of inspection have been completed or corrected, Contractor shall so advise the MMMHS Representative. After receipt of the notification, the MMMHS Representative will inform the Contractor of the date and time of final inspection. A copy of the report of the final inspection containing all remaining contract exceptions, omissions and in completions will be furnished to Contractor.
- D. After receipt of notification of completion and all remaining contract exceptions, omissions and in completions from Contractor, the MMMHS Representative shall make an inspection to verify completion of the exception items appearing on the report of final inspection.
- E. Inspections
 1. Before certificates of final payments are issued,

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Contractor shall arrange for all final inspections by the inspection staff of the Department of Buildings and other City agencies having jurisdiction, and secure all reports by such inspectional staff and other City agencies.

2. Contractor or Vendor for the Electrical Work shall submit proof of filing for a certificate of electrical inspection, by forwarding to the MMMHS Representative the pink copy of the job position card issued by the Bureau of Electric Control in connection with each application for certificate of electrical inspection. Submit BEC Certificate of Inspection before Contract closeout and as a condition for final payment.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

1.01 PROJECT RECORD DOCUMENTS

- A. The purpose of the Project Record Documents is to record the actual location of the Work in place, including, but not limited to, concealed piping within buildings, concealed valves and control equipment, connections, switches, and cut-outs, and to record changes in the Work.
- B. In addition to the sets of Contract Documents that are required by Contractor on the Site to perform the Work, Contractor shall maintain, at the Site, 1 copy of all Drawings, Specifications, and Addenda, that are part of the Contract as awarded, and also Change Orders, Modifications, approved Shop Drawings, and other approved changes. Each of these documents shall be clearly marked "Project Record Copy" as indicated below, maintained in a clean and neat condition available at all times for inspection by the MMMHS Representative and shall not be used for any other purpose during the progress of the Work.
1. Each record copy shall bear the legend "PROJECT RECORD COPY" in heavy block lettering, ½" high and contain the following data:

PROJECT RECORD COPY

- a. Contractor's Name _____
Contractor's Address _____
Made by _____ Date _____
- b. Checked by _____ Date _____
2. Changes from the Contract as awarded Documents shall be conspicuously encircled.
- C. Project Record Requirements
1. The Contractor shall mark-up the "Project Record Documents" to show:
- a. Approved changes in the Work.

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- b. Location of concealed Work.
 - c. Details not shown in the original Contract Documents.
 - d. All relocations of Work.
 - e. All changes in dimensions.
 - f. All access doors.
 - g. Location of all heating, ventilating, air conditioning and electrical assemblies.
2. Such information shall include, but shall not be limited to:
- a. All structural changes.
 - b. All substitutions.
 - c. All approved Change Orders.
- D. Contractor shall keep the Project Record Documents up-to-date from day to day as the Work progresses. Appropriate documents shall be updated promptly and accurately; no Work shall be permanently concealed until all required information has been recorded.
- E. Each month these record drawings will be examined by the MMMHS Representative prior to recommending the approval of the partial payment request to ascertain that the record prints reflect the changes to date.
- F. Record Shop Drawings: If installed equipment is at variance with the respective approved Shop Drawings, Contractor shall furnish to the MMMHS Representative revised Shop Drawings indicating the actual completed installation.
- G. Shop Drawings for Permanent Records - Contractor shall submit a list of all approved Shop Drawings of the Work as installed. From this list the MMMHS Representative will select the drawings desired for permanent records. Contractor shall furnish these in a bound set to the MMMHS Representative.
- H. All of the above listed requirements of this Article shall be at Contractor's expense.
- I. The Project Record Documents shall be submitted by

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Contractor to the MMMHS Representative when all the Work is completed and shall be approved by the MMMHS Representative before Contractor may request final payment and shall become the property of the MMMHS.

J. Final payment shall be contingent on completion of the above listed requirements in this Section.

K. Approval of Bureau of Electric Controls:

1. The Bureau of Electric Controls job number for the Contract shall appear on all drawings, samples or other materials submitted for approval, together with the Contractor Number and name of the project.
2. The Contractor shall submit drawings to be reviewed, approved and signed by the electrical inspector of the Bureau of Electric Controls for Agency approval. Prints shall be submitted and re-submitted at Contractor's expense until approved.

END OF SECTION

SECTION 01730
HVAC OPERATION, TRAINING, MANUAL

1.01 TRAINING OF CUSTODIAL STAFF

- A. Contractor shall advise the Director of Buildings and Grounds, through the MMMHS Representative, of the schedule of installation of mechanical equipment. During the construction phase, the Director of Building and Grounds shall have access to the site as an observer during all times Contractor is working. The MMMHS Representative will advise the Director of Buildings and Grounds not to interfere or give directives to Contractor.

The Director of Buildings and Grounds shall be advised of all checkouts and adjustments to systems in preparation to startup and shall be given the opportunity to observe this phase of the installation.

- B. Contractor shall furnish the services of a factory-trained representative, whose duty shall be to train the Custodian in the operation, troubleshooting and basic maintenance of each mechanical system. Operating and maintenance instructions shall consist of not less than 10 days for heating, ventilating and air conditioning equipment apportioned as follows:
1. The Director of Buildings and Grounds and the Custodian shall be instructed in the operation and maintenance requirements of the heating and ventilating system on 4 consecutive school days between the hours of 8:00 a.m. and 3:00 p.m.
 2. The Director of Buildings and Grounds and the Custodian shall be instructed in the operation and maintenance of the temperature control system, pumps and all other systems and equipment installed under this Contract during any 2 school days (not necessarily consecutive) between the hours of 8:00 a.m. and 3:00 p.m.
 3. The exact dates and hours for the instruction periods indicated in 1. and 2. above, will be mutually agreeable to the MMMHS Representative, Contractor, and the Director of Buildings and Grounds and the Custodian.
 4. The number of days for the instruction periods

indicated in 1. and 2. above is a minimum; if the MMMHS determines that more instruction time is needed for the Director of Buildings and Grounds and the Custodian to be adequately trained in the operation and maintenance of the mechanical equipment, Contractor shall provide the additional training at no extra cost to the MMMHS.

1.02 OPERATION AND MAINTENANCE MANUAL

- A. Prior to the final checkout, adjustment and startup of the system, Contractor shall furnish the Director of Buildings and Grounds with a draft of the Operation and Maintenance manual for review and comment.

Contractor shall furnish the MMMHS Representative with 5 copies of the final Operating and Maintenance Manual which shall be typewritten (double spaced) on heavy bond paper securely bound in a loose-leaf type book. The manual shall contain at a minimum, but not necessarily be limited to, the following items for each item of machinery and heating, ventilating and air conditioning system (or any other system) installed under this Contract:

1. Complete starting and stopping instructions.
2. Troubleshooting instructions.
3. Routine, periodic and special maintenance instructions.
4. Manufacturers manuals for various components of the system.
5. Actual locations of all starters, contactors, valve charts, and other pertinent items.
6. Complete parts list and telephone number and address of the manufacturer and local distributor.

Contractor shall deliver all copies of the manual to the MMMHS Representative prior to the training period specified above and shall obtain a signed receipt. The MMMHS Representative shall deliver 3 copies to the Director of Buildings and Grounds prior to the training period.

END OF SECTION

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SECTION 01740
GUARANTEES, WARRANTIES, BONDS
AND MAINTENANCE CONTRACTS

1.01 CONTRACTOR'S GUARANTEE

A. The Contractor shall furnish a written guarantee in the following form:

"GUARANTEE"

PROJECT _____

The Contractor hereby guarantees that the Work specified for the aforesaid Contract will be free from defects of material and workmanship for a period as specified in the General Conditions.

The Contractor also guarantees that it will repair or replace, whichever may be deemed necessary by the Monsignor McClancy Memorial High School, all defective material or workmanship of the Work, that may appear within the guarantee period, to the satisfaction of the Monsignor McClancy Memorial High School and without any cost or expense to the Monsignor McClancy Memorial High School.

Contractor

By _____

Date _____

Sworn to me before this

_____ day of _____, 20__

Notary Public

D. Scheduling of corrective Work will be determined by the MMMHS. Work required to correct defective material or workmanship during the guarantee periods shall be done by the Contractor without cost to the MMMHS.

E. Should the Contractor fail to remedy defects immediately,

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the MMMHS may furnish such materials and labor as are necessary to bring the Work to the standard called for and the Contractor shall reimburse the MMMHS in full immediately.

1.02 WARRANTIES AND GUARANTEES (OTHER THAN CONTRACTOR'S)

- A. Warranties and guarantees as specified in the respective Sections for products and systems shall be in addition to the Contractor's guarantee, and shall be for such periods and with such conditions as stipulated.

1.03 BONDS

- A. The Contractor shall provide bonds as stipulated in Insurance/Bonding Section of the General Conditions and respective Sections for products and systems.

1.04 COMMENCEMENT DATE OF WARRANTIES AND GUARANTEES

- A. All warrantee and guarantee periods shall commence on the date of Substantial Completion of the entire project, not the occupancy dates or completion date of individual areas or items of Work of the project.

END OF SECTION

SECTION 01900
EXISTING STRUCTURES WORK

1.01 ORDER OF WORK

- A. To maintain school activities with a minimum of interference and to complete all the work of all Trades within the required Contract Time, the Work of this Contract shall be performed in "Stages" as set forth at the end of this Section.

1.02 EXAMINATION OF PREMISES

- A. Verification of Existing Conditions After Award
1. Various existing conditions at locations of the Work which cannot be determined until removals are under way cannot be indicated on the Drawings or described in the Specifications.
 2. Perform all such removals as required to verify all existing conditions before fabricating the work.
 3. Before removing any enclosure that will expose the interior of the building to the elements or before disturbing any structural work, make all possible preliminary investigations to verify the existing conditions thereat.
 4. Where removals or preliminary investigations reveal existing conditions that differ materially from what is indicated or specified, or that may require changes, immediately notify the MMMHS Representative in writing and await instructions before proceeding further with that part of the Work.

B. Discrepancies in Existing Conditions

During the process of the Work, should conditions be encountered that materially differ from those shown on the Drawings or indicated in the Specifications, or conditions which could not reasonably have been anticipated, which conditions will materially affect the cost of the Work, such conditions shall immediately be called to the attention of the MMMHS Representative, before they are further disturbed. The MMMHS Representative will promptly investigate the conditions and if it is found that they do so materially differ,

shall issue a change order.

1.03 ASBESTOS

- A. If, during the course of construction, the Contractor believes materials which might contain asbestos may be disturbed during performance of the Work, the Contractor shall immediately notify the MMMHS Representative of the area(s) of concern.
- B. If the presence of friable asbestos is suspected, the Contractor shall be directed to suspend work in the area in question and be redirected by the MMMHS Representative to other areas or work, if available. The MMMHS will obtain a sample of the suspected substance and expedite its analysis in order to confirm whether asbestos is present. Should no friable asbestos be found, the Contractor shall be directed to resume work immediately.
- C. Scheduled removal of asbestos containing items ie. existing VAT at chases, portions of existing window sealant, and all existing main roof membrane systems will be performed by an asbestos removal contractor under a separate contract.

1.04 PRECAUTIONS AGAINST LEAD PAINT EXPOSURE

- A. When removing existing paint from surfaces, treat all paint with the assumption that it contains lead.
 - 1. Where removal of existing paint is on-going, provide dust partitions (Refer to Art.1.18, herein) and other means of containing dust, dirt, paint particles, and debris to the immediate work area. Workers shall not track dust and paint particles through occupied areas. Where possible, provide separate work area access and exit for workers.
 - 2. Clean-up: Provide daily clean-up in accordance with Art. 1.20, herein, as a minimum clean-up requirement. Provide more frequent clean-up as conditions require.
 - 3. Disposal: Bag, remove from premises, and dispose of all existing paint materials, dust, dirt, and debris removed from existing painted surfaces, in compliance with New York City, New York State, and Federal regulations pertaining to lead-containing paint.

1.05 NON-INTERFERENCE WITH SCHOOL FUNCTIONS

- A. Perform the Work in such a manner that normal school functions may be carried on throughout the period of work with a minimum of interference. Before commencing work in any portion of the premises normally used for school functions, meet with the MMMHS Representative, the Director of Buildings and Grounds, and the School Principal and perfect a working agreement. Noise shall be kept to a minimum.

1.06 PROTECTION

A. General Safety Restrictions

1. The operation of the fire alarm telegraph, the interior fire alarm system, gongs, bells and telephones shall not be interfered with.
2. Nothing shall be done to in any way block the streets at or about exits, or the exits themselves.
3. There shall be no unauthorized interference with the free and unobstructed use of hallways, stairways, toilets and rooms.
4. No part of the building or premises shall be closed to the use of the occupants without the permission of the MMMHS Representative, the Director of Buildings and Grounds, and the School Principal. When such permission has been given, erect temporary partitions and barriers wherever required to ensure the absolute safety of the occupants of the building and premises.

B. Precautions Against Fire

1. Take every precaution in the performance of the Work to prevent fires.
2. Smoking shall not be permitted within the premises at any time.
3. N.Y.C. Fire Department regulations shall govern the storage and use of flammable materials. Flammable materials and fire-producing equipment shall not be left unattended about the premises in locations accessible to pupils.
4. Rubbish shall be removed as hereinafter specified.

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5. Fire extinguishers and other protective equipment shall be provided as required by regulations.
6. During all interruptions of Work, flammable mixtures shall be stored in designated locations.

C. Fire Watch

When open flame or spark-producing tools and equipment such as heating kettles on roofs, blow torches and welding rods are being used, the Contractor shall provide fire guards to maintain a fire watch over the operation of these items at all times during the use. Provide additional fire guards required by Fire Department as determined by the Local Fire Department inspector after Work is under way.

D. Temporary Maintenance of Hazardous Conditions

1. Upon receipt of the Notice to Proceed, carefully inspect all existing work which is required to be repaired, altered or removed. Any such work which is found to be weakened, structurally unsafe or otherwise hazardous, shall be immediately put in a safe condition and so maintained until such time as the permanent work in connection therewith is completed.
2. Any restrictions regarding sequence of operations and locations of work do not apply to the elimination of hazardous conditions; all parts of the premises will be available at all times for the performance of such work.

E. Protection of Property

1. The Contractor shall be responsible for all damage to all new and existing work on the premises due to the Contractor's operations, and shall provide and maintain adequate protection against such damage.
2. The Contractor shall protect, move, store, and reinstall school furniture and materials of any nature from damage from his Work including but not limited to chairs, desks, book shelves, cabinets, tables, books, maps, charts, art work, statuary, etc.
3. The premises shall not be used as a work shop to the detriment of any portion thereof.

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4. Desks, tables, benches and other furniture and equipment shall not be used as workbenches; neither shall materials and furniture be piled thereon without proper protection.
5. Provide decking on floors, steps, platforms, pavements and roofs where subject to damage from heavy traffic.
6. Protect doors and door jambs when conveying rubbish and materials.
7. Provide and maintain barricades to confine dust to work areas.
8. Provide watertight enclosures over openings at roof and walls; remove temporary waterproofing protection for installation of new permanent work.
9. All damage to adjoining work due to failure to provide adequate protection shall be corrected by the Contractor at the Contractor's expense.
10. After completion of the Work, the Contractor shall thereafter protect Work until it is accepted.

F. Protection of Public

1. The Contractor shall be responsible for all injury to persons due to the Contractor's operations and shall provide and maintain adequate protection against such injury.
2. Provide guards, rails, barricades, fences, sidewalk sheds, catch-platforms, decking, night lighting, and all other items as required by New York City Building Laws and as further required to provide adequate protection.
3. Protect sidewalks and curbs around the premises so that they may be safely used by the public at all times.
4. Provide barricades around work areas as required to prevent pupils and other unauthorized persons from entering therein.

G. Stability and Integrity of Existing Structures

1. Shoring of members and protection of the existing structure during construction is the responsibility

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of the Contractor and shall comply with the requirements of the NYC Building Code.

2. The most stringent requirements of the Building Code, Contract Drawings, Specifications, or any authorities having jurisdiction shall govern this Work.
3. Coordinate Work of this Section with Work of all other Divisions so as to properly, and completely, install all Work as indicated on Drawings or specified.
4. The Contractor shall engage a Professional Engineer licensed in the State of New York to prepare details of bracing and other construction required to maintain the "Stability and Integrity of Existing Structures During Construction Operations" (R&R 6/11/83). Contractor's Engineer shall file Form TR-1 with the Building Department and is responsible for maintaining the stability of the existing building during removals and placement of new Work and is responsible for preparation of all design and shop drawings and their approval by the Building Department. Contractor's Engineer is responsible for the Controlled Inspection described in the Rules and Regulations of the Building Department dated 6/11/83 given in the Building Code.

1.07 FRATERNIZATION

- A. Contractor shall prohibit all contact between Contractor's employees (including Subcontractor's employee's and visitors to the site) and the students and school staff.

1.08 WORK SCHEDULE

A. General:

1. All Work must be performed according to a Work schedule that will not disrupt school activities.
2. All Work performed on the job site during periods other than normal working hours shall be with the express permission of the MMMHS Representative, the Director of Buildings and Grounds, and the School Principal. Normal working hours are described in Section 01010, Summary Of The Work. Permission

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shall be requested of the MMMHS Representative, at least 72 hours in advance of the planned overtime periods.

3. All decisions affecting the normal operation of the school will be coordinated with the MMMHS Representative, the Director of Buildings and Grounds, and the School Principal.

- B. Voluntary Overtime Work (weekdays till 10:00 PM; weekends 11:00 AM to 5:00 PM):

When permission to perform overtime or alternate shift Work is requested by the Contractor for the Contractor's own purposes, in order to meet schedules, perform work conflicting with school hours or for the Contractor's own convenience, the Overtime Work shall be considered to have been included in the Contract Price and no increase in the Contract Price, or Extra, will be granted for the Overtime Work. Additionally, the Contractor shall pay for the Custodian wages after 4:00PM on weekdays and any time work is performed on weekends and holidays.

- C. Mandatory Work After School Hours (weekdays till 10:00 PM; weekends 11:00 AM to 5:00 PM):

The following Construction Work also shall be done under the provisions and terms for Voluntary Overtime Work including no increase in the Contract Price, or Extra and payment of Custodial wages:

1. If at any time, in the judgement of the MMMHS Representative, any item of Work is behind the accepted construction progress schedule, or is causing a delay that will affect the contract completion date, then the MMMHS Representative may order the Contractor to increase The Contractor's Work force or to work the Contractor's forces and the forces of any Subcontractor overtime, at the Contractor's expense, until such time as all items of work have progressed to be in accordance with the accepted construction progress schedule.

- D. Contractor's Procedure Prior to Commencing any Overtime Work:

1. Make immediate application to the Industrial Commission of the Department of Labor, State of New York, for dispensation in accordance with Subdivision 2, of Section 220 of the Labor Law.

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2. Make immediate application to secure permits from the Department of Buildings.
- E. Contractor's Procedure During Overtime periods:
1. Proceed expeditiously with Work.
 2. Do not begin any Work in any space unless all of the required materials and labor to complete that Work are at the job when Overtime work is scheduled to begin.
 3. Complete all Work in each phase by all trades that have Work to be accomplished in each phase and inside each defined area.
 4. All other limitations and restrictions governing Contract Work during school sessions shall apply to Overtime Work.
- F. Opening Permits
1. For work that must be performed after-school-hours, the Contractor shall obtain from the Department of Buildings an "After-Hour Work Permit".

1.09 CONTRACTOR'S SUPERINTENDENT

- A. The Contractor shall man the Site with a full time Superintendent any time the Contractor's forces or the Subcontractors are performing work. The Superintendent shall have the full authority of the Contractor to make decisions affecting the Work. The Superintendent shall have at least eight years of experience working as a Superintendent on comparable size and type of projects. The use of an individual as a Superintendent for this project is subject to the approval of the MMMHS Representative.
- B. Submit Superintendent's resume to the MMMHS Representative and make individual available for an interview with the MMMHS Representative.

1.10 DIRECTIONS AND APPROVALS GIVEN TO THE CONTRACTOR

- A. The Contractor, Contractor's Superintendent, Contractor's employees and the Contractor's Subcontractors shall request approvals and accept orders and directions from the MMMHS Representative only. No other MMMHS employees or staff are authorized to direct the Contractor without

authorization of the MMMHS Representative.

1.11 REMOVAL OF RUBBISH

- A. Remove all rubbish (e.g., dirt, refuse, empty containers and packages, removed materials that become property of Contractor) from the premises as the work progresses. No rubbish of any kind shall be stored in any rooms, halls, passageways or yards and no accumulation of rubbish shall be allowed to remain in or about the premises at any time during the course of the work for more than 24 hours, with the exception of the Contractor's Staging Area which shall have rubbish removed from the area on a weekly basis. Should the Contractor fail to keep the building, premises and surrounding sidewalks and streets clean and free from rubbish resulting from the Work, then the MMMHS may have such rubbish removed by others in accordance with the terms of the Contract.

1.12 PATCHING VOIDS

- A. Where finished floor, walls or ceilings have voids as a result of Work specified, the Contractor shall patch the voids with the same materials of the adjacent existing surface and match its level and finish.

1.13 WATER

- A. Water required for construction may be taken only from existing hose bibs or Janitor's Sink Closets.

1.14 ELECTRIC CURRENT

- A. Except where required to maintain proper school functions, the existing electrical outlets on the premises will be available to the Contractor for the operation of low amperage power-driven tools.

1.15 STORAGE SPACE

- A. The Contractor shall assume that no interior space within the existing school building is available for the storage of materials which is liable to be damage by weather. Limited interior space may be assigned for storage at the discession of the MMMHS Representative.

1.16 MECHANICAL WORK

- A. The removing of heating and ventilating and electric work, including pipes, metal ducts, lighting fixtures,

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wires, and other incidental removals, and the repairing, altering, extending and replacing of such work will be done by the Contractor, as required for the completion of the Work.

- B. All work damaged, disturbed or otherwise affected by the alterations shall be repaired.

1.17 MOVING OF FURNITURE, ARTICLES, AND FIXTURES

- A. When the moving of furniture, blinds, curtains, clocks, pictures, maps, plaster casts and other articles or fixtures is made necessary in the carrying on of the alterations, repair work, painting, cutting of openings through or removing of existing walls and partitions, or for any other such reason, the removing, resetting and relocating together with the necessary repairing, shall be carefully done as a part of this Contract.
- B. The Contractor shall move all furniture and other articles and existing items necessary to accomplish the Work of this Contract.
- C. Existing window curtains, accessories and other items shall be removed, stored and reinstalled and left in good condition.
- D. Existing window blinds, accessories and other items shall be carefully removed and turned over to the Director of Buildings and Grounds.
- E. All removed work shall be protected.

1.18 TEMPORARY DUST PARTITIONS AND BARRIERS

- A. Provide temporary dust-tight partitions and doors complying with all requirements of the City of New York City Building Code and all authorities having jurisdiction.
 - 1. Partitions shall extend tightly between walls and partitions, and tightly from floor to ceiling, at locations directed by the MMMHS Representative.
 - 2. Partitions shall be of 2"x4" stud framing, 16" on center with 2"x 4" sill and cap members. Framing shall be entirely covered both sides with 5/8", gypsum wall boards. Provide 3" sound attenuation mineral fire blankets between studs. Both sides of

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the partition shall be finished with 1/4" x 2" tempered hardboard batten strips over all joints, horizontal and vertical.

3. Provide continuous neoprene gasketing at juncture of Partition with walls, floor and ceilings or underside of structure.
4. Provide at least one, hollow metal door and frame assembly in each partition, where required for access. Door shall be 36" wide by 84" high and each door shall be equipped with hardware as directed by the MMMHS Representative.

B. Dust Barriers

1. Construct of PVC piping framework, telescoping, with holes and pegs to allow adjustment of heights. Cover framework completely with polyethylene film, 6-mils minimum thickness, with flap for access. Install at doorways to form vestibule between work area and other areas, at locations directed by the MMMHS Representative. Tape junctures to obtain dust-tight barrier. Construct in manner to provide easy assembly and disassembly.

1.19 CUTTING, PATCHING AND REMOVALS

- A. Remove portions of existing slabs, ceilings, walls and partitions; cut new openings in slabs, walls and partitions for new chases, equipment, lintels, and other items; do all cutting and removal of existing work required by the Drawings and the Specifications, or as may be required for the proper installation of the new Work. Block up and patch slabs, walls, partitions, ceilings, and other areas and surfaces, with materials indicated on the Drawings or specified herein. If type of material for patching is not indicated, match existing adjacent materials and finishes.
- B. Provide all supports, shorings, bracing, and other means, required for existing beams, lintels, walls, and other components, at locations where alterations occur.
- C. Remove portions of existing walls, slabs, fireproofing and ceilings where required to provide for installation of new steel.
- D. Existing unfinished, unexposed walls and ceilings that become exposed walls and ceilings of finished rooms and

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other locations due to the Work of this Contract, shall be finished to match the adjoining wall and ceiling finish, unless otherwise specified.

- E. All holes in existing slabs and floors due to removal of piping, ductwork, enclosures, duct enclosures, and other items, shall be slabbed over and filled properly before any floor finish or partition enclosure is installed.
- F. Avoid damaging existing electric conduits in floor fill and slabs when cutting holes through slabs; verify conditions at the building.
- G. Where alterations occur in rooms and no new finish floor is indicated or specified, the existing floor shall be carefully protected and after alteration Work is completed, do all patching, repairing and replacing that may be required to provide a complete finished floor.
- H. Remove hung and furred ceilings or portions of ceilings as indicated on the Drawings, or herein specified, or required for proper installation of new Work.
- I. Where windows are to be removed, also remove all trim, frames, bucks, blocking, and other miscellaneous components, unless otherwise indicated on Drawings.
- J. Remove exposed bolts, supports, brackets, cleats, grounds, and other items, that are no longer required for the purpose for which they were originally installed.
- K. All existing work damaged or lost as a result of performing the required new Work, shall be patched, repaired or replaced with new, and finished to match the new Work to the satisfaction of the MMMHS Representative.
- L. Where existing work required to be removed and reinstalled is found to be defective in any way, it shall be reported to the MMMHS Representative before it is disturbed.
- M. Refer also to Section 01045.

1.20 CLEAN-UP

A. Wet-Mopping

The Contractor shall provide daily wet mopping of floors subject to construction dust in all areas affected by the Work.

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B. Upon completion of the Work, the Contractor shall provide thorough clean-up, performed by a professional cleaning service, of all areas affected by the Work as follows:

1. In general, clean-up requirements are limited to the removal of all rubbish, spatters, stains, smears, fingermarks, foot tracks, from finish surfaces and the broom cleaning of floors, and other areas on the premises that are affected by the Work.
2. Where work that causes the dissemination of dust has been performed, clean-up operations shall include, in addition to the operations hereinbefore specified, the washing of windows, the mopping of floors and the dusting and washing of walls, sills, furniture, and other surfaces, all as required to restore the affected areas to the same state of cleanliness existing before work began.
3. In performing dust-creating work, provide dust enclosures and foot mats to minimize the spread of dust and foot marks. Refer to Art. 1.18 of this Section.
4. These clean-up requirements are in addition to the required daily removal of rubbish.

C. Wet Wiping

The Contractor shall provide wet wiping, by a professional cleaning service, of all surfaces (including furniture) in all areas affected by the Work, immediately prior to the releasing of the areas of school use.

D. Waxing

The Contractor shall provide waxing, by a professional cleaning service, of all floors in all areas affected by the Work, immediately prior to the releasing of the areas of school use.

1.21 ORDER OF WORK (See 1.01 THIS SECTION)

A. General

1. The Contractor shall take full advantage of school vacation periods during summer recess, winter recess and spring recess to minimize disruption of normal school operations.

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2. Information currently available from the MMMHS, but subject to change, is that summer recess for 1996 is scheduled to begin on 6-21-96 and end on 9-3-96; summer recess for 1997 is scheduled to begin on 6-20-97 and end on 9-2-97. Exact dates for the winter recess and spring recess closings are not available at present.
3. Except as modified below, four existing classrooms/rooms, at any one time, will be made available to the Contractor. Locations of classrooms/rooms to be made available to the Contractor shall be subject to the approval of the MMMHS Representative, Director of Buildings and Grounds and the School Principal. Work may be permitted in more than four classrooms/rooms at any one time by authorization of the MMMHS Representative, Director of Buildings and Grounds and the School Principal. Furniture shall be moved between rooms to receive work and completed rooms in the school building by the school custodian.
4. Generally, work in offices, Storage Rooms, Student's Toilets, Guidance Rooms, Teacher's Lunch Room, Nurses Room and other similar type spaces, shall be performed in only one space at any one time and shall be coordinated with the MMMHS Representative, Director of Buildings and Grounds and the School Principal prior to the start of such work. Work may be permitted in more than one space at a time only by authorization of the MMMHS Representative, Director of Buildings and Grounds and the School Principal.
5. All work in corridors and fire stairs shall be performed after 3:00 PM. Corridors and fire stairs shall be kept free and clear from all debris, construction materials, tools or equipment. All paths of egress shall remain unobstructed during occupancy of the building by students and/or staff. Work in corridors and fire stairs is subject to the authorization of the MMMHS Representative, Director of Buildings and Grounds and the School Principal.
6. The Contractor shall provide the temporary construction fencing and Contractor's trailer prior to performing any other work at the Site.
7. The Contractor shall perform the main roof reroofing work during the summer recess of 2003 and complete the Work prior to the commencement of the

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new school year.

8. The Contractor shall perform the Sample Room work during the summer recess of 2003 and complete the Work prior to the commencement of the new school year.
9. The Contractor shall complete the installation of the temporary classroom trailers prior to the commencement of the new school year in 2003.

Completion of temporary classroom trailers shall include all associated sitework and the relocation of existing classroom furniture from within the school building to the trailer classrooms by the Contractor as directed by the MMMHS Representative. This relocated furniture shall be left in the trailer classrooms until substantial completion of the project at which time the Contractor shall move the trailer classroom furniture back into the school building as directed by the MMMHS Representative.

END OF SECTION

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SECTION 02070
SELECTIVE REMOVALS & DEMOLITION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Extent of Work

Removal and demolition of selected items from selected areas of the project as indicated on the Drawings; items to be removed include, but are not limited to, the following:

1. Temporary chain link construction fence, gates and foundations.
2. Excavation requiring shoring and Trenching, including removal of concrete and asphalt pavement.
3. Removal and relocation of classroom trailers.
4. Portions of concrete slabs.
5. Roofing and Roof curbs.
6. Portions of interior and exterior brick, block, and ceramic tile.
7. Hung ceiling system components and finishes.
8. Finished carpentry.
9. Wood blocking, furring, etc.
10. Portions of foam roofing system and asbestos containing flashing (Asbestos Removal under separate contract).
11. Metal doors and frames.
12. Aluminum windows (removal of windows containing asbestos containing sealant shall be closely coordinated and scheduled with the asbestos removal contractor under separate contract who shall perform all asbestos removals for this project).
13. Portions of metal partitions.

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14. Portions of wire lath, fasteners and accessories.
15. Portions of plaster.
16. Portions of wood sub-flooring and finished flooring (removal of VAT shall be closely coordinated and scheduled with the asbestos removal contractor under separate contract who shall perform all asbestos removals for this project).
17. Metal window guards.
18. Window shades and hardware.
19. Rooftop equipment and accessory items shown on the Contract Drawings.
20. Heating/Ventilating items.
21. Electrical items.

1.02 RELATED SECTIONS

- A. Temporary Dust Partitions and Barriers..... Section 01900

1.03 SUBMITTALS

- A. Submit a schedule indicating proposed methods and sequence of operations for selective removals and demolition Work (including scheduling of asbestos containing materials to be removed by the asbestos removal contractor under separate contract for this project) prior to commencement of operations. Include details for dust and noise control operation. Provide a detailed sequence of removals and demolition work to ensure uninterrupted progress of school sessions.

1.04 RESPONSIBILITY, PROTECTION, DAMAGES, RESTRICTIONS

- A. Condition of Space

DDC assumes no responsibility for actual condition of the space in which removals and demolition Work is performed.

- B. Protections

Provide temporary barricades and other forms of protection required to protect DDC property, personnel, students and general public from injury due to selective removals and demolition work.

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1. Provide protective measures as required (including sidewalk sheds as required by the Drawings and required by the Building Code) to provide free and safe passage of students, DDC personnel, and the general public.
2. Protect from damage existing finish work that is to remain in place and which becomes exposed during operations.
3. Protect floors with building paper or other suitable covering.

C. Damages

Promptly repair any and all damages to all property and finishes caused by the removals and demolition work; to the DDC Representative's satisfaction and at no extra cost to DDC.

D. Explosives

The use of explosives is prohibited.

E. Power-driven Tools (for interior removals and demolition).

Only hand-held electric power-driven tools conforming to the following criteria shall be used to cut or drill concrete and masonry:

1. Electric Chiseling Hammer
 - a. Power Data 115 Volts AC
7-8 Amps
Three-wire grounded connection
 - b. Percussion 2400-2600 Impacts/Minute
 - c. Type/Size Hand-held (+ 18-inch length)
 - d. Unit Weight 12-15 pounds (minus chisel bit)
2. Electric Hammer Drill
 - a. Power Data 115 Volts AC
5-8 Amps
Three-wire grounded connection
 - b. Percussion 2400-3200 Impacts/Minute

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- c. Type/Size Hand-held (+ 18-inch length)
- d. Unit Weight 12-15 pounds (minus chisel bit)
- e. Speed Data 0-0500 RPM (Under load)

All other electric power-driven tools proposed for use in cutting shall be submitted for approval.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 INSPECTION

- A. Prior to commencement of the selective removals and demolition Work, inspect the areas in which the Work will be performed. Determine and list the existing conditions of rooms or area surfaces and equipment. After the Work in each respective area is completed, determine if adjacent surfaces or equipment have been damaged as a result of the Work; if so, the damage shall be corrected at the Contractor's expense.

3.02 REMOVALS AND DEMOLITION WORK

- A. Perform selective removal and demolition Work in a systematic manner and use such methods as required to complete the Work indicated on the Drawings in accordance with the requirements of the Project Specifications and governing City, State, and Federal regulations.
- B. When walls, partitions, floors, and ceilings (or portions thereof) are indicated to be removed; unless indicated otherwise:
 - 1. Remove all items attached to the surfaces of the construction to be removed.
 - 2. Remove all connectors, piping, ductwork and other HVAC items and accessories occurring on or in the construction to be removed; cap and/or re-route piping and ductwork as indicated on Drawings, as specified in HVAC - Div. 15, or required by the Work.
 - 3. Remove all electrical wiring, to include, but not limited to, lighting, communications, alarms and all related appurtenances, conduits, devices, fixtures, and other electrical items and

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accessories occurring on or in the construction to be removed; disconnect power and remove wiring and conduit back to source. New electrical work shall be as indicated on Drawings and as specified in Electrical - Div. 16.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove debris, rubbish and other materials resulting from the removals and demolitions from the building immediately; transport and legally dispose of materials off-site. Disposal method shall be in accordance with City, State, and Federal regulations.
- B. Burning of removed materials is not permitted on the job site.

3.04 CLEAN-UP AND REPAIR

- A. Upon completion of removals and demolition Work, remove tools, equipment and all remaining demolished materials from the site.
- B. Repair all damaged areas caused by the removals and demolition Work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.
- C. All areas in which Work was performed under this Section shall be left "mop-clean."

3.05 OWNERSHIP OF MATERIALS

- A. All equipment, materials, and items removed shall remain the property of DDC, if desired; equipment, material and items not desired to be re-used or retained by DDC shall be removed from the site by the Contractor. The DDC Representative will designate which equipment, materials and items will be retained.

END OF SECTION

SECTION 02072
REMOVAL, STORAGE AND REINSTALLATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This Section specifies requirements for Removal, Storage and Reinstallation of certain items as shown on the Contract Drawings; items to be removed, stored and reinstalled or turned over to the MMMHS including, but are not limited to, the following:

1. Exterior window guards (scrape and paint prior to reinstallation).
2. Window curtains, curtain rods and hardware (reinstall as directed by the Director of Buildings & Grounds).
3. Window blinds, valances and hardware (turned over to Director of Buildings & Grounds).
4. Statuary and foundations at temporary classroom trailers.
5. Blue stone pavers and base at temporary classroom trailers.
6. Window air conditioning units to be removed and turned over to Director of Buildings & Grounds.

1.02 RELATED SECTIONS

A. Dust Partitions Section 01900

1.03 QUALITY ASSURANCE

A. Perform inspection of all existing items to be removed and reinstalled under the Contract and report in writing to MMMHS Representative listing the damaged items found, if any.

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1.04 STORAGE AND HANDLING

- A. Store items, immediately upon removal. Protect until reinstalled.
- B. Arrange Storage in a manner to provide access for maintenance of items and for inspection.
- C. Enclosed Storage
 - 1. Store items, subject to damage by the elements, in substantial weather tight enclosures.
 - 2. Provide temperature control and ventilation for sensitive items as required.
 - 3. Store unpacked and loose items on shelves, in bins, or in neat groups of like items.
 - 4. For items subject to discoloration deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- D. General: All materials which become damaged or otherwise unfit for use during, removal, handling, storage, or reinstallation shall be replaced at the expense of the Contractor.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Periodically inspect stored items on a scheduled basis.
- B. Do not expose any items to the elements.

3.02 INSTALLATION

- A. Reinstall, in good working condition, all items that were removed and scheduled for reuse.
- B. Set items plumb, level and true to line. Before issuance of the Certificate of Final Completion, remove all temporary protection and leave items clean and in working order.

END OF SECTION

SECTION 02100
SITE PREPARATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Remove vegetation, and existing improvements only where indicated on the Drawings. Strip grass, topsoil, and grub all roots. Protect existing trees and other vegetation to remain. Perform Work in conjunction with Section 02200.

Items to be removed include, but are not limited to, the following:

- 1. Asphalt paving, base material and soil at chain link fence posts.
- 2. Grass stripping and top soil removal at the temporary asphalt pavement and temporary classroom trailers.
- 3. Sidewalk and Street Paving (see Section 02513).

1.02 RELATED SECTIONS AND WORK

- A. Tree Protection.....Section 01500
- B. Selective Demolitions and Removals.....Section 02070
- C. Removal, Storage and Reinstallation.....Section 02072
- D. Earthwork.....Section 02200
- E. Sidewalk and Street Paving.....Section 02513

1.03 DEFINITIONS

- A. Improvements

Man-produced items such as concrete, brick, asphalt, piping, etc. Those items not naturally occurring.

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1.04 QUALITY ASSURANCE

A. Qualifications

Company specializing in the Work of this Section shall have a minimum of 3 years experience.

B. Regulatory Requirements

Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.

1.05 EXISTING CONDITIONS

A. Obtain all Building Department data available on the lots.

B. Prior to clearing and removal or abandonment of improvements, ascertain the exact locations of all existing underground utilities. Protect these during subsequent operations.

1.06 SEQUENCING AND SCHEDULING

A. Perform work in such a manner to ensure a minimum interference with roads, walks, adjacent properties, and facilities to remain open. Do not close or obstruct these items without obtaining permits from the agencies having jurisdiction or the permission of the adjacent owners.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that existing site conditions match those of the pre-bid inspection. Notify the MMMHS Representative in writing prior to commencement of Work of any discrepancies.

3.02 PROTECTION

- A. Provide adequate protection measures to protect workmen and pedestrians at the site.
- B. Provide for surface drainage during construction to avoid creating a nuisance to MMMHS students and personnel.
- C. Existing Improvements
 - 1. Prevent damage to existing improvements to remain. If they are damaged during construction, restore improvements to their original condition at no cost to the MMMHS.
- D. Existing Trees and Vegetation
 - 1. Hire a qualified horticulturist or arborist to supervise the protection of and the repair or replacement of damaged trees or other vegetation.
 - 2. Protect existing trees and other vegetation to remain from damage due to construction to the satisfaction of the MMMHS Representative.
 - a. The Contractor shall be responsible for the protection of tops, trunks, and root systems of existing trees on the project site that are to remain. Existing trees subject to construction damage shall be boxed, fenced, or otherwise protected before any work is started; remove boxing when directed. Do not permit heavy equipment or stockpiles within branch spread. Under the direction of the horticulturist, remove interfering branches without injury to trunks and cover scars with tree paint.
 - 3. Repair or replace damaged trees or vegetation to the satisfaction of the MMMHS Representative.

3.03 CLEARING OF SITE

A. General

Remove vegetation, roots, improvements, rubbish, site debris, and all other materials and encumbrances of every name and nature visible to sight or found in excavating unless designated to remain.

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B. Top Soil

1. Strip top soil to full depths encountered (minimum 6"). Prevent top soil from mixing with subsoil.
2. Leave existing top soil in place within driplines of existing trees to remain.
3. Additional excavation required is described in Section 02200.

C. Removal and Abandonment of Improvements

1. Remove all existing above and below grade improvements that interfere with the new construction, unless they are designated to remain or be abandoned.
2. Remove portions of improvements to remain to facilitate new construction.
3. Remove asphalt paving, base material and soil at chain link fence posts.

D. Disposal

1. Remove and legally dispose of away from the premises all excavated material of every kind.
2. Burning of material on the site is not permitted.

END OF SECTION

SECTION 02200
EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Excavate for new construction, fill and backfill as required, prepare subgrades and place aggregate bases for foundations, sidewalks, and pavements. Protect all adjoining properties and existing structures from damage. Perform Work in conjunction with Section 02100.

1.02 RELATED SECTIONS AND WORK

- A. Site Preparation.....Section 02100
- B. Asphaltic Concrete Paving.....Section 02511
- C. Sidewalk and Street Paving.....Section 02513
- D. Landscaping.....Section 02900

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
 - D422 Standard Test Methods for Particle-Size Analysis of Soils.
 - D698 Standard Test Methods for Moisture-Density Relations using 5.5.lb. (2.5-kg) Rammer and 12-in. (304.8-mm) Drop.
 - D1556 Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
 - D2167 Standard Test Method for Density and Unit Weight of Soil In-Place by the Rubber Balloon Method.
 - D2922 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 DEFINITIONS

- A. Excavation

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Excavation is considered unclassified and consists of removal of material encountered to contract level and subsequent legal disposal of such.

B. Improvements

Man-produced items such as concrete, brick, asphalt, piping, conduit, etc. Those items not naturally occurring.

1.05 SUBMITTALS

A. Product Data

Provide manufacturer's information on the compaction equipment to be used on each type of material for review.

B. Shop Drawings

Submit shop drawings and/or Engineer's reports required under Article 3.02, "Preparation and Protection".

C. Samples

Provide 15 pound bag of each material used for fill, backfill, aggregate base, to the Contractor's testing laboratory for analysis who shall forward results to the MMMHS Representative.

D. Quality Control Submittals

1. Design Data.

Provide the following information:

- a. Gradation analysis for aggregate bases.

2. Condition Survey Submittals

- a. Provide three (3) copies of all photographs required to be taken under Article 3.02 to the MMMHS Representative.

3. Certificates

- a. Provide certificate guaranteeing aggregate materials used for construction conforms to the gradation supplied.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Company specializing in performing the Work of this Section shall have a minimum of 3 years experience and shall have worked on 3 projects of similar size.
2. Preparation of details of shoring and bracing shall be under the direct supervision of and bear the seal of a Licensed Professional Engineer of the State of New York experienced in the design of such work, who shall be engaged by the Contractor and who shall also be responsible for construction supervision of such.

B. Regulatory Requirements

1. Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.
2. Work outside the street line shall conform to the requirements of the governmental authorities or utilities having jurisdiction (ie. DOT, DEP, etc.). Where more stringent requirements than those contained in the applicable governmental authority specifications are given in this Section, the requirements of this Section shall govern.
3. "Safety and Health Standards, Subpart P - Excavations, Trenching and Shoring" - OSHA.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Aggregate materials to be used for project are to be stockpiled separately at the producer's facility and shall be accessible to inspection and testing by the Contractor's Testing Laboratory if so requested by the MMMHS Representative.

1.08 PROJECT/SITE CONDITIONS

- A. Existing Conditions

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1. Site information
 - a. Obtain all Building Department data available on the lots being affected by the project construction.
2. Existing Utilities
 - a. Locate existing underground utilities:
 1. Provide adequate means of support and protection for utilities to remain during Work.
 2. Demolish and remove underground utilities designated to be removed. Coordinate with utility companies for shut-off of services if lines are active.
 - b. Consult immediately with the utility owner for directions should uncharted or incorrectly charted piping or other utilities be encountered during excavation. Cooperate with the utility owner and the MMMHS in keeping the School's services and facilities in operation. Repair damaged utilities to the satisfaction of the Utility Owner.
 - c. Do not interrupt existing utilities serving facilities occupied and used by the MMMHS during occupied hours, except when permitted in writing by the MMMHS and only after acceptable temporary utility service has been provided. Do not proceed with interruption of services without providing a minimum of 48-hours notice to the MMMHS and receiving their written approval.
 - d. Coordinate all Work with the Work of Division 16.

1.09 SEQUENCING AND SCHEDULING

- A. Perform work in such a manner to ensure a minimum interference with roads, walks, and facilities to remain open. Do not close or obstruct these items without obtaining permits from the agencies having jurisdiction or the permission of the MMMHS.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Restricted Material

Remove all debris from improvements and soil excavated during construction from premises and legally dispose of away from premises.

B. Aggregate Base (Porous Fill)

1. Aggregate base course under pavements and slabs shall be composed of ledge rock, talus, or gravel which is uniform in quality and free of wood, loam, clay, dirt, roots, bark, and any other extraneous material. The aggregate shall be produced from material showing a percentage of wear by the Los Angeles wear test (ASTM C131) of not more than 35%.

2. Stone shall have the following gradation:

Sieve	Percent Passing by Weight
1 1/2"	90-100
3/4"	60-97
3/8"	25-60
No. 4	25-60
No. 16	15-40
No. 200	0-10

2.02 EQUIPMENT

A. Provide proper compaction equipment to properly compact subgrade and aggregate. Employ a Licensed Professional Engineer to determine soil type and which equipment will give the proper compaction.

2.03 SOURCE QUALITY CONTROL

A. Tests

The Contractor shall engage a Testing Laboratory who shall perform the following laboratory tests and forward the results to the MMMHS Representative:

1. Sieve Analysis: Performed in accordance with ASTM D422 on submitted aggregate samples to verify material meets gradation requirements.

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2. Moisture Density Curve: Optimum moisture content obtained from submitted aggregate samples, tested in accordance with ASTM D698.

B. Inspection

1. Testing Laboratory

- a. The Contractor shall engage an approved Testing Laboratory or Inspection Agency to perform laboratory tests and field compaction testing on the aggregate materials and subgrade.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

Verify existing site conditions match those of the pre-bid inspections. Notify the MMMHS Representative in writing prior to commencement of Work of any discrepancies.

B. Preparation

1. Before starting any excavation work for new construction, ascertain the exact locations of all existing underground drain lines, piping, and conduits. Consult with the Mechanical/Electrical Trades.
2. At location where any of the above services interfere with the excavation work, notify the SSRC Representative before continuing with any more excavation.

3.02 PREPARATION AND PROTECTION

A. Condition Survey

1. General: The Contractor shall perform a condition survey of the existing school building prior to beginning excavation.

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2. Photographs: Take photographs of the existing school at the sidewalk/street pavement area where trenching will be performed so that the surfaces may be examined during construction and compared with the pre-work condition. If any cracks or other stress signs are exhibited by the building, halt operations until corrective action has been provided and is acceptable to the MMMHS Representative.

3.03 EXCAVATION - GENERAL

- A. Excavate all earth, rock, and materials of every kind to the Contract elevations and dimensions required by the Drawings and Specifications and any additional required for safe slope of excavation, regardless of the character of materials and obstructions encountered.
- B. No additional compensation will be allowed for excavation work carried below the levels shown on Drawings unless same has been authorized in writing by the MMMHS Representative. Contractor is responsible for all remedial work due to unauthorized excavation.
- C. For pavements and slabs on grade, excavate to depths required for installation of aggregate base or pavement as specified herein or shown on Drawings.
- D. Remove all excavated material from the site and legally dispose of away from the premises. Burning of material on the site is not permitted.
- E. At all seeded areas, excavate to 8" below finished grade. If rock occurs within 18" of finished grade, all rock shall be removed to a depth of 18".

3.04 EXCAVATION - ROCK

- A. Excavate rock where encountered by means other than blasting. Blasting will not be permitted.

3.05 DISPOSAL OF EXCAVATED MATERIAL

Legally dispose of all excavated materials off-site.

3.06 FILLING AND GRADING

- A. General

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1. Do not commence filling and backfilling operations until construction below finish grade has been approved, underground utilities inspected and tested, and other improvements installed, trash and debris removed, and temporary and permanent bracing installed.
2. Do not commence backfilling, filling and grading until existing subgrade has been compacted.
3. Fill all excavations, backfill against all walls, and do all filling and grading necessary to bring the surfaces to the level required.
4. Take particular care when rolling over areas where trenches or other excavations have been made and backfilled.
5. Fill voids caused by the removal of below grade improvements.
6. Grade bottoms of pavements to maintain uniform thickness of the slabs.

B. Compaction of existing subgrade

1. Site preparation

Existing subgrade shall be free from stumps, bushes, roots, sod, topsoil, rubbish, garbage, and any other material that may decay.

2. Grading

- a. Prior to placing fill or backfill in any area, grading is to be performed as required to maintain the grade of adjacent areas.
- b. On completion of grading as specified above, closely examine to determine whether excessive wetness, springs, or other seepage of water can be observed at any point. If such conditions exist, positive drainage in suitable form, such as french drains or tilling, must be provided before placement of fill is undertaken.
- c. When the fill area has been prepared as specified above, compact the natural ground surface by methods specified for compaction of fill.

C. Placement and Compaction of Aggregate Bases

1. Provide aggregate base under all pavements, in voids created when fence posts foundations at staging area are removed, and wherever else indicated on the Drawings. Provide 6" minimum unless specified or shown otherwise elsewhere.
2. Verify finished subgrade is at proper level.
3. Prior to placement of material, hand tamper.
4. Place aggregate base in layers of uniform thickness, but not exceeding 6". Compact material to either 80% of relative density or 95% of standard laboratory density at optimum moisture in accordance with ASTM D698. Maintain optimum moisture content for compacting the material. Place material in single layer for aggregate courses six inches or less. Alternate grading and rolling to obtain a smooth, even, and uniformly compacted course.

3.07 FIELD QUALITY CONTROL

A. Tests

1. Sieve Analysis: The Contractor's Laboratory will perform sieve analysis in accordance with ASTM D422 on aggregate materials at the site prior to placement in order to verify conformance with the submitted samples and forward a copy of the results to the MMMHS Representative.

3.08 PROTECTION

- A. Protect graded and compacted areas from traffic and erosion. Keep free of trash and debris.
- B. When completed compacted areas are disturbed by subsequent construction or weather, scarify surface, re-shape, and compact to required density prior to further construction.

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- C. Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

END OF SECTION

SECTION 02360
PILE FOUNDATIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish labor, material, equipment services to perform the Work of this Section, including but not limited to the following:

1. Furnish and drive all piles and cut tops at required levels.
2. Furnish and install pile caps and brace beams.
3. Furnish location survey for all piles.
4. Furnish and fill concrete in pipe piles.
5. Furnish and install all other related items required by Drawings and Specifications.

B. No change in contract price shall be due for any variation in pile footage. The Contractor is completely responsible for estimating the pile lengths required to properly install the piles to the correct driving resistance, while also meeting the minimum embedment into good material specified. Any minimum lengths shown are minimum embedments needed to meet bearing capacity or liquefaction requirements and do not necessarily have relation to the depth required to meet the driving resistance for each pile capacity, which may be substantially longer.

1.02 RELATED SECTIONS

- | | |
|---------------------------------|---------------|
| A. Site Preparation | Section 02100 |
| B. Earthwork | Section 02200 |
| C. Cast-In-Place Concrete | Section 03300 |
| D. Structural Steel | Section 05120 |

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.

A36 Standard Specification for Structural Steel.

A252 Standard Specification for Welded and Seamless Steel Pipe Piles.

1.04 DEFINITIONS

- A. "Friction piles" as used in the Specifications means piles which receive their principal support other than by direct bearing on rock, or hardpan overlaying rock, or gravel-boulder formations overlaying rock.

- B. "End-bearing piles" as used in the Specifications are those which receive their principal support by direct bearing on rock, or on hardpan overlaying rock, or on gravel-boulder formations directly overlaying rock.

1.05 DESIGN REQUIREMENTS

- A. The Drawings indicate whether an "end-bearing" pile or a "friction" pile is required.

- B. The design requirements of the pile are give on the Drawings.

- C. Pipe File

1. Welded and seamless pipe pile shall conform to ASTM A252, Grade 2. The Contractor is responsible for determining if the stresses associated with the pile driving equipment will necessitate the use of Grade 3 material or a greater wall thickness. The Contractor shall utilize material suitable for the condition at the site. Pipe piles shall have a watertight bottom closure adequate to resist all forces incidental to driving, without rupture or leakage. The type of closure meeting this requirement shall be determined by the Contractor.

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2. The closure plate shall conform to the requirements of the NYC Building Code. The steel plate shall be welded to the lower end of the pipe pile by a continuous weld of adequate strength to maintain water tightness under all conditions. The steel closure plates, and the reinforcing for the tip end shall conform to ASTM A36.
 3. Pipe piles known in the industry as rejected oil well casings may only be used as a form for the concrete and shall have no assumed load bearing capacity. Diameters under 10" will not be permitted.
- D. All piles and all details in connection therewith (minimum length, shoes, tips, splices, spacing, etc.) shall comply with the Building Code. All splices shall be performed by certified welders, and such welding will be certified by the Professional Engineer supervising the pile installation.

1.06 SUBMITTALS

A. Pile Submittals

1. Pile Type

- a. Prior to commencement of Work, submit full descriptive data on the pile to be installed to the Engineer of Record for review and approval, including but not limited to the following:

- 1) Pile material, diameter and wall thicknesses
- 2) Name of pile supplier
- 3) Pile driving equipment, including hammer and cushion block
- 4) Pile closure plate
- 5) Method of splicing pile
- 6) Strength of concrete filling piles

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- b. Submit results of wave equation analysis demonstrating adequate strength and cross-sectional area of the proposed pile shell.
 - c. Submit proposed load test method, including method of casing off piles.
 - d. After approval, submit nine copies, three of which have been sealed and signed by a Licensed Professional Engineer for filing with the Building Department.
2. Pile Identification Plan
- a. Prior to commencement of work, submit in accordance with paragraph 27-688(a) a plan showing the designation of all piles by an identifying system to the Engineer of Record for review and approval. The sheet size shall be equal to that of the Drawings.
 - b. The plan shall include the location of the centerline of each pile group by a coordinate system from a selected base reference axes. It shall incorporate the column grid identification system shown on the Drawings and the pile cut-off elevations.
 - c. After approval, submit nine copies, three of which have been sealed and signed by the Licensed Land Surveyor who will be performing the survey work, for filing with the Building Department.
3. Index Piles:
- a. Proposed index pile locations
 - b. Proposed final driving resistance compatible with the proposed pile hammer and based on wave equation analysis.
4. Partial Surveys: Submit partial pile surveys to the Engineer of Record periodically during pile driving operations to facilitate corrective design measures.

5. Final Submittals: Location Survey and Reports
 - a. Upon completion and approval of all pile driving, submit original location survey tracing to the Engineer of Record showing location of all piles, including obstructed, damaged, and compensating piles, indicating their center line deviation from their contract location. Provide pile driving reports, which include deviations, depth of pile, and cutoff elevations.
 - b. Include nine copies, three of which have been sealed and signed with original signature by the Licensed Land Surveyor, for filing in the Building Department. Reports shall be signed by the Engineer designated for Controlled Inspection.
 - c. Load Tests: If load test are required, submit load test report to the Engineer of Record. Submit nine copies of each, three of which have been sealed and signed with original signature by a Licensed Professional Engineer, for filing in the Building Department.
- B. Condition Survey Submittals
 1. Provide copies of all photographs required to be taken under Article 3.01 to the Authority's field representative. Coordinate with Section 02200.
 2. Provide copies of survey logs and benchmarks required to be taken under Article 3.02 to the Authority's field representative. Coordinate with Section 02200.
- C. Certificates

Submit steel manufacturer's certificate certifying materials conform to specified requirements (steel affidavits).

1.07 QUALITY ASSURANCE

A. Qualifications

File Installer - Company specializing in performing the Work of this Section shall have a minimum of 3 years experience and three projects with similar quantities of piles.

B. Regulatory Requirements

1. Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, noise and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.
2. Contractor shall pay for all expenses that may be incurred where the Code states that the work shall be done "at the expense of the owner" or a similar phrase.

C. Certification

1. Structural steel and concrete shall conform to the material acceptance, certification and inspection requirements of Article 7, Chapter 1-Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).
2. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".

1.08 DELIVERY, STORAGE AND, HANDLING

- A. Protect piles to prevent damage during shipping and handling.
- B. Prevent piles from becoming contaminated with grease, oil, dirt or other unsuitable material. Remove any unsuitable material or coating.

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- C. Store piles in orderly groups above ground on cribbing or other suitable method to prevent distortion of members. Piles exhibiting variations beyond tolerance limits will be considered distorted and may not be used in the work.

1.09 FIELD MEASUREMENTS

- A. In conjunction with the Work of other Sections, verify field measurements match dimensions on Drawings. Take field measurements as required by Drawings.
- B. The Licensed Land Surveyor engaged by the Contractor shall determine the exact location of the driven piles to the nearest 1/2 inch and indicate them on the location survey plan.

1.10 BORING DATA

- A. The subsurface information (borings or other subsurface explorations) contained in the Contract Documents were obtained primarily for the use in preparing the foundation design and is included in the Contract Documents for the convenience of the Contractor.
- B. The Authority does not guarantee the accuracy of, nor can the Authority be held responsible for conclusions derived from, boring diagrams and subsoil data furnished by the Authority. All bidders (prior to bid opening date) and the Contractor have the right to inspect any information at the Authority and Division of School Facilities regarding subsoil conditions at the site. Boring samples, the Contract on which the borings were obtained, and field notes taken during boring operations, are available for inspection.
- C. The Authority assumes no responsibility for the Contractor's failure to examine all available subsoil information, from any source, and makes no representation regarding the character of the soil or subsurface conditions which may be encountered during the performance of the Construction Work.

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- D. Prior to the commencement of any Work, examine all Drawings and Specifications, visit the site, consult the records of existing adjacent construction, including existing utilities and their connections, if any, and all conditions and limitations which might affect the Work required under this Section.
- E. Additional test borings and other exploratory operations may be made by the Contractor, subject to the approval of the Authority, at no additional cost to the Authority.

1.11 FOUNDATION CHANGES

- A. The Authority reserves the right to change slightly or radically, at its discretion, the design of the foundation. If the foundation design is so changed, the contract price will be adjusted on a unit price basis as set forth in Section 02250, "Foundation and Other Change Adjustments".

PART 2 - PRODUCTS

2.01 MATERIALS

A. Piles

Material for the approved type of pile shall conform to Article 10, Chapter 1 - Subchapter 11 of the Building Code (Title 27), "Pile Types - Specific Requirements."

1. Welded and seamless pipe pile: Shall conform to ASTM A252, Grade 2. Refer to Article 1.05 of this Section.
2. Closure plates: Shall conform to ASTM A36. Refer to Article 1.05 of this Section.

B. Concrete

Material shall comply with the applicable requirements of Section 03300. Compressive strength is indicated on Drawings.

2.02 EQUIPMENT

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- A. Furnish all necessary equipment, including pre-drilling, jetting and spudding apparatus, to drive the piles to required resistance and depths without damaging the adjacent buildings and properties.
- B. All equipment shall be in first-class working condition to insure against avoidable delays in the progress of the Work. Equipment disapproved by the Authority because of its poor condition may not be used. In conformance with paragraph 27-704(b), the cushion or cap block shall be a solid block of hardwood with its grains parallel to the axis of the pile and enclosed in a tight-fitting steel housing, or shall be an equivalent assemblage. If laminated materials are used, the type and construction of these materials shall be such that their strength is equal to, or greater than, hardwood. Wood chips, pieces of rope, hose, shavings, or automobile tires and similar materials shall not be used. Cap blocks shall be replaced if burned, crushed or otherwise damaged.
- C. Secure all necessary permits required by the NYC Building Code for equipment and apparatus used in the installation of piling.
- D. Post at the job site all such permits in accordance with paragraph 27-194.

PART 3 - EXECUTION

3.01 PROTECTION OF EXISTING STRUCTURES DURING PILE DRIVING

- A. Protect structures, underground utilities and other construction from damage caused by pile driving operations. If unmarked or unknown utilities are uncovered during excavation, notify the Authority and the Engineer of Record to receive further instructions prior to proceeding further. Should damage to adjacent construction or utilities occur due to Work under this Section, all costs in connection with the repair of such damage and the restoration of damaged construction to its original condition shall be borne by the Contractor.
- B. Engineer

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Engage the services of a licensed Professional Engineer to monitor the pile driving operations and assure that damage does not occur to adjacent buildings or properties. The engineer shall monitor accelerometers and benchmarks and help in determining appropriate changes to the pile driving operations should the accelerometers, benchmarks, photographs, etc. show adjacent properties or buildings are in danger of being damaged.

C. Benchmarks

1. Provide surveyed elevation benchmarks and accelerometers on adjacent structures before commencing work when structures are adjacent to pile driving operations. Record and report elevation of each benchmark after driving each pile and at least twice a day while pile driving is in progress. Monitor accelerometers regularly while each pile is being driven.
2. Should benchmark readings indicate displacement or accelerometers exceed reasonable limits for particle velocity (depending on condition of adjacent structure), halt driving operations until corrective action has been provided and is acceptable to the Authority. Corrective action may require pre-drilling at individual pile locations at the Contractor's cost.
3. Take photographs and other measures required in Section 02200 to record existing conditions.

3.02 EXCAVATION

- A. Do not drive piles until the excavation in the area they are to occupy has been completed. Excavate earth in accordance with Section 02200 and stop at an elevation of 6" to 12" above bottom of pile cap before piles are driven. Final excavation will be done by hand after piles have been driven and the pile group approved.

3.03 PILE DRIVING

A. General

1. Install piles in accordance with the New York City Building Code, Articles 7-10, Chapter 1 - Subchapter 11.
2. Energy required for driving pile is given in Table 11-4 of the Building Code.
3. Immediately after driving each pile, provide and install temporary capping devices.
4. After the first pile in a group is driven, establish a reference point grade. After all piles in the group are driven, determine the reference point grade. If uplift of 1/4" or more has occurred, then redrive all piles in the group to the final penetration resistance.
5. After installation to final depth, the Engineer for Controlled Inspection will inspect the pile shells immediately before filling with concrete. The pile shells shall be free of water prior to placing of concrete.
6. Fill space between pile shaft and surrounding ground with material specified in Section 02200 to assure that no voids are left adjacent to the pile shafts.
7. No extra payment whatsoever will be made for lost rig time.

B. Index Pile Driving

1. Install a minimum of 20 index piles prior to performing the pile load tests.
2. Index pile locations shall be selected by the Contractor and approved by the Authority's Engineer.
3. Install the index piles in the same manner and with the same equipment as for the production piles.

4. Piles shall be driven to the proposed final driving resistance as determined by the Contractor for the proposed pile driving equipment.
5. If piles cannot be driven to the required minimum embedment due to dense layers of natural material, densification, or other obstructions, pre-drill through dense material to allow for the pile to meet the minimum embedment requirements.

C. Production Piles

1. All frictional resistance shall be obtained wholly in virgin strata.
2. Drive piles to the final penetration resistances required for the required pile capacity as required by table 11-4 of the code and, for piles requiring a load test, as verified by the successful pile load tests. Production piles shall be installed by the same equipment and with the same procedures as the index piles.
3. Resistance obtained in consolidated fill overlying softer strata is not acceptable and shall be compensated as per paragraph 27-700).
4. Shells, when used as friction piles, shall be of sufficient strength and rigidity to withstand all stresses, to prevent distortion caused by driving adjacent piles, to prevent collapse due to the soil and hydrostatic pressure, and to maintain perfect shape after being driven.
5. The variation of length of piles within a pile group (ratio of longest pile to length of shortest pile) shall not exceed 1.30.
6. Piles are to be driven to at least the minimum embedment indicated, even if the piles meet the required frictional resistance due to blow counts or maximum number of blows permitted. If there is difficulty in meeting this criteria and the maximum number of permitted blows are met, provide pre-drilling to a depth that will permit the correct installation.

3.04 PRE-DRILLING/JETTING

- A. Perform pre-drilling/jetting at the Contractor's cost:
1. when noted on Drawings or specified herein; or
 2. where unforeseen local conditions occur or consolidated fill overlies softer strata, thus creating a false resistance at top of pile; or
 2. when, due to heavy resistance such as stiff layers of natural material or obstructions, the piles as shown do not produce the minimum length or the minimum diameter required at cut-off levels or the piles within a group do not meet the requirements given in 3.03 C.4 above, provide such pre-drilling and jetting required, but obtain the Authority's approval before any pre-drilling/jetting is performed. The authority shall be the sole judge regarding (2) and (3).
 4. in order to reduce the vibration to adjacent structures and when settlement of adjacent buildings or structures are measured during conventional pile driving. The Contractor's engineer shall determine the depths and to what distance away from the structure pre-drilling is required.
- B. All pre-drilling and jetting, including that required by the preceding paragraph, shall comply with paragraph 27-705(b) of the Building Code.

3.05 DAMAGED OR DISPLACED PILES

- A. In the event any pile be damaged during installation and not satisfactorily repaired, or be driven out of design position sufficiently to result in a loading in excess of that allowed by paragraph 27-691 of the Building Code, or be rejected for any reason, remove or abandon it. Drive additional pile or piles before concrete has been poured in the adjacent piles and make such changes in pile caps or other construction necessary to provide for proper load distribution.

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- B. The location of any additional or replacement piles or redesign shall be subject to the approval of the Engineer of Record. Fill any abandoned pile shells or holes left in the ground with concrete or sand. Where cast-in-place piles are used, the gage of steel shells shall be sufficient to withstand required driving. Contractor is responsible for ripped or collapsed shells and for delays resulting from mandrels stuck in shells.
- C. Provide and pay for work of whatever nature (including cost of redesign) required on account of rejected, damaged, or displaced piles.
- D. If during the driving of any piles any of the piles previously driven heave or lift, redrive such heaved or lifted piles to the required load bearing capacity and without additional cost to the Authority.

3.06 OBSTRUCTIONS

- A. No extra payment will be made to the Contractor for the overcoming of obstructions under any conditions whatsoever.
- B. Pre-drilling/spudding/jetting is to be performed by the Contractor at own expense and with the approval of the Engineer for Controlled Inspection.
- C. Excavations to remove obstructions is to be performed by the Contractor at own expense.
- D. Additional piles driven in another location because of obstructions at any elevation are subject to the approval of the Engineer of Record as specified under "Damaged or Displaced Piles". Provide all required additional piles at own expense and pay for the redesign and additional costs involved in construction of pile caps and tie-beams.

3.07 CAST-IN-PLACE CONCRETE PILES, CONCRETE-FILLED PIPE PILES

- A. Placement
 - 1. Placement of concrete shall conform to the requirements of paragraph 27-709 of the Building Code.

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2. Do not place concrete in piles until the pile group or cluster has been completed, inspected, and accepted and all driving within a radius of 15', or within the heave range, has been completed, inspected, and accepted.
3. Before concrete is placed, make the inside of the accepted piles free from all solid matter and water.
4. The Engineer for Controlled Inspection of the pile installation will inspect the piles prior to placing concrete. Provide the Engineer with a shielded light to make the inspections. Any pile showing signs of rupture, buckling, or damage will be rejected. Water in the pile will be permitted only if the water can be pumped out and the concrete placed in a dry pile. If the Engineer determines the rate of water coming into the pile is too high to be removed successfully before placing concrete or which might adversely affect the quality of the concrete, the pile will be rejected. No more than 1" of standing water shall be permitted in any pile at the time of placing concrete.
5. Deposit concrete by an elephant trunk or through a funnel to prevent segregation of material. There shall be no obstruction to the free displacement of air from pile shaft as concrete is placed. Concrete is not to be placed from the top of the shaft.
6. Place concrete in one continuous operation. Cold joints will not be allowed. The concrete fill shall be thoroughly vibrated in at least the upper 6' of each pile.

B. Protection

In freezing weather protect the exposed portion of the pile above ground against freezing by covering with tarpaulins and salt hay or heating, so that the temperature around the pile butts do not fall below 50°F for a period of 72 hours after concrete is placed. Do not use anti-freeze compounds in the concrete.

C. Inspection

Controlled Inspection of the concrete for piles is part of the Work of Section 03300. Do not pour concrete except in the presence of the Engineer for Controlled Inspection of the Concrete Work and of the piling.

3.08 PILE CAPS AND BRACE BEAMS

- A. Concrete work shall comply with Division 3 of this Specification. Pile caps and brace beams shall conform to paragraph 27-694 of the Building Code.

3.09 FIELD QUALITY CONTROL

A. Load Tests

1. Provide and pay for all load tests required by the provisions of paragraph 27-700(d)(1)(2)(3) of the Building Code.
 - a. A minimum of three successful pile load compression tests are required. Provide additional load tests to meet the building code requirements.
 - a. Piles to be load tested shall be selected by the Authority's Engineer.
 - c. Load tested piles shall be cased-off to the top of the bearing material in accordance with paragraph 27-700(d)(7). Include method of casing-off in the load test submittal.
2. Provide and pay for all load tests and special procedures required by the provisions of paragraph 27700(e)(2), "Substantiation of Higher Allowable Loads", when the capacity of the project pile exceeds the basic maximum pile load given in Table 11-6.

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3. When load tests are required by paragraph 27700(d)(6) or where in the opinion of the Authority load tests are required to prove the carrying of any driven pile or piles, load tests shall be performed according to Building Code requirements. Such tests shall be paid for as an extra cost to the Contractor by the Authority where such pile load tests are successful. No payment shall be made for load tests that are unsuccessful.
4. Load Test procedures shall conform to the requirements of paragraph 27-700(d)(4) and shall be supervised by a Licensed Professional Engineer engaged by the Contractor. Submit to the Authority for approval the name of the Licensed Professional Engineer and the Licensed Land Surveyor who will provide the necessary services in connection with the load test. The Authority's engineer will also witness the test and verify the results.
5. Submit the load test report prepared by the Licensed Professional Engineer to the Engineer of Record for approval. The Engineer of Record will file the load test report and obtain Building Department approvals. Submit to the Authority the approved copy of the amendment and load test report.

B. Inspection

1. Engineer for Controlled Inspection
 - a. The Authority will assign, under the requirements of paragraph 27-721 of the Building Code, a Licensed Professional Engineer who will be responsible for Controlled Inspection of the pile installation. The Engineer will be on the site during pile installations to insure and certify that piles are installed in accordance with design and code requirements.
 - b. With respect to cast-in-place concrete piles, the Engineer will verify the integrity of the

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pile shells immediately before concreting according to paragraph 27-709(c)(1).

- c. The Engineer will prepare and periodically submit to the Engineer of Record for review a report of the pile driving as required by paragraph 27-688(b) to allow for pile cap work to proceed.
 - d. The Engineer will submit full data to the Engineer of Record for review to facilitate the corrective design requirements. The Engineer will certify the piles, as driven in the corrective design, comply with the Design and Code requirements.
 - e. Upon completion and approval of all pile driving, the Engineer will deliver to the Engineer of Record original pile driving reports and copies for review and filing in the Building Department. Besides indicating the location of all piles including the obstructed, damaged, and compensating piles, the report will include percentage out-of-plumb, final blow count, cut-off elevation, and length below cut-off of each pile.
2. Contractor's Responsibility
- a. The Contractor shall notify the Authority at least 72 hours prior to each day of pile driving to allow for the appropriate personnel to be on the site.
 - b. The Contractor shall prepare and periodically submit to the Engineer of Record for review partial area surveys to permit pile cap work to proceed and to facilitate the design of corrective measures.
 - c. Upon completion and approval of all pile driving, the Contractor shall deliver to the Engineer of Record the original tracings (equal in size to that of the Drawings) and the requisite copies for review and filing in the Building Department.

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3. Licensed Surveyor: Engage the services of a Licensed Land Surveyor registered in the State of New York and approved by the Authority for the performance of the survey work called for herein, as per paragraph 27-688(b) of the Building Code. The installed location of each pile shall be established by survey and shown on drawings, in accordance with the provisions of the Building Code.

C. Pile Review and Corrective Measures

1. Review: The Engineer of Record, upon receiving the asdriven pile survey, will perform a complete pile review to determine the true loadings on the piles due to pile group eccentricities, including a review of the pile cap design. The pile review will determine if pile corrective measures are required.
2. Design of Corrective Measure: The Engineer of Record will perform all necessary design and filing to obtain Building Department Approval of all necessary corrective measures required due to pile driving operations as required by paragraph 27-691 of the Building Code.
3. Payment for Design of Corrective Measures: Pay all costs incurred by the Authority for the design of corrective measures (not the pile review).

END OF SECTION

SECTION 02511
ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide material, labor, equipment, services required to install asphaltic concrete paving and related work as shown on the Contract Drawings.
- B. Work includes paving over subbase.

1.02 RELATED SECTIONS AND WORK

- A. Site Preparation.....Section 02100
- B. Earthwork.....Section 02200
- C. Sidewalk and Street Paving.....Section 02513

1.03 REFERENCES

- A. Standard Specifications - New York City Department of Transportation Bureau of Highway Operations.
- B. Construction Specifications for Asphaltic Concrete and Other Plant-Mix Types - The Asphalt Institute, Fourth Edition.

1.04 DEFINITIONS

- A. Subbase

Compacted aggregate base or stone ballast which will receive the base course.
- B. Base Course

Asphaltic concrete mixture usually referred to as plant-mix (described by the term binder mixture by NYCDOT) which is used as a base for the final asphaltic wearing surface when a portland cement concrete base is not used.

C. Surface Course

Final asphaltic concrete wearing surface, usually referred to as surfacing mix (described by the terms fine or extra fine asphaltic concrete mixture by NYCDOT), placed over plant-mix or portland cement concrete base.

1.05 SUBMITTALS

A. Product Data

Provide manufactures' information on the following:

1. Prime coat
2. Tack coat
3. Sealer
4. Herbicide

B. Quality Control Submittals

1. Design Data: Submit design mix formulas for plant-mix and surfacing mix and name of producer.
2. Certificates: Provide material certificates from producer, material supplier, and Contractor certifying that each material item complies with, or exceeds the specified requirements.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Producer: Company specializing in production of asphaltic concrete shall have more than five years experience.
2. Installer: Company specializing in installation of asphaltic concrete shall have more than three years experience and at least two jobs with similar quantity of material.

B. Regulatory Requirements

1. Work of this Section shall comply with the requirements of the NYC Building Code and those agencies having jurisdiction over noise, pollution, etc.
2. Requirements for asphaltic concrete, including, but not limited to handling, equipment, transportation etc., not specified herein shall conform to the more stringent of the New York City Department of Highway Standard Specifications and AASHTO "Standard Specification for Transportation, Materials, Methods of Sampling and Testing".

1.07 ENVIRONMENTAL REQUIREMENTS

A. Asphaltic Concrete

1. Do not install asphaltic concrete paving when there is frost on the subbase or base; when the subbase or base is wet; or when the air temperature is 40°F or below.
2. Materials containing frost will be rejected.

B. Prime and tack coats

Apply prime and tack coats when air temperature is above 50°F and when temperature has not been below 35°F for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

C. Sealer

Apply sealer under conditions similar to prime and tack coats.

1.08 WARRANTY

- A. Cracking, blistering, running, or deviation from requirements specified under "Finish" will be considered defects under the warranty conditions of the Contract.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Sealer

1. Karnack Corp., Clark N.J. 07066.
2. Neyra Industries, Cincinnati, Ohio 45241

B. Herbicide

1. Allied Chemical Corp.
2. Ciba-Giegy Corp.
3. Dow Chemical U.S.A.
4. U.S. Borax and Chemical Corp.

2.02 MATERIALS

A. Asphaltic Concrete

Materials shall comply with Section 3.01 of NYCDOT Standard Specifications for each item.

B. Prime Coat

Cut-back asphalt type, AASHTO M82, (ASTM D2027) MC-30, MC-70 or MC-250.

C. Tack Coat

Emulsified Asphalt; AASHTO M140 (ASTM D977) or M208 (ASTM D2397); SS-1h, CSS-1 or CSS-1h, Diluted with one part water to one part emulsified asphalt.

D. Sealer

Pitch, coal tar emulsion sealer meeting Federal Specification RP-355d containing no volatile organics.

1. Karnack 152 Driveway Seal.
2. Neyra Jennite NJ-S1

E. Herbicide

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Commercial chemical for weed control, registered by the
Environmental Protection Agency.

2.03 EQUIPMENT

- A. Provide proper compaction equipment to properly compact asphaltic concrete pavement.

2.04 MIXES

- A. Bituminous material shall come from one source only.
B. Bitumen and aggregate composition shall be plant mixed entirely.
C. Composition

1. Aggregate:

Percent Passing by Weight of Aggregate

Sieve Size	Surface Course (Extra Fine Surfacing Mix)	Base Course (Plant-mix)	Variation from Job Mix Formula (Plant-mix)
1 1/2"	-	100	-
1"	-	95-100	-
1/2"	100	70-90	±6
3/8"	98-100	-	
1/4"	-	48-74	±7
1/8"	-	32-62	±7
No. 4	70-90	-	
No. 8	38-65	-	
No. 20	-	15-39	±7
No. 40	-	8-27	±7
No. 50	6-25	-	
No. 80	-	4-16	±4
No. 200	2-8*	2-8	±2

* Under no circumstances shall the final mix contain less than 2% of material passing the No. 200 sieve.

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2. Asphaltic Cement (Bitumen)

Mix	Percent Bitumen by Total Weight Soluble in Chloroform	Variation from Job Mix Formula
Plant-mix	4.5-6.5	±.4
Extra Fine Surfacing Mix	5.0-8.0	-

D. Penetration Grade of the asphaltic concrete shall be 85-100.

2.05 SOURCE QUALITY CONTROL

A. Inspection

1. The Contractor shall engage a Licensed Professional Engineer to perform inspections at the plant to ensure that the mix provided is that of the design mix.
2. Notify the Engineer 72 hours in advance of each asphaltic concrete placement so that the Engineer can cover the work at the plant.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that all grades onto which asphaltic concrete is to be placed are at the required levels prior to placement. Do not begin work until all improper conditions are remedied. Installation of aggregate subbase is described in Section 02200.

3.02 PREPARATION

A. Protection

1. Provide tarpaulins for use during emergencies, such as rain, chilling winds or unavoidable delay to cover and protect paving materials.
2. Protect pavement from debris and damage from equipment and other work.

B. Surface Preparation

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1. Remove all loose and foreign materials before proof rolling and application of herbicide and prime coat.
2. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
3. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
4. Subbase shall be dry and free from any standing water.
5. Apply weed control agent in accordance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry subbase prior to application of prime coat.
6. Apply prime coat at rate of 0.20 to 0.50 gal per sq yd over compacted subbase. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and to allow for evaporation of volatiles.

3.03 PLACING

A. General

1. Establish and maintain required lines and elevations.
2. Place asphaltic concrete mixture on prepared surface, spread and strike-off. Spread mixture at minimum temperature of 225°F. Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
3. Begin rolling when mixture will bear roller weight without excessive displacement. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

B. Asphaltic Concrete Base Course - Plant-Mix

1. Provide plant-mix base.

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2. Spread sufficient plant-mix to develop a uniform 4" thickness after rolling and compaction.
3. Sprinkle with clean water, then compact with 5 to 8-ton roller. In areas where the use of a roller is impracticable, heavy mechanical tampers may be used to consolidate the material.

C. Asphaltic Concrete Surface Course - Surfacing Mix

1. Prior to placement of surface course, apply tack coat to contact surfaces of previously constructed asphalt. Distribute at rate of 0.05 to 0.15 gal per sq yd of surface. Allow to dry until at proper condition to receive paving.
2. Place surface course over base only when base is dry and free from standing water.
3. Spread in loose layer and of such depth which will result in a uniform course having the thickness of 1¹/₂" after compaction and rolling.
4. Compact the material with approved roller to a smooth even surface and to the levels indicated.
5. Roller shall be a minimum 8-ton tandem type having a rear wheel compression of 200-300 lbs per lineal inch, provided that if a roller less than 8-tons weight is used for general rolling, the entire surface course shall also be rolled once with a roller weighing 8-tons or more.
6. Motion of roller shall be slow enough to avoid displacement of the surface rolled.
7. Keep roller wheels moistened with water to prevent adhesion of the materials to wheels, but without use of excessive amount. Use of any liquids other than water for this purpose is prohibited.
8. If the operation of laying materials is interrupted, the end of the laid material shall be left unrolled until the work is resumed so that there will be no joints in the topping.
9. Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other

sections of the asphaltic concrete course. Clean contact surfaces and apply tack coat.

10. The use of liquid bitumen or hot smoothing irons in finishing such joints is prohibited.
11. At locations inaccessible to rollers, compression shall be effected with iron tampers weighing not less than 25 lbs, having a maximum bearing area of 48in².
12. Any surfacing material (IE. sealer, etc.) to be placed on the asphaltic concrete surface shall only be done after the asphaltic concrete has cured and the oils have dissipated. Consult with the product manufacturer for their exact requirements.

3.04 FINISH

- A. The rolled finish surface shall be free from porosity, fissures, or blemishes, true to crown and grade; free from depression, waves, bunches, or unevenness so as to allow complete runoff.
- B. Should defects in composition compactness or surface finish appear in the completed work, remove defective areas to full depth of the course and replace with thickness and finish specified.
- C. With permission of the MMMHS Representative, minor surface defects may be repaired with approved sealing compound.

3.05 PATCHING

- A. Remove and replace paving areas mixed with foreign materials and defective areas in a manner acceptable to the MMMHS Representative. Cut-out such areas and fill with fresh, hot, asphaltic concrete. Compact by rolling to maximum surface density and smoothness.

3.06 SEALER APPLICATION

- A. After asphaltic concrete surface course has been tested and approved for allowable tolerances and the surface is hardened to a degree acceptable to the sealer manufacturer (a minimum of 90 days), apply the sealer in accordance with the manufacturer's instructions.

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- B. Sweep surfaces clean of dust and dirt; remove oil and grease spots with household detergent. Flush entire surface with water; remove all remaining water puddles.
- C. Pour sealer onto dampened pavement; pour in spots or ribbons, then spread evenly with push broom or squeegee.
- D. Allow sealer to dry about 24 hours minimum depending on weather conditions before opening surface to traffic.
- E. Apply at a rate 1¹/₂ gallons of sealer for every 100 sq ft of surface. Apply in warm, dry weather only.

3.07 TOLERANCES

- A. The thickness of the plant-mix and surface course shall not vary by more than 1/4".
- B. The finish elevation for the plant-mix shall not vary from grade by more than 1/4", the surface course by more than 1/8".
- C. The smoothness tolerance for the plant-mix is 1/4", the surface course 1/8", when measured as described under "Field Quality Control".

3.08 FIELD QUALITY CONTROL

- A. Testing and Inspection
 - 1. Pay for any tests such as cores required by the MMMHS Representative when such tests show non-conformance with the Drawings and Specifications.
 - 2. Test finished surface of each asphaltic concrete course for smoothness, using 10-foot straightedge applied parallel with, and at right angles to, centerline of paved area.
 - 3. Check the final surface for depressions by applying water in the presence of the SSRCS Representative. Water should not pond and should flow to all catch basins, trench drains or grass areas.

3.09 CLEANING

- A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the MMMHS Representative.

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3.10 PROTECTION

- A. After final rolling, do not permit vehicular or pedestrian traffic on asphaltic concrete pavement until it has cooled and hardened so as not to be marked and in no case sooner than 6 hours.
- B. Provide barricades and warning devices as required to protect pavement and the general public.

3.11 TEMPORARY ASPHALT PAVEMENT AND STONE BALLAST REMOVAL

- A. Remove temporary asphalt pavement and stone ballast subbase upon removal of temporary trailers.
- B. Restore grass area as indicated on the Drawings.

END OF SECTION

SECTION 02513
SIDEWALK AND STREET PAVING

PART 1 - GENERAL

The Contractor shall pay the local utility company for providing the temporary electric service for all trailers on the site which shall include all removal, excavation, electrical service work, backfilling and pavement work with the exception of the replacement work for the concrete sidewalk, curb and sidewalk foundation material which the Contractor shall provide in accordance with the related portions of this specification Section and using "Landmark Grey Cement" for the sidewalk pavement (to match existing adjacent sidewalk) with a broom finish.

1.01 DESCRIPTION OF WORK

- A. All items of Work outside the street line which are under the jurisdiction of the New York City Department of Transportation (NYCDOT).
- B. Construct all concrete sidewalks, pavements, concrete curbs, steel faced concrete curbs, asphaltic concrete pavement, pavement markings and items shown on Drawings, specified herein, as required by site conditions and NYCDOT.
- C. Pay for tests required by NYCDOT to ensure compliance with NYCDOT Specifications.

1.02 RELATED SECTIONS

- A. Site Preparation.....Section 02100
- B. Earthwork.....Section 02200
- C. Asphaltic Concrete Paving.....Section 02511
- D. Cast-in-Place Concrete.....Section 03300

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1.03 REFERENCES

- A. "Standard Specifications - New York City Department of Transportation, Bureau of Highway Operations" dated June, 1986 with latest amendments. (NYCDOT Standard Specifications)
- B. "Standard Details of Construction" of the New York City Department of Transportation, Bureau of Traffic Operations - Street Design, dated August, 1988 with latest amendments. (NYCDOT Standard Details)

1.04 SUBMITTALS

A. Product Data

Provide manufactures' information for the welded steel wire fabric.

B. Shop Drawings

- 1. Steel reinforcing
- 2. Steel curb facing

C. Certificates and Mixes

Provide certificates or certifications for the following items:

- 1. Concrete design mix
- 2. Asphaltic concrete job mix formulas for each course.
- 3. Gradation analysis for aggregate base course and subbase course.
- 4. Reinforcing bars

1.05 QUALITY ASSURANCE

A. Qualifications

Company specializing in the Work of this Section shall have more than three years experience and at least two jobs with similar quantity of material.

B. Regulatory Requirements

Materials and methods of construction shall conform to:

1. "NYCDOT Standard Specifications": Section numbers referred to in Parts 2 and 3 of this Specification Section, such as "Section 4.13.3(b)" or "Section 2.23", etc. refer to the sections given in the NYCDOT Standard Specification which govern this work outside the street line.
2. "NYCDOT Standard Details": Drawing numbers referred to in Parts 2 and 3 of this Specification Section, such as "Drawing H-1044" or "Drawing H-1010", etc., refer to the Drawings in the NYCDOT Standard Details which govern this work outside the street line.

Where more stringent requirements are given in this Specification Section, the requirements of this Specification Section shall govern.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sidewalk and Driveway Foundation Material

Material for sidewalk foundation course shall conform to the requirements of Section 2.02 for size No. 3 broken stone or gravel. Foundation course shall be 6" thick.

B. Concrete for Sidewalks

Concrete shall comply with the requirements of Section 4.13.3(b). Cement used shall be Type IIa.

C. Preformed Expansion Joint Filler

Material shall conform to the requirements of Section 2.15, 1/4"thick, Type IV.

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D. Asphaltic Blown Joint Filler

Material shall conform to the requirements of Section 2.16.

E. Welded Steel Wire Fabric

Material shall conform to the requirements of Section 2.25. Fabric shall be 6x6-W2.9xW2.9 wherever fabric is indicated.

F. Steel Bars for Concrete Reinforcement

Material shall conform to the requirements of Section 2.23, Type I, Grade 60.

G. Concrete for Curb

Concrete shall comply with the requirements of Section 4.08.3, except the minimum compressive strength shall be 3500 psi.

H. Concrete for Steel-faced Curb and Facing

Concrete and steel facing shall comply with the requirements of Section 4.09.3, except the minimum compressive strength shall be 3500 psi.

I. Asphaltic Concrete Base Course

Material shall conform to the requirements of Section 3.01 for binder mixture.

J. Concrete Base for Pavement

Material shall comply with the requirements of Section 4.04.3.

K. Asphaltic Concrete Surface Course

Material shall conform to the requirements of Section 3.01 for fine asphaltic concrete mixture.

L. Concrete Pavements

Concrete materials shall comply with the requirements for Section 4.05.3.

M. Dense Graded Stone Base Course

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Material shall comply with requirements of Section 6.46.3.

N. Painted Pavement Markings

Paint shall comply with the requirements for Section 6.49.2, color as indicated on drawings or determined by NYCDOT.

2.02 SOURCE QUALITY CONTROL

A. Testing

Testing of Concrete is described in Section 03300 of this Specification.

B. Inspection

1. Portland Cement Concrete

Concrete work is treated as Controlled Inspection and is described in Section 03300 of this Specification.

2. Asphaltic Concrete

a. The Contractor shall engage a Licensed Professional Engineer to provide inspection services at the plant to ensure that the mix provided is that of the design mix.

b. Notify the Engineer 72 hours in advance of each asphaltic concrete placement so that the Engineer can cover the work at the plant.

PART 3 - EXECUTION

3.01 PREPARATION

A. Do not start excavation around city monuments and bench marks until said monuments or bench marks have been referenced and reset or otherwise disposed of by the Chief Engineer of the Bureau of Highways. Furnish labor and materials required to remove, care for, and reset all such monuments and bench marks.

B. Carefully remove all existing traffic signs at locations where new sidewalks are to be installed and store on the premises in a safe place, protected from the weather.

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Ten days prior to their removal, notify in writing the New York City Department of Traffic when signs will be ready for pick-up by the Department of Traffic. Forward copy of the letter to the Traffic Department to the SSRCC Representative.

3.02 CONSTRUCTION

A. Concrete Sidewalk

Construct concrete sidewalk in accordance with the requirements of Section 4.13.4 and Drawing H-1045, Type I, except that Welded Steel Wire Fabric shall be installed for all sidewalks. Place fabric 1 $\frac{1}{2}$ " from top of slab. Score pattern shall be 5'-0" x 5'-0" or as shown on Drawings in accordance with D.I.S.M.A.

B. Concrete Curb

Concrete curb shall be constructed in accordance with Section 4.08.4 and Drawing H-1044. Curb height shall be 18".

C. Steel-faced Concrete Curb

Steel-faced concrete curb shall be constructed in accordance with Section 4.09.4 and Drawing H-1010. Curb height shall be 18".

D. Asphaltic Concrete Pavement

1. Prepare earth subgrade in accordance with Section 4.04.4A.
2. Construct subbase course to the compacted depth indicated on the Drawings in accordance with Section 4.01.4J.
3. Construct asphaltic concrete base course to the compacted depth indicated on the Drawings in accordance with Section 4.01.4E-I.
4. Construct asphaltic concrete surface course to the compacted depth indicated on the Drawings in accordance with Section 4.01.5B-D.

E. Asphaltic Concrete Pavement with Concrete Base

1. Prepare earth subgrade in accordance with Section 4.04.4.
2. Construct concrete base to the levels indicated on the Drawings in accordance with Section 4.04.4.
3. Construct asphaltic concrete wearing course to the compacted depth indicated on the Drawings in accordance with Section 4.02, using the material of 4.02.2(c); 3" course of binder mixture and surface mixture.

F. Painted Pavement Markings

Pavement markings shall be painted as shown on the Drawings and in accordance with the requirements of Section 6.49.3.

G. Restoration of Existing Pavement

Existing roadway pavement damaged due to trenching or sewer installation operation shall be restored as shown on Drawing H-1042A.

H. Restoration of Existing Sidewalk

Existing sidewalks, driveways and pedestrian ramps to remain damaged due to trenching or other excavations shall be restored as per the details for new work, with color to match the existing.

3.03 FIELD QUALITY CONTROL

A. Testing

1. Concrete testing is described in Section 03300 of this Specification.
2. Pay for tests required by NYCDOT to ensure compliance with NYCDOT Specifications.
3. Pay for any tests such as cores required by the SSRCC Representative when such tests show non-conformance with the Drawings and Specifications.

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B. Inspection

1. Concrete work is treated as Controlled Inspection and is described in Section 03300 of this Specification.

END OF SECTION

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SECTION 02521
CONCRETE CURBS AND PAVEMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish material, equipment, labor, services required to provide for concrete curbs and pavements. Work includes the installation of formwork, reinforcement, expansion joints and other items listed herein. Provide special formwork or formliners for concrete with smooth finishes. Allow ample time and facility for the Work of other Divisions to be installed.

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Fence sleeves for chain link fence.....Section 02831
- B. Shoes/sleeves for Wrought Iron Fence,
other items.....Section 05700

1.03 RELATED SECTIONS

- A. Earthwork.....Section 02201
- B. Asphaltic Concrete Paving.....Section 02511
- C. Sidewalk and Street Paving.....Section 02513
- D. Trench Drains.....Section 02721
- E. Chain Link Fences and Gates.....Section 02831
- F. Early Childhood Playground Equipment.....Section 02860
- G. Outdoor Game Equipment.....Section 02862
- H. Grouting.....Section 03610

1.04 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
- B. American Concrete Institute (ACI) standards, latest editions.

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- C. "Placing Reinforcing Bars - CRSI-WCRSI Recommended Practices", latest edition. Concrete Reinforcing Steel Institute.

1.05 DEFINITIONS

- A. Exposed to view

Situated so that it can be seen from eye level from a public location. A public location is that which is accessible to persons not responsible for operation or maintenance of the building.

1.06 SUBMITTALS

- A. Product Data

Submit manufacturers' information for the following:

1. Admixtures
2. Curing compounds
3. Bonding Agent
4. Welded Wire Fabric
5. Overlaid plyform formwork and formliners
6. Expansion joint filler
7. Expansion joint sealant

- B. Samples

1. 12"x12" samples of the overlaid plyform formwork and formliners.

- C. Shop Drawings

1. Immediately after award of Contract, prepare shop drawings showing all fabrication dimensions and locations for placing of the reinforcing steel and accessories, follow detailing recommendations of ACI 315.
2. Shop drawings checked and approved or disapproved by the Engineer of Record shall not render the

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Engineer responsible for any errors in construction dimensions, quantities, etc. which shall have been made in preparation of the shop drawings.

3. Do not order or deliver reinforcement to job site prior to approval of drawings.

D. Quality Control Submittals

1. Design Data: Submit design mixes for concrete, including list of admixtures to be used, to the Testing Laboratory and the Engineer of Record. After approval and prior to placement, send the approved mix to the Authority's laboratory.

2. Certificates

- a. BSA or MEA approval for the admixtures and cement used.

- b. Concrete producer's certificate must be presented at site before concrete is placed in accordance with paragraph 27-605(c)(2) of the Building Code. Also to be submitted to the Building Department.

- c. The Contractor's superintendent's (the person supervising the concrete work) affidavit that all items have been installed as per the documents. Also to be submitted to the Building Department.

1.07 QUALITY ASSURANCE

A. Qualifications

1. Installer: Company specializing in performing the Work of this Section shall have three years minimum experience.
2. Producer: Company specializing in the production of concrete shall have a minimum of five years experience.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and

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all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.

2. NYC Board of Standards and Appeals (BSA) approvals, or
3. NYC Materials and Equipment Acceptance (MEA) approvals.
4. Industry Standards: The ACI Standards listed under references apply to Work of this Section. Where more severe requirements than those contained in the Standards are given in this Section or the Building Code, requirements of this Section or the Building Code shall govern. The Contractor shall keep a copy of ACI SP-15 - "Field Reference Manual" at the site.

C. Certifications

1. Cast-in-Place Concrete shall conform to the material acceptance, certification, and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).
2. Acquire cement and aggregate from same source for all work.

D. Coordination

Coordinate the work of all Divisions so that items to be installed are done so correctly and in proper sequence.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the elements and from other damage on the site before, during, and after installation. Store reinforcement in location to prevent rusting, etc.
- B. Insure proper identification of reinforcement after bundles are broken.

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- A. Replace and pay for material and work damaged to the satisfaction of the Authority.
- D. Epoxy-Coated Reinforcing Bars
 - 1. Equipment for handling epoxy-coated bars shall have protected contact areas. Lift Bundles of coated bars at multiple pick-up points to minimize bar-to-bar abrasion from sags in the bundles.
 - 2. Do not drop or drag coated bars or bundles of coated bars. Store coated bars on protective cribbing.
 - 3. Fading of the color of the coating shall not be cause for rejection of epoxy-coated reinforcing bars. Coating damage due to handling, shipment, and placing need not be repaired in cases where the damaged area is 0.1 in² or smaller. Repair damaged areas larger than 0.1 in² in accordance with Article 2.02. The maximum amount of damage, including repaired and unrepaired areas, shall not exceed 2% of the surface area of each bar. Bars with greater than 2% damaged areas will be rejected.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Adequately protect concrete placed during rain, sleet, or snow, or when the mean daily temperature falls below 40°F or rises above 90°F as provided in Article 3.07.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Rough Formwork: Shall be Commercial Douglas Fir, DFPA: 5/8" thick minimum.
- B. Overlaid Plyform Formwork: Shall be B-Matte Formguard by Simpson Timber Company.
- C. Smooth Form Finish Formliner: Shall be #340 Smooth Face by Greenstreak.
- D. Release Agent: Shall be chemically reactive agent for coating forms.

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- E. Form Ties: Wire ties not permitted. Form ties for exposed concrete shall be adjustable, leave no metal closer than 1 $\frac{1}{2}$ " to the surface, and free of devices which leave holes or depressions larger than 7/8" back of exposed surface.
- F. Reinforcing Bars: All reinforcing bars shall be of deformed type of new billet steel conforming to current requirements of ASTM A615 Grade 60. No rail or re-rolled steel will be permitted. All bars shall be epoxy coated in accordance with ASTM A775.
- G. Welded Steel Wire Fabric: Wire Fabric shall conform to the requirements of ASTM A185. All wire mesh shall be epoxy coated in accordance with ASTM A775.
- H. Supports for Reinforcement: Support for reinforcement supported by ground shall be coated wire bar supports or bar supports made of dielectric material or other acceptable materials or precast concrete block, 4" square minimum, having a compressive strength equal to that of the concrete being placed. Wire bar supports shall be coated with dielectric material for a minimum distance of 2" from the point of contact with the epoxy-coated reinforcing bars.
- I. Cement: Shall conform to ASTM C150 Type II and shall be of the non air-entrained type.
- J. Admixtures
 - 1. The use of admixtures shall comply with the requirements of paragraph 27-608 of the Building Code. The final soluble chloride content in concrete, percent by weight of cement, due to the addition of admixtures and other ingredients shall not exceed 0.10 at 28 days.
 - 2. Air-entraining admixtures shall conform to ASTM C260.
 - 3. Chemical admixtures shall conform to ASTM C494.
- K. Water: Shall be clean New York City water free of injurious foreign matter conforming to the requirements for water specified in ASTM C94.

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- L. Aggregate: Aggregate shall conform to ASTM C33, No.67 or No.8. Maximum size of coarse aggregate shall conform to paragraph 3.3.3 of ACI 318.
- M. Curing Compounds: Liquid curing compound shall conform to ASTM C309.
- N. Bonding Agent
 - 1. Epoxy/acrylic resin that will not form a vapor barrier with the concrete with the following properties:
 - a. Bond strength of 1800 psi in 2 hours when tested in accordance with ASTM C882.
 - b. Flexural strength of 2000 psi in 28 days when tested in accordance with ASTM C78.
 - c. Tensile strength of 800 psi in 28 days when tested in accordance with ASTM C190.
 - 2. Bonding agent shall be "CR246 Sto Bonding and Anti-corrosion Agent" by Sto Concrete Restoration Division or Armatec 110 by Sika Corp.
- O. Expansion Joint Filler: Closed-Cell Polyurethane or Closed-Cell Expanded polyethylene Joint Filler - Resilient, compressible, semi-rigid; W.R. Meadow's Ceramar; A.C. Horn's Closed Cell Plastic Foam Filler, Code 5401; Sonneborn's Sonoflex F.
- P. Expansion Joint Sealant: Type 1A Sealant
 - 1. For Horizontal Joints: Two-part, self-leveling polyurethane sealant for traffic bearing construction; Mameco's Vulkem 255, Pecora's Urexpan NR-200, or Bostik's Chem-Calk 550 or Products Research & Chemical's RC-2SL.
 - 2. For Vertical Joints: Two-part, non-sag polyurethane sealant; Mameco's Vulkem 227, Pecora's Dynatrol II, or Bostik's Chem-Calk 500 or Products Research & Chemical's RC-2.

2.03 MIXES

A. General

Concrete for all parts of the Work shall be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by the Specifications and Drawings.

B. Strength

The minimum compressive strength of the concrete shall be 3500 psi with a minimum cement content of 610 lbs and a maximum water to cement ratio of 0.45. Strength requirements are based on 28-day compressive strength.

C. Method of Proportioning

1. Proportion concrete mix of strength listed in B above in accordance with the requirements of paragraph 27605(c) of the Building Code, "Average Concrete" (Method III). The Testing Laboratory and the Engineer of Record will review the design mix.
2. Pumping of concrete is permitted if a pump mix is designed in accordance with Method I or Method II and approved by the Engineer of Record. Provide a minimum of 1/2 bag extra of cement over the amount required to attain the correct concrete strength for pump mixes.
3. Proportion and produce normal weight concrete to have a maximum slump of 4", prior to addition of high-range water-reducers if used. A tolerance of up to 1" above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. The slump shall be determined by ASTM C143. Concrete containing High Range Water Reducer shall have a slump not exceeding 9", unless other wise approved by the Engineer of Record. The concrete shall arrive at the job site at a slump of 2" to 3".

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4. Concrete shall be air-entrained with an air content for the grading size of coarse aggregate as follows:

- a. No.8....7¹/₂%
- b. No.67....6%

Tolerance on air content as delivered shall be ±1.5%.

2.04 SOURCE QUALITY CONTROL

A. Tests

- 1. The Engineer of Record will review the proposed materials for compliance with the Specifications prior to construction.
- 2. The Testing Laboratory will perform field tests as work progresses as listed in "Field Quality Control".

B. Inspection

1. Testing Laboratory

- a. Concrete work is subject to semi-controlled inspection in accordance with the requirements of subdivision (b) of Section 27132 of the Building Code.
- b. The Authority will assign, in accordance with subdivision (b) of Section 27607, a licensed concrete testing laboratory to perform the required field testing. The Testing Laboratory will review the mix design, perform field testing, and inspect the work as it progresses. The listing of services to be performed by the testing Laboratory are given in Chapter 16 of ACI 301.
- c. The Testing Laboratory must be present when the concrete is being batched, mixed, and placed.

2. Notification

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- a. Notify the Authority in writing at least seventy-two hours in advance of each concrete placement. The Authority will notify the Testing Laboratory immediately to order out the necessary concrete technicians to cover the work.
 - b. Once the concrete technicians are ordered out and a cancellation follows, the Contractor will be charged One Hundred Fifty Dollars for each technician so ordered to appear, unless a cancellation order is issued to the Laboratory by 3 PM the day before the concrete placement.
 - c. During the placement of the concrete, notify the Authority immediately of any delay at the concrete plant or at the job site. Do not mix concrete or add admixtures unless the Technician is present as per paragraphs 27605(a)(5) and 27-608 of the Building Code.
3. Contractors Responsibility for Quality Control
- a. The Authority shall receive the producer's certificate stating the concrete meets the Specification requirements.
 - b. The tests and inspections, as provided in the Code, do not in any way relieve the Contractor of responsibility to construct the Work in accordance with the Drawings and Specifications and to use safe, standard methods of construction at all times, safeguarding the public, workmen, and structure. The Contractor shall be solely responsible for the physical control of the materials and concrete mixes, and shall see that such mix designs, tests, and controls are in accordance with the Code and Specifications. . The Contractor's superintendent shall attest that the work was installed in accordance with the documents.
 - c. Exercise extreme care in selecting the mixing plant and check whether the plant has the proper equipment. Visit the plant periodically and take whatever steps are necessary to assure the compliance with the

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Contract Documents, the Building Code, and
ASTM C94.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to placement of concrete, verify that the concrete cover over the reinforcement is that specified on Drawings.
- B. Verify that reinforcement and all other embedded items are provided and held securely, positioned accurately, and will not be a detriment to concrete placement.
- C. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Authority any condition that prevents the performance of this Work.

3.02 PROTECTION

- A. Protect members on grade and the subgrade from freezing before and after installation.
- B. Protect adjacent finish materials and previously poured concrete against spatter during concrete placement.
- C. Provide barricades and safeguards around excavations, etc. to protect workmen and the public from injury and to comply to all Building Code, OSHA, and other authorities having jurisdiction regulations.

3.03 FORMWORK

- A. Provide formwork where ever necessary to confine concrete to the required shapes shown on Drawings. Follow all procedures of Chapter 4 of ACI 301 and ACI 347. Formwork, reinforcement, and embedded items shall be clean of all accumulated mortar from previous concreting and other foreign material. Repair or replace any formwork as required.
- B. Cover the surfaces of the rough or overlaid plyform formwork (when used) with an approved form release agent that will effectively prevent absorption of moisture, prevent bond with the concrete, and which will not stain the concrete surfaces. Do not apply oil or release

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agents on formwork for concrete to receive additional concrete (such as at construction joints). Apply at a rate that will help achieve the finish specified below. Follow manufacture's recommendations.

- C. Adequately support and substantially brace formwork to hold lines and shape. Securely brace forms against lateral deflection. Formwork shall be tight jointed to prevent leakage of concrete.
- D. Place chamfer strips in the corners of forms to produce beveled edges (chamfers) on permanently exposed surfaces.
- E. Provide "Rough Form Finish" for surfaces not exposed to view. Use dress, square-edged lumber or metal forms coated with a release agent.
- F. Provide "Smooth Form Finish" for surfaces exposed to view and the elements. Use dress, square-edged lumber with form liner or overlaid plyform forms with applicable release agent. Do not exceed manufacture's recommendations for number of re-uses for the form liner or overlaid plyform. Arrange the forms or form liner in an orderly and symmetrical fashion, keeping the number of seams to a practical minimum.
- G. Remove forms in such a manner as to assure the complete safety of the structure. Formwork not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations and as required by I below.
- H. When repair of surface defects or finishing is required at an early age, remove forms as soon as the concrete has hardened sufficiently to resist damage from removal operations.

3.04 REINFORCEMENT

- A. Place reinforcement in accordance with CRSI "Placing Reinforcement Bars" and Chapter 5 of ACI 301.
- B. Unless otherwise permitted, welding of crossing bars (tack welding) for assembly of reinforcement is prohibited.

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- C. Support and fasten together all reinforcement to prevent displacement by construction loads or placing of concrete.
- D. Lifting of bars and welded wire fabric into position during placement of concrete is not permitted.
- E. Where the concrete surface will be exposed to the weather in the finished structure, the portions of all accessories within 1/2" of the concrete surface shall be non-corrosive or protected against corrosion.
- F. Provide minimum protective cover given in Chapter 7 of ACI 318 if not indicated on Drawings.
- G. All splices not shown on the Project Drawings shall be shown on the shop drawings and approved by the Engineer of Record.
- H. All embedment lengths not shown on the Project Drawings shall be shown on the shop drawings and approved by the Engineer of Record.

3.05 PREPARATION

- A. Remove ice, excess water, trash, and rubbish from forms.
- B. Remove hardened concrete from inner surfaces of conveying equipment and all formwork, reinforcement, and dowels.
- C. Prepare previously placed concrete to be in contact with new concrete in the manner described under "Construction Joints".
- A. Prepare existing concrete to be in contact with new concrete by roughening and cleaning the surface and applying a bonding agent. Surface must be free of laitance. Concrete must be placed after agent cures and within 24 hours of applying bonding agent. If time elapses, apply a new application.
- E. Sprinkle semi-porous grades with water to prevent suction and provide concrete seal for porous subgrade.
- F. Do not place concrete on frozen ground.

3.06 JOINTS AND EMBEDDED ITEMS

A. Construction Joints

1. Make joints not shown on Drawings at locations that will least impair the strength of the structure. Such location is subject to the approval of the Engineer of Record.
2. Continue reinforcement across joints. Provide longitudinal keys at least 1½" deep in walls and provide other keys as required.
3. Thoroughly clean concrete surface of oil, grease, and other contaminants and remove all laitance prior to placement of adjoining concrete. Roughen surface of the concrete in an approved manner that will expose the aggregate uniformly and will not leave laitance, loosened particles of aggregate, or damaged concrete at the surface. Dampen surface immediately prior to placement.

B. Expansion Joints

1. Do not extend reinforcement or other embedded metal items bonded to concrete continuously through expansion joint. Provide smooth dowels greased on one end at the joints.
2. Provide premolded expansion joint filler at the joint of the sizes indicated on the Drawings or specified herein.

C. Embedded items

1. Place all fence sleeves, shoes, and other embedded items required for the Work of other Divisions or for their support prior to concreting.
2. Provide ample notice and opportunity for items of other Division to be introduced and/or furnished for installation before concrete is placed. Coordinate the Work of the other Divisions so all items are placed in their proper location.
3. Set metal pipe sleeves, sockets, shoes, etc. into concrete to receive fence posts or any other items, all as indicated on details.

3.07 MIXING AND PLACING CONCRETE

A. General

1. Notify Authority at least 72 hours in advance of each concrete placement. Do not place concrete without approval of the Authority.
1. Do not allow rainwater to increase mixing water nor damage surface finish.
3. When placing concrete in cold weather (below 40°F), concrete shall have an accelerating admixture added.
4. Production of concrete, including batching and mixing, shall be done in accordance with the requirements of Chapter 7 of ACI 301.
5. Placement of concrete shall be done in accordance with the requirements of Chapter 8 of ACI 301. All consolidation shall be done by vibration.

B. Mixing

1. Batch, mix, and transport ready-mixed concrete in accordance with the appropriate sections of ASTM C94. Plant equipment and facilities shall meet the latest standards of the National Ready-Mix Concrete Association (NRMCA).
2. Batch and mix other concrete in accordance with subchapter 7.2 of ACI 301.
2. Use of chemical admixtures must be approved by the Engineer of Record.
3. Unless otherwise approved by the Engineer of Record, concrete shall be deposited within 1½ hours or 300 revolutions of the mixing drum, whichever comes first, after introduction of water to the cement or cement to the aggregate. When the ambient temperature rises above 90°F, the time shall be decreased to 1 hour.
5. Tempering and control of mixing water

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- a. Mix concrete only in quantities for immediate use. Concrete which has started to set shall not be retempered, but shall be discarded.
 - b. When approved by the Engineer of Record, a maximum of 30% of the total water required by the design mix may be withheld from batching at the plant, provided there is an accurate method of measuring the remainder of the water to be added at the site that is approved by the Authority's laboratory.
- C. Placing: Place concrete in accordance with ACI 301 and ACI 304R.
1. Consolidate all concrete by vibration so that the concrete is thoroughly worked around the reinforcement, around embedded items and into corners of forms, eliminating all air or stone pocket or weakness. Internal vibrators shall be the largest size and most powerful that can be used in the Work, as described in Table 5.1.5 of ACI 309R, with a minimum frequency of 7000 revolutions per minute and shall be operated by competent workmen. Over-vibrating and use of vibrators to transport concrete within forms is not permitted. Insert and withdraw vibrators at many points, from 18" to 30" apart. At each insertion, the duration shall be sufficient to consolidate the concrete but not sufficient to cause segregation, generally from 5 to 15 sec duration. Keep a spare vibrator on the job site during all concrete placing operations.
 2. Cold Weather Concrete Protection

When the mean daily temperature of the atmosphere is less than 40°F during concreting, or within 24 hours thereafter, follow the procedures outlined in ACI 306R to protect the concrete. Temperature of the plastic concrete shall be no lower than 55°F. Heat all forms, reinforcing steel, and surfaces to receive concrete above the freezing point and keep them completely free of frost, snow, and ice.
 3. Hot Weather Protection: When the mean daily temperature of the atmosphere is over 90°F during

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concreting, follow the procedures outlined in ACI 305R to protect the concrete.

3.08 FINISHING OF FORMED SURFACES AND REPAIR OF SURFACE DEFECTS

A. General

1. Remove forms as soon as practicable.
2. Repair surface defects, including tie holes and cracks, immediately after form removal. Patches shall be of quality to match the specified finish.
3. Remove oil, grease, compounds, and other contaminants from surfaces and areas to be repaired.
4. Provide finishes specified below immediately after form removal.
5. Provide curing and protection.

B. Repair of Surface Defects

Repair surface defects in accordance with subchapter 9.2 of ACI 301. At the Authority's discretion, repair mortars and coatings shall be employed to rectify defects. Materials shall be as selected by the Authority.

C. Tie Holes and Other Repairs

1. Remove ties, nails, and other form accessories below the concrete surface when the surface is exposed to view and/or the elements. For surfaces not exposed to view or the above mentioned conditions, remove metal to the surface.
2. Undercut surfaces of holes. After cleaning and thoroughly dampening the holes, fill them solid with the patching mortar. The mortar shall match the color of the existing concrete for concrete exposed to view as specified in paragraph B above.

D. Formed Finishes

1. Rough Form Finish: Provide for concrete not exposed to view.

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- a. Repair concrete surface as indicated above.
 - b. Chip or rub off fins exceeding 1/4" in height.
2. Smooth Form Finish: Provide for concrete exposed to view. Concrete shall have a CS 1, CS 2, or CS 3 finish as developed by the Cresset Chemical Company and shall have been placed without the need for patching or removal of fins, etc.
- a. Repair concrete surfaces is indicated above.
 - b. Chip or rub off fins completely and grind smooth.
 - c. Provide smooth rubbed finish as follows:
 1. Produce on newly hardened concrete no later than the day following form removal.
 2. Wet the surfaces and rub with a No. 16 carborundum brick or other equal abrasive to obtain a smooth, even surface of uniform appearance without applying any cement or other coating.
 3. Obtain the final finish by thoroughly rubbing with a No. 30 carborundum brick. The surface shall be wet for a period of 3 days. The Authority shall be the sole judge if the finish is proper.

E. Acceptance of Concrete Finish

If the finish produced is not acceptable to the Authority, the Contractor shall be responsible for all costs incurred to produce an acceptable finish by whatever means determined by the Authority. Remove stains, rust, efflorescence, and other surface deposits to the satisfaction of the Authority.

3.09 PAVEMENTS AND SLABS

A. General

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1. Mixing and placing shall be carefully coordinated with finishing. Do not place concrete more rapidly than it can be spread, straightedged, and darbied or bull floated. Provide darbying, floating, troweling, etc. at the correct time interval after pouring to prevent dusting and a non-durable surface as specified in ACI 302.1R. These operations must be performed before bleeding water has an opportunity to collect on the surface.
2. To obtain good surfaces and avoid cold joints, the size of finishing crews shall be planned with due regard for the effects of concrete temperature and atmospheric conditions on the rate of hardening of the concrete.

B. Finishing

1. Slope pavements uniformly toward drains. If pitch or elevations are not shown on Drawings, provide a minimum of 1/8" per foot.
2. Finish pavement surface to a true smooth plane by steel troweling and finished by rolling with a toothed roller or float with a wood float. Score concrete pavement in squares of approximately 5'0" and/or as shown on Drawings. Each rectangular slab shall have all edges neatly rounded with proper tools and be bounded on all sides by a troweled border about 1" in width.
3. Level ramp, step and driveway surfaces with wood float and follow with a broom finish perpendicular to direction of traffic.

C. Placement

1. General
 - a. Aggregate base material and preparation is given in Section 02201.
 - b. Where pavements to remain are damaged or destroyed as a result of the Work, patch, repair, or replace as required. Color to match existing.

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- c. Subgrade and/or aggregate base shall be free of frost before concrete placing begins.
 - d. Saw cut required joints within 24 hours after placement. Cut into 1/4 depth of slab using 3/16" thick blade.
 - e. Wet subgrade or aggregate base immediately prior to placement of concrete.
 - f. Pour slab to required thickness.
2. Pavements
- a. Provide 4" thick concrete slab unless otherwise indicated.
 - b. Provide 6 x 6 - W2.9 x W2.9 WWF 1 1/2" from top surface.
3. Driveways
- a. Provide 7" thick concrete slab.
 - b. Provide #4 @ 12" placed 2" from surface.
4. Expansion joints
- a. Provide expansion joints for all exterior concrete pavement, slabs under asphalt, driveways, etc. specified under this Section. Expansion joints shall occur at intervals not to exceed 20' in each direction or as indicated on Drawings.
 - b. Provide continuous expansion joints at the following locations: Driveways and other concrete pavements abutting area walls, buildings, retaining or any other walls, check pieces, steps, curbs.
 - c. Expansion joint shall be 1/2" wide, full depth minus 1/4" to allow for the poured joint sealer.

3.10 MISCELLANEOUS CONCRETE WORK

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- A. Provide curbs, footings, walls, ramps, and other miscellaneous concrete work.

3.11 PATCHING AND BONDING TO EXISTING CONCRETE

- A. Provide bonding agent whenever new concrete is to be poured against existing concrete, whenever the time between concrete pours is longer than that allowed for proper bond, and wherever bonding agent is indicated on the Drawings to be applied.
- B. Remove loose concrete from surface to be bonded with new concrete and clean. Remove rust from reinforcement and structural steel by power chipping and power driven brushes.
- C. Apply bonding agent in accordance with manufacturer's specifications. Pour concrete as soon as bonding agent has cured and before 24 hours after placement. If the 24-hour period has elapsed, then the bonding agent must be reapplied.

3.12 CURING AND PROTECTION

- A. General
 - 1. Begin curing concrete immediately after placement and finishing. Protect all freshly deposited concrete from premature drying and excessively hot or cold temperatures and maintain it with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Detailed procedures are given in ACI 308.
 - 2. Do not apply curing compounds to surfaces receiving additional concrete. Provide only wet curing.
- B. Procedure
 - 1. Concrete surfaces not in contact with forms:
 - a. Ponding or continuous non-manual sprinkling.
 - b. Absorptive mat or fabric, sand, or other covering kept continuously wet.
 - c. Curing compounds conforming to ASTM C309.

2. Concrete surfaces in contact with forms:
 - a. Minimize moisture loss from forms exposed to heating by the sun by keeping forms wet until they are removed.
 - b. After form removal, cure with one of the methods listed in 1 above.
3. Continue curing until a total of 7 days has elapsed during which the temperature of the air in contact with concrete has remained above 50°F. Prevent rapid drying during and at the end of the curing period.

C. Cold Weather Curing

Concrete must be protected from water loss. This shall be accomplished by the application as soon as possible without harm to the concrete surfaces of either (a) exhaust steam, or vapor-resistant paper or polyethylene film, or (b) curing compounds. In all other respects, curing shall conform to applicable provisions of this Section. Concrete temperature shall be maintained between 50°F and 70°F.

D. Hot Weather Curing

1. During the period June 1 to October 1 or when hot weather conditions require it, maintain continuous water curing for a minimum period of twenty-four hours. Provide for wind breaks, shading, and other necessary provisions.
2. After 24 hours, curing shall be by one of the methods specified under B above. In all other respects, curing shall conform to applicable provisions of this Specification. Upon termination of the specified moist curing, every effort should be made to reduce the rate of drying by avoiding air circulation.

- E. Protection from mechanical injury: Protect concrete from mechanical disturbances during curing period as described under "Protection and Cleaning".

3.13 TOLERANCES

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- A. Construct formwork so that concrete surfaces will conform to the tolerance limits listed in Table 4.3.1 of ACI 301.
- B. Establish and maintain in an undisturbed condition and until final completion and acceptance of the project sufficient control points and bench marks to be used for reference purposes to check tolerances.
- C. Place reinforcing bars in accordance with the tolerances given in paragraph 5.6.2 of ACI 301.
- D. Move bars as necessary to avoid interference with other reinforcement, conduits, or imbedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangements are subject to approval by the Engineer of Record.

3.14 FIELD QUALITY CONTROL

A. Tests

Tests to be performed by the Authority's Testing Laboratory during construction are as follows:

1. Compliance of materials to Specifications tested from production samples.
2. Determination of the slump of the concrete for each sample taken and whenever consistency of the concrete appears to vary using ASTM C143. The Testing Laboratory will reject any concrete that does meet the slump requirements.
3. Determination of water content of freshly mixed concrete utilizing the procedure of AASHTO TP23. Concrete that does not meet the maximum water to cement ratio or the proportions given in the approved design mix will be immediately rejected regardless of slump.
4. Strength tests on the specimens in accordance with ASTM C39. The minimum number of specimens to be taken daily will conform to ACI 318-89 paragraph 4.7 as modified by the Building Code except that four (4) test cylinders will be molded for each 50 cubic yards, or portions thereof, of concrete placed in any one day's concreting. Specimens will be stored at the site in the insulated curing box provided by the Contractor. Each group of specimens is considered one strength test. Three cylinders shall be tested at 28 days for acceptance and one at 7 days for information. If one specimen in a test manifests evidence of improper sampling, molding, or testing, it shall be discarded and the average strength of the remaining cylinders shall be considered the test result. Should all specimens in a test show any of the above defects, the entire test shall be discarded.
5. Determination of air content and unit weight of concrete sample for each strength test in accordance with ASTM C173 or C231 and ASTM C138.
6. Determination of temperature of concrete sample for each strength test.

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7. Determination of water soluble chloride content in the concrete, percent by weight of cement, of each sample.

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B. Inspection

1. Refer to "Source Quality Control" for responsibility and procedure.
2. Keep a record of all inspections, the name of the persons making them, and the name of the foreman in charge of formwork at the site. Submit to the Authority's representative on the site a copy of the inspection records prior to each concrete placement.
3. The Contractor shall cooperate in the making of all tests by the Laboratory Technician by:
 - a. Providing an insulated curing box of sufficient size and strength to contain all specimens made in any four consecutive working days and meeting all the requirements of paragraph 27607(a)(1) of the Building Code. The Contractor shall furnish an outlet to provide the necessary temperature in the storage box, pending delivery to the Laboratory of the test cylinders.
 - b. Providing a buggy for transporting the concrete taken from the mixer (and/or point of placement) to the location of the curing box for testing and the preparation of specimens.
 - c. Protecting the property of the Laboratory and keeping test specimens free from vibration and other disturbances as specified in paragraph 27607(a)(1).
 - d. Providing a microwave of the size specified in AASHTO TP23 and a portable generator.

C. Evaluation and Acceptance of Concrete

1. Strength tests on concrete will be evaluated according to ACI 318-89, paragraph 4.7 as modified by the Building Code by the Engineer of Record. If the tests fail, the adequacy of the concrete will be checked according to the requirements of paragraph 27-597 of the Building Code. Concrete exposed to the elements with indications of poor

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durability will be rejected regardless of strength.

2. Pay for additional costs of labor and materials required at the job for all damages resulting from testing. Remove and replace concrete work that is not of adequate strength or weather resistance and cannot be made to work by remedial methods acceptable to the Authority at own cost. The Contractor shall be held responsible for all delays and damages to the work of other Divisions that occur as a result of non-conformance.
3. Pay for all expenses borne by the Authority resulting from low strength test procedures or evidence of poor durability (such as high slump) specified above.

3.15 PROTECTION AND CLEANING

- A. During the curing period, and thereafter as conditions may require, protect the concrete from damaging mechanical disturbances, particularly excessive load stresses, heavy shock, and excess vibration. Protect all finished concrete surfaces from damage caused by construction equipment, materials or methods, and by rain or running water.

3.16 ACCEPTANCE OF CONCRETE WORK

- A. The provisions of Chapter 18 of ACI 301 apply to the acceptance of the concrete work.

END OF SECTION

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SECTION 02831
TEMPORARY CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide Contractor's staging area temporary chain link fence and gate work as indicated on the Drawings and specified herein.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Pipe sleeves for casting into concrete.....Section 03300

1.03 RELATED SECTIONS AND WORK

- A. Cast-in-Place Concrete.....Section 03300
- B. Grouting.....Section 03610

1.04 REFERENCES

- A. American Society for Testing and Materials (ASTM).
 - A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Steel Products.
 - A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - A307 Standard Specification for Carbon Steel Bolts and Studs, 60000 psi Tensile
 - A392 Standard Specification for Zinc-Coated Steel Chain Link Fence Fabric.
 - F552 Standard Definitions of Terms Relating to Chain Link Fencing.
 - F626 Standard Specification for Fence Fittings.
 - F669 Standard Specification for Strength Requirements of Metal Posts and Rails for Industrial Chain Link Fence.
 - F1234 Standard Specification for Protective Coatings on Steel Framework for Fences

1.05 SUBMITTALS

A. Shop Drawings

Furnish complete layout of fences, giving post spacing, and other pertinent information, for approval prior to erection.

B. Samples, three (3) of each:

Posts, rails, tie wire, wire fabric, fittings, and other accessory items for approval prior to erection.

C. Quality Control Submittals

Furnish materials list indicating the ASTM for each item supplied and certification stating that fencing materials installed comply with the requirements of ASTM Specifications referred to herein.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Installer: Company specializing in the installation of the type of fence work specified herein shall have a minimum of 3 years successful experience.

2. Manufacturer: Company specializing in the manufacture of the type of fence work specified herein shall have a minimum of 5 years successful experience.

B. All fencing items shall be produced by a single manufacturer.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle fence work materials as recommended by the manufacturer to protect from damage.

PART 2 - PRODUCT

2.01 FENCING

A. Material

1. Framework: Fences shall have a framework

consisting of uprights and horizontal members conforming to ASTM F669, Group IC, of sizes shown on the Drawings. Connect with malleable cast iron or pressed steel fittings conforming to ASTM F626, not less than 3/16" thick, and 3/8" minimum diameter bolts conforming to ASTM A307. Pipe sizes are as indicated on the Drawings.

2. Fence Fabric: Fence fabric shall be chain link woven steel wire conforming to ASTM A392 of gage and mesh size shown on Drawings.
3. Wire Ties: Steel and aluminum wire ties shall conform to ASTM F626. Steel ties shall be 9-gage minimum and aluminum ties 6-gage minimum.

B. Galvanizing

1. Posts and rails shall be hot-dip galvanized in accordance with ASTM F1234 Type A, except that the weight of zinc coating shall be 2.0 oz per sq ft.
2. Fittings shall be hot-dip galvanized in accordance with ASTM F626, except that the weight of zinc coating shall be 2.0 oz per sq ft.
3. Wire fabric shall be hot-dip galvanized after weaving in accordance with ASTM A392 Class II, weighing 2.0 oz per sq ft of wire surface.
4. Bolts shall be hot-dip galvanized in accordance with ASTM A153.

2.02 GATES

- A. Construct of same materials and finishes as the fences; members shall be securely assembled and connected as indicated on Drawings.
- B. Provide threaded, slip fittings or welded frame for the construction of the gates as indicated on the Drawings.
- C. All gates shall be braced with truss rods and turnbuckles as indicated on the Drawings.

2.03 LOCKING DEVICE

- A. All locking devices for gates shall be on the external side of the gates.
- B. All gates shall be so arranged that they can be locked

when closed and locked back to the fence when open.

2.04 PADLOCKS

- A. Furnish padlocks for new gates. Locks to be set up alike: Furnish five (4) keys to the Director of Buildings & Grounds.
- B. Padlock case shall be of 1³/₄" extruded brass, cornered elliptical shape. The width of the case shall be 1³/₄", the depth 1⁹/₃₂" and the thickness 13/16". The shackle shall be of hardened steel cadmium plated with a diameter of 11/32". The width of the opening of shackle from the top of the case to the inside of the shackle shall be 29/32". The shackle shall lock at both the toe and the heel.
- C. Cylinder shall be capable of being keyed alike.
- D. Padlocks shall have 14 gage steel wire chains 9" long attached to lock and riveting pins with rivets and clevis. Chains, rivets, clevis and riveting pins shall be hot dipped galvanized or cadmium plated. Chains shall be galvanized after fabrication.

PART 3 - EXECUTION

3.01 ERECTION

- A. Check each post for vertical and top alignment and hold in position during placement and finishing operations.
- B. Set framework plumb, with the uprights placed in sleeves cast in footings and set in with non-shrink grout. Completely fill sockets with grout, crowning the grout to shed water away from the posts.
- C. Space uprights at not more than 10' on center, and set rails at the various heights shown.
- D. Where gates occur, provide additional rails and tie rods with the gate posts and fence posts as indicated on the Drawings.
- E. Anchor bottom rail of the fence down between posts.
- F. Secure fence fabric to the framework as follows:
 - 1. Top portion of Fence: Secure to framework with aluminum wire with telegraph splice (no less than three turns). Space wire 16" on centers for both

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posts and rails.

2. Bottom portion of fence: Secure to framework with galvanized steel wire with telegraph splice (no less than one turn). Space wires 12" on center on posts and 16" on center on rails.

- G. Knuckle the fence fabric of fences at the top and bottom.

3.02 FIELD TOUCH-UP

- A. Prior to installation of fence post, touch up fence sleeves coating damaged during installation and cut surfaces with repair paint listed in B below.
- B. After installation is complete, touch-up all fencing members damaged during transportation and erection using galvanizing repair paint conforming to ASTM A780.

3.03 TEMPORARY CHAIN LINK FENCE AND GATE REMOVAL

- A. At the completion of the project, remove and dispose of off site, fencing, gates and post foundations.
- B. Restore/patch holes in existing asphalt pavement at fence post foundation as indicated on the Drawings.

END OF SECTION

SECTION 02900
LANDSCAPING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all landscaping Work as indicated on the Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Site Preparation.....Section 02100
- B. Earthwork - (General excavation at seeded, sodded, planted, trees and shrubbery areas).....Section 02200

1.03 REFERENCES

The following specifications and standards listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

- A. American Joint Committee on Horticultural Nomenclature:
Standard Plant Names (Current Edition).
- B. American Association of Nurserymen:
Horticultural Standards (Current Edition).
- C. American National Standards Institute (ANSI).
- D. U.S. Department of Agriculture.
- E. Federal Specifications (FS).
- F. Association of Official Agriculture Chemists.

1.04 SUBMITTALS

- A. Qualifications

Submit for approval the name of the firm performing the Work of this Section; list experience and qualifications.

- B. Planting Schedule

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Before commencing planting submit a proposed schedule of delivery and planting of grass for approval.

C. Topsoil

Submit testing reports specified in Part 2.

1.05 QUALITY ASSURANCE

- A. A single landscaping firm with a minimum of 5 years of successful landscaping work shall perform the Work of this Section.
- B. For packaged materials, include manufacturer's certified analysis. For other materials, provide an independent reputable laboratory analysis, made in compliance with Association of Official Agriculture Chemists methods.
- C. Make no substitutions for materials specified and scheduled, without prior approval by the MMMHS Representative.
- D. Provide natural top soil from a recognized acceptable source.

1.06 RECEIPT OF MATERIALS

- A. Furnish a receipt for all bulk deliveries of top soil and humus, brought to job each day, prior to unloading.
- B. Provide tags on all bags identifying material and weight for all bagged items delivered to job.
- C. Material not complying with above requirements will not be accepted.

1.07 GUARANTEE

- A. Seeding is subject to the one year Guarantee requirements set forth in the Contract for the entire work of this Contract, provided that Landscaping has been completed and accepted at the start of the Contract Guarantee period.
- B. At the end of this period all seeding that is dead or in a dying condition shall be replaced.
- C. Inspect the plant material during the one year guarantee period, in order to ascertain that the material is receiving the proper care by the MMMHS.

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- D. If the Contractor is of the opinion that the care and watering given the grass, by the MMMHS, is insufficient or may cause them to die prematurely, the Contractor shall immediately, and in sufficient time to permit the condition to be satisfactorily rectified, notify the MMMHS in writing, otherwise no consideration will be given such claims.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged materials in unopened packages or containers, labeled with manufacturer's name, name of product, and other pertinent information.
- B. Storage of materials on site shall be in areas approved by the MMMHS Representative.

PART 2 - PRODUCT

2.01 MATERIALS

A. Topsoil

1. New topsoil: natural topsoil of good, rich, uniform quality, free from a mixture of subsoil, weeds, clay lumps, brush, poison ivy roots and other undesirable material harmful to plant growth. Meet the following requirements:

- a. pH: 5.0 to 7.0 inclusive
- b. Organic Matter: 7% (loss on ignition)
- c. Specific Conductance: less than 2,000 microohms/cm
- d. Texture: sandy loam
- e. Good internal rate of percolation
- f. Clay content: 10%-20%
- g. Sieve Analysis, as follows:

<u>Sieve Size</u>	<u>%Passing</u>
1"	100%
½"	97%
#10	60-80%
#40	40-60%
#60	40-60%
#100	10-30%
#200	10-20%

2. Include the following information in soil testing reports:
 - a. Color
 - b. pH
 - c. Specific Conductance: Micro-ohms/cm
 - d. Organic Matter (loss on ignition)
 - e. Texture
 - f. Mechanical Analysis: % passing 1", ½", #10, #40, #60, #100 and #200 sieves.
 - g. Available nutrients.
 - h. Corrective recommendations in lbs/AC for nutrients and pH.

2.02 COMMERCIAL FERTILIZER

- A. Commercial Fertilizer shall have the following composition by weight:

Nitrogen 10%; Phosphoric Acid 6%; Potash 4%; these elements may be organic, inorganic or a combination, and shall be available according to the methods adopted by the Association of Official Agricultural Chemists. The nitrogen content shall have 50% total from approved organic sources.

- B. The MMMHS reserves the right to reject on, or after, delivery any material which does not, in its opinion, meet these specifications.
- C. All Commercial Fertilizer shall be delivered in standard size bags of manufacturer, showing weight, analysis and name of manufacturer. It shall be stored in such a manner that its effectiveness will not be impaired.

2.03 GROUND LIMESTONE (Calcium Carbonate)

- A. At least 50% of the material shall pass through a 200 mesh sieve and at least 90% shall pass through a 100 mesh sieve and 100% shall pass through a 10 mesh sieve. For purposes of calculation, total carbonates shall be considered as calcium carbonate. The total carbonates shall be not less than 80%, or 44.8% calcium oxide

equivalent.

- B. Deliver the ground limestone in standard size bags of the manufacturer showing weight, analysis and name of the manufacturer. Store in a manner to ensure preservation of its qualities and fitness for the work.

2.04 GRASS SEED

- A. All grass seed shall be fresh, recleaned grass seed of the latest crop mixed in the following proportions by weight and meeting the following standards of pure live seed (P.L.S.) content, purity and germination.

Grass	P.L.S.	Max. Weed Seed
40% Creeping Red Fescue (Illahee Strain)	90%	0.50%
30% Kentucky Bluegrass.....	80%	0.50%
10% Red Top (Fancy recleaned).....	85%	1.00%
20% Blue Tag Perennial Rye.....	88%	0.50%

- B. Present a certificate of P.L.S. test of the grass seed intended for use, obtained from a well recognized seed test laboratory that is not engaged in the business of selling seeds. This certificate shall state the true quality of the seeds which the Contractor proposes to furnish.
- C. Grass seed shall meet the tolerance for germination and purity according to the standards tabulated on pages 22 and 23 of U.S. Department of Agriculture, Service and Regulatory Announcements No. 156. Deliver all grass seed in sealed bags of the vendor showing the weight, analysis and vendor's name.

PART 3 - EXECUTION

3.01 PLANTING TIME

- A. Grass
Seed.....March 15 - May 1 Aug. 15 - Oct. 1

3.02 PLANTING OPERATIONS

- A. In general planting shall be done only in periods specified in Par. 3.01, unless otherwise directed by the MMMHS Representative.

3.03 LAYING TOPSOIL

- A. Clear the sub-soil upon which topsoil is to be placed of all stones, woody roots, rubbish and other objectionable matter, scarify the surface thoroughly and loosen to a depth of at least 4"; spread the topsoil to a smooth even surface and to the depth required, then rake or otherwise manipulate to form smooth drainage grades to levels to meet the existing adjacent grades.
- B. Deposit topsoil and spread to a minimum depth of 8" over earth where seeded areas are indicated on the Drawings.

3.04 SEEDING

- A. After topsoil has been placed, rake all areas indicated on the Drawings or specified to be seeded to true lines, free from all unsightly variations, bumps, ridges and depressions. Remove all sticks, stones, roots, and other objectionable material which might interfere with the formation of a finely pulverized seed-bed from the soil.
- B. Thoroughly roll the prepared lawn area with an approved lawn roller and level all low spots.
- C. Apply ground limestone at the rate of 46 pounds per thousand square feet and evenly distribute and work lightly into the top of the soil to a depth of 3" either by hand or by machine at least 5 days before applying commercial fertilizer.
- D. Apply acceptable Commercial Fertilizer at a rate of 25 pounds per thousand square feet and work lightly in to the top 3" of topsoil.
- E. The rate of seeding shall be 5 pounds per thousand square feet. Sew the grass seed by approved machine in such a manner that a uniform stand shall result. After seeding, evenly rake the surface with a fine-toothed rake and roll with approved roller weighing at least 200 pounds.
- F. Sew grass seed only in periods listed in Par. 3.01 or at such other times as are approved by the MMMHS Representative. All seeding is to be done in dry or moderately dry soil and at times when the wind does not exceed a velocity of 5 miles per hour.

3.05 GROUND LIMESTONE

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- A. Distribute the ground limestone evenly over all lawn, areas by machine at least five (5) days before applying Commercial Fertilizer. The ground limestone shall be incorporated with the soil as specified under Par. 3.04 - "SEEDING".

3.06 COMMERCIAL FERTILIZER

- A. Add to all seeded areas at the rate of 25 lbs. per thousand square feet and work lightly into top 3" of top soil.

3.07 WATERING

- A. Thoroughly saturate the soil with water at the time of planting, and as many times later as seasonable conditions require, until acceptance of the work.

3.08 MAINTENANCE OF SEEDING

- A. Maintain all seeded areas until final acceptance of the Contract and provide regrading, refertilizing, reseeding as required to keep area healthy and neat in appearance. After the grass is started, any parts or areas which fail to show a uniform stand, for any reason whatsoever, shall be reseeded with the same mixture as originally used, and such reseeding shall be repeated until all required areas are covered with grass. Reseeding shall be carried on only during the seeding periods.
- B. Properly water, mow and otherwise maintain all seeded areas throughout the life of the contract, and until Work is accepted. Maintain the grass at a maximum height of 2-1/2".

3.09 ACCEPTANCE OF THE WORK

- A. Maintain all landscaping installed until acceptance is granted upon total completion of planting. Maintenance includes cutting of grass and all other plant operations.
- B. Acceptance shall be granted upon a healthy growth and a complete stand of grass in all lawn areas.

END OF SECTION

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SECTION 03200
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide and install all reinforcement and associated items required for cast-in-place concrete and reinforced masonry.

1.02 RELATED SECTIONS

- A. Concrete Formwork.....Section 03100
- B. Cast-in-Place Concrete.....Section 03300
- C. Unit Masonry.....Section 04200

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
 - A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - A184 Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
 - A185 Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
 - A496 Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
 - A497 Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
 - A615 Standard Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - A775 Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
- B. American Concrete Institute (ACI) standards, latest editions.

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- ACI 301 "Specification for Structural Concrete for Buildings."
- ACI 315 "Details and Detailing of Concrete Reinforcement."
- ACI 318 "Building Code Requirements for Reinforced Concrete (RS 10-3 of the NYC Building Code).
- C. "Placing Reinforcing Bars - CRSI-WCRSI Recommended Practices", latest edition. Concrete Reinforcing Steel Institute.
- D. "Structural Welding Code - Reinforcing Steel" D1.4 - American Welding Society (AWS).
- E. "Near-White Blast Cleaning" SSPC-SP10 - Steel Structures Painting Council (SSPC).

1.04 DESIGN REQUIREMENTS

- A. Development lengths (and thereby splices) of epoxy-coated bars shall be increased 1.5 over the values given in ACI 318-89 for non-coated bars.

1.05 SUBMITTALS

A. Product Data

Submit manufacturers' information for the following:

- 1. Steel welded wire fabric
- 2. Supports
- 3. Mechanical connectors

B. Shop Drawings

- 1. Immediately after award of Contract, prepare shop drawings showing all fabrication dimensions and locations for placing of the reinforcing steel and accessories.
- 2. Follow detailing recommendations of ACI 315.
- 3. Submit drawings gradually and not all at the same time so that sufficient time is allowed for

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checking and approval. Improperly prepared and incomplete shop drawings will be disapproved without review.

4. Shop drawings checked and approved or disapproved by the Engineer of Record shall not render the Engineer responsible for any errors in construction dimensions, quantities, etc. which shall have been made in preparation of the shop drawings.
5. Do not order or deliver reinforcement to job site prior to approval of drawings.
6. Indicate location of epoxy-coated bars on the drawings.

C. Samples

1. Submit an 8 oz sample of the epoxy coating material from each batch for approval. Package the sample in an airtight container and identify by batch number.
2. Submit a sample of the epoxy patching material for approval. The patching material shall be compatible with the coating material and meet the requirements of ASTM A775 Annex A1.

D. Certificates

1. Submit certificate stating that reinforcement meets or exceeds the specified requirements.
2. Submit certification that properly identifies the number of each batch of epoxy coating material used on the project, material, quantity represented, date of manufacture, name and address of manufacturer and a statement that the supplied epoxy-coated reinforcing bars meet the requirements of this specification and the requirements of ASTM A775 including Annex A1.

1.06 QUALITY ASSURANCE

A. Qualifications

Company specializing in performing the Work of this Section shall have three years minimum experience.

B. Regulatory Requirements

1. Building Code

Work of this section shall conform to all requirements of the NYC Building Code. As per paragraph 27-604, "Identification of metal-reinforcement", deliveries will be rejected unless:

- a. All reinforcing bars are identifiable as to point of origin, grade of steel and size.
- b. All bundles or rolls of cold drawn steel wire reinforcement are securely tagged to identify the manufacturer, the grade of steel and the size.

Where more severe requirements than those contained in the Building Code are given in this Section and ACI 318, the requirements of this Section and ACI 318 shall govern:

2. Industry Standards

Details of Concrete reinforcement not covered herein shall be in accordance with "Building Code Requirements for Reinforced Concrete" (ACI 318) and "Details and Detailing of Concrete Reinforcement" (ACI 315), latest editions and the Concrete Reinforcing Steel Institute Manual on "Placing Reinforcing Bars" (CRSI-76).

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store in location to prevent rusting, etc.
- B. Protect reinforcement before, during, and after installation.
- C. Insure proper identification after bundles are broken.
- D. Epoxy-Coated Reinforcing Bars
 1. Equipment for handling epoxy-coated bars shall have protected contact areas. Lift Bundles of coated bars at multiple pick-up points to minimize bar-to-bar abrasion from sags in the bundles.

2. Do not drop or drag coated bars or bundles of coated bars. Store coated bars on protective cribbing.
3. Fading of the color of the coating shall not be cause for rejection of epoxy-coated reinforcing bars. Coating damage due to handling, shipment, and placing need not be repaired in cases where the damaged area is 0.1 in² or smaller. Repair damaged areas larger than 0.1 in² in accordance with Article 2.02. The maximum amount of damage, including repaired and unrepaired areas, shall not exceed 2% of the surface area of each bar. Bars with greater than 2% damaged areas will be rejected.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Non-coated Reinforcing Bars

1. All non-coated reinforcing bars shall be of deformed type of new billet steel conforming to current requirements of ASTM A615. No rail or re-rolled steel will be permitted.
2. Grade or yield strength of reinforcing bars are indicated on Drawings.

B. Welded Steel Wire Fabric

1. Wire Fabric shall conform to the requirements of ASTM A185.
2. Required net area, placement details, and other requirements are indicated on Drawings.

C. Epoxy-Coated Reinforcing Bars

1. All steel reinforcing bars to be coated shall be of deformed type of new steel conforming to current requirements of ASTM A615. Bars shall be free of contaminants such as oil, grease or paint. No rail or re-rolled steel will be permitted.
2. Grade or yield strength of reinforcing bars are indicated on Drawings.

3. Bars shall be epoxy-coated in accordance with ASTM A775.
4. The coating material shall be of organic composition meeting the requirements listed in ASTM A775 Annex A1 entitled "Requirements for Organic Coating." Resistance to chemicals, applied voltage, chloride permeability, flexibility, bond strength, abrasion resistance, impact, and hardness shall be tested in accordance with Annex A1.

D. Supports for Reinforcement

1. Non-coated Reinforcement

- a. Supports for reinforcement supported by formwork or deck shall consist of metal bolsters and chairs of adequate strength, size, and number. Provide CRSI Class C supports (plastic tipped) for formed concrete surfaces and Class A (bright basic) for metal deck.
- b. Supports for reinforcement of slabs supported by ground shall consist of above supports with sand plates or horizontal runners. Support for reinforcement of footings/ pilecaps shall consist of the above supports or precast concrete block, 4" square, having a compressive strength equal to that of the concrete being placed.

2. Epoxy-coated Reinforcement

- a. Epoxy-coated reinforcing bars supported from formwork shall rest on coated wire bar supports, or on bar supports made of dielectric material or other acceptable materials. Wire bar supports shall be coated with dielectric material for a minimum distance of 2" from the point of contact with the epoxy-coated reinforcing bars.
- b. Reinforcing bars used as support bars shall be epoxy-coated. In walls having epoxy-coated reinforcing bars, spreader bars, where specified on the Drawings or shop drawings,

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shall be epoxy-coated. Proprietary combination bar clips and spreaders used in walls with epoxy-coated reinforcing bars shall be made of corrosion-resistant material.

E. Tie Wire

Tie wire for fastening epoxy-coated reinforcing bars shall be nylon-epoxy, plastic-coated, or other material acceptable to the Authority.

2.02 FABRICATION

A. General

Fabricate reinforcing bars in accordance with fabricating allowances given in ACI 315.

B. Epoxy-Coated Bars

1. Surface Preparation

Clean the surface of the steel reinforcing bars to be coated by abrasive blast cleaning to near-white metal in accordance with SSPC-SP10.

2. Application of Coating (In Shop)

a. Apply the coating to the cleaned surface as soon as possible after cleaning and before oxidation of the surface discernible to the unaided eye occurs. However, in no case delay application of the coating more than 8 hours after cleaning.

b. The coating shall be applied by the Electrostatic Spray Method and fully cured in accordance with the recommendations of the manufacturer of the coating material.

c. Coat ends of bars in accordance with the manufacturer's standards.

3. Thickness of Coating Material
 - a. The film thickness of the coating after curing shall be 5 to 12 mils inclusive. Take a minimum of 15 measurements approximately evenly spaced along each side of the test bar. At least 90% of these measurements shall be within the specified limits.
 - b. Test the thickness of the film coating in accordance with ASTM G12.
4. Coating Repair: Repair coating damage due to fabrication or handling in cases where damaged area is 0.1 in² or greater. Repair all damaged areas larger than 0.1 in² with patching material. The maximum amount of damage shall not exceed 24% of the surface area of each bar. Patch in accordance with the patching material manufacturer's recommendations. Repair ends of bars cut in the field with the patching material.
5. Bending of Epoxy-Coated Reinforcement: Bend all epoxy-coated reinforcement cold unless otherwise approved by the Authority. When epoxy coated reinforcement bars are field or shop bent, repair coating damage in accordance with paragraph B.4 above. Rollers of bending apparatus shall have neoprene collars.

2.03 SOURCE QUALITY CONTROL

- A. The Authority shall have the right to inspect the material at all times while work on the Contract is being performed. Epoxy-coated reinforcing bars that do not meet the requirements of this Specification will be rejected. Replace all rejected bars at no cost to the Authority.

PART 3 - EXECUTION

3.01 PLACEMENT

- A. General
 1. Place reinforcement in accordance with CRSI "Placing Reinforcement Bars."

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2. Unless otherwise permitted, welding of crossing bars (tack welding) for assembly of reinforcement is prohibited.
3. Avoid cutting or puncturing vapor barrier during placement.

B. Supports

1. Support and fasten together all reinforcement to prevent displacement by construction loads or placing of concrete.
2. Provide supports specified in Article 2.01.
3. Provide Continuous High Chair Upper (CHCU) or Continuous Support (CS) for welded wire fabric in the metal deck and place every four feet (4') parallel to the supporting beams.
4. Lifting of bars and welded wire fabric into position during placement of concrete is not permitted.
5. Where the concrete surface will be exposed to the weather in the finished structure, the portions of all accessories within 1/2" of the concrete surface shall be non-corrosive or protected against corrosion.

C. Cover

Provide minimum protective cover given in Chapter 7 of ACI 318 if not indicated on Drawings.

D. Splices

1. All splices not shown on the Project Drawings shall be shown on the shop drawings and approved by the Engineer of Record.
2. Welded splices - Provide where indicated on Drawings. All welding shall conform to AWS D1.4.
 - a. Provide suitable ventilation when welding epoxy-coated reinforcing bars.

- b. After completion of welding on epoxy-coated reinforcing bars, repair coating damage in accordance with Article 2.02. All welds, and all steel splice members when used to splice bars, shall be coated with the same material used for repair of coating damage.

3. Mechanical Connectors

- a. Provide where indicated on Drawings. Install in accordance with splice device manufacturer's recommendations.
- b. After installing mechanical connectors on epoxy-coated reinforcing bars, coating damage shall be repaired in accordance with Article 2.02. All parts of mechanical connectors used on coated bars, including steel splice sleeves, bolts, and nuts shall be coated with the same material used for repair of coating damage.

E. Embedment Lengths

All embedment lengths not shown on the Project Drawings shall be shown on the shop drawings and approved by the Engineer of Record.

3.02 FIELD CUTTING

- A. When epoxy-coated reinforcing bars are cut in the field, coat the ends of the bars with the same material used for repair of coating damage.

3.03 TOLERANCES

- A. Place reinforcing bars in accordance with the tolerances given in paragraph 5.6.2 of ACI 301.
- B. Move bars as necessary to avoid interference with other reinforcement, conduits, or imbedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangements are subject to approval by the Engineer of Record.

3.04 FIELD QUALITY CONTROL

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- A. Under the requirements of paragraph 27-607, the Authority will designate an Engineer for Controlled Inspection to inspect the size and placement of reinforcement. A record will be made of all inspection of reinforcement at the bending bench and in place.
- B. Do not proceed with the completion of wall forms until all reinforcement has been approved and recorded by the Authority's representative.
- C. Do not proceed with concreting until all reinforcing in place has been approved and recorded.
- D. Promptly correct all reinforcement displaced during pouring of concrete.
- E. Damaged reinforcement shall not be used.

3.05 CLEANING

- A. Steel reinforcement shall be free of all rust, scale, oil, paint, grease, loose mill scale, and all other foreign matter that will prevent bonding of concrete and steel just prior to pouring of concrete.

END OF SECTION

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SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish material, equipment, labor, services required to provide for cast-in-place concrete. Work includes but is not limited to structural, sitework, and slabs. Grouting is part of the Work of Section 03610.

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Fence sleeves for chain link fence.....Section 02831

1.03 RELATED SECTIONS AND WORK

- A. Chain Link Fences and Gates.....Section 02831
- B. Concrete Reinforcement.....Section 03200
- C. Grouting.....Section 03610
- D. Unit Masonry.....Section 04200

1.04 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
 - C31 Standard Methods of Making and Curing Concrete Test Specimens in the Field.
 - C33 Standard Specifications for Concrete Aggregates.
 - C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - C42 Standard Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - C94 Standard Specification for Ready-Mixed Concrete.
 - C127 Standard Test Method for Specific Gravity and Absorption of Course Aggregate.

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- C131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
 - C138 Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
 - C143 Standard Test Method for Slump of Portland Cement Concrete.
 - C150 Standard Specification for Portland Cement.
 - C171 Standard Specification for Sheet Materials for Curing Concrete.
 - C172 Standard Method of Sampling Freshly Mixed Concrete.
 - C173 Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 - C192 Standard Test Method of Making and Curing Concrete Test Specimens in the Laboratory.
 - C231 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - C260 Standard Specifications for Air-Entraining Admixtures for Concrete.
 - C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - C387 Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
 - C494 Standard Specification for Chemical Admixture for Concrete.
 - C496 Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens.
 - C631 Standard Specification for Bonding Compounds for Interior Plastering.
 - C685 Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing.
- B. American Concrete Institute (ACI) standards, latest editions.

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- ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
- ACI 212.3R Chemical Admixtures for Concrete.
- ACI 214.3R Simplified Version of the Recommended Practice for Evaluation of Strength Test Results for Concrete.
- ACI 301 Specifications for Structural Concrete for Buildings.
- ACI 302.1R Guide for Concrete Floor and Slab Construction.
- ACI 304R Guide for Measuring, Mixing, Transporting and Placing Concrete.
- ACI 305R Hot Weather Concreting.
- ACI 306R Cold Weather Concreting.
- ACI 308 Standard Practice for Curing Concrete.
- ACI 309R Guide for Consolidation of Concrete.
- ACI 311.4R Guide for Concrete Inspection.
- ACI 318-83 Building Code Requirements for Reinforced Concrete.
- ACI 318.1 Building Code Requirements for Structural Plain Concrete.

1.05 DEFINITIONS

A. Exposed to view

Situated so that it can be seen from eye level from a public location. A public location is that which is accessible to persons not responsible for operation or maintenance of the building.

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B. Normal weight concrete

Concrete for which density is not a controlling attribute, made with aggregates of the types covered by ASTM C33 and usually having unit weights in the range of 135 to 160 lb/ft³.

1.06 SUBMITTALS

A. Product Data

Submit manufacturers' information for the following:

1. Admixtures
2. Curing compounds
3. Hardener
4. Bonding Agent

B. Quality Control Submittals

1. Design Data: Submit design mixes for concrete, including list of admixtures to be used, to the Testing Agency, the Engineer for Controlled Inspection, and the Architect of Record. Design mix for lightweight concrete shall include both the dry and saturated (SSD) weights of the aggregate.
2. Test Reports: Strength Test Report (28 day) for preliminary trial mix (with all admixtures).
3. Certificates
 - a. BSA or MEA approval for the admixtures and cement used.
 - b. Admixture manufacturer's certificate stating the maximum water soluble chloride content in the concrete, percent by weight of cement, the use of the admixture will yield.
 - c. Concrete producer's certificate must be presented at site before concrete is placed in accordance with paragraph 27-605(a)(5) of the Building Code.

1.07 QUALITY ASSURANCE

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A. Qualifications

1. Installer: Company specializing in performing the Work of this Section shall have three years minimum experience.
2. Producer: Company specializing in the production of concrete shall have a minimum of five years experience and shall be New York State DOT approved.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.
2. NYC Board of Standards and Appeals (BSA) approvals, or
3. NYC Materials and Equipment Acceptance (MEA) approvals.
4. Industry Standards: The ACI Standards listed under references apply to Work of this Section. Where more severe requirements than those contained in the Standards are given in this Section or the Building Code, requirements of this Section or the Building Code shall govern. The Contractor shall keep a copy of ACI SP-15 - "Field Reference Manual" at the site.

C. Certifications

1. Cast-in-Place Concrete shall conform to the material acceptance, certification, and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).
2. Acquire cement and aggregate from same source for all work.

D. Coordination

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Coordinate the work of all Divisions so that items to be installed are done so correctly and in proper sequence.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the elements and from other damage on the site.
- B. Replace and pay for material and work damaged to the satisfaction of the MMMHS Representative.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Adequately protect concrete placed during rain, sleet, or snow, or when the mean daily temperature falls below 40°F or rises above 90°F as provided in Article 3.05.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Admixtures
 - 1. Euclid Chemical Company
 - 2. Master Builders
 - 3. Sika Chemical Corporation
 - 4. Anti Hydro Company
 - 5. Chem Masters
 - 6. Stonehard Inc.
 - 7. W.R. Grace & Co.
- B. Bonding Agent
 - 1. Larsen Products Corp., Rockville, Maryland.
 - 2. Chem Masters, Chagrin Falls, Ohio.
- C. Chemical Hardener
 - 1. Sonneborn/Rexnord
 - 2. Anti Hydro Company, Newark, N.J.

2.02 MATERIALS

A. Cement

Shall conform to ASTM C150 and shall be of the non air-entrained types:

1. Unless otherwise specified or approved by the Architect of Record, cement shall be Type I.
2. Cement shall not contain ingredients which would result in more than two percent air being entrained in the concrete.

B. Admixtures

1. General

- a. The use of admixtures shall comply with the requirements of paragraph 27-608 of the Building Code.
 - b. The final soluble chloride content in concrete, percent by weight of cement, due to the addition of admixtures and other ingredients shall not exceed 0.10 at 28 days.
2. Air-entraining admixture: Shall conform to ASTM C260.
 3. Water-reducing admixture: Shall conform to ASTM C494, Type A or D, and contain no more chloride ions than found in drinking water.
 4. High range, water-reducing admixture (super-plasticizer): Shall conform to ASTM C494, Type F or G, and contain no more chloride ions than found in drinking water.
 5. Water reducing, accelerating admixture: Shall conform to ASTM, Type C or E, and contain no more chloride ions than found in drinking water.
 6. Water reducing, retarding admixture: Shall conform to ASTM C494, Type D, and contain no more chloride ions than found in drinking water.

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C. Water

Shall be clean New York City water free of injurious foreign matter conforming to the requirements for water specified in ASTM C94.

D. Aggregates

Fine and coarse aggregates shall be regarded as separate ingredients. Each size of coarse aggregate, as well as the combination of sizes when two or more are used, shall conform to the appropriate grading requirements of the applicable ASTM specifications. Maximum size of coarse aggregate shall conform to paragraph 3.3.3 of ACI 318.

1. Aggregates for normal weight concrete shall conform to ASTM C33 and be of Size No.67 and/or No.8.

E. Curing Compounds

1. Curing paper shall conform to ASTM C171.
2. Liquid curing compound shall conform to ASTM C309.

F. Bonding Agent

1. Bonding agent shall meet the following performance characteristics.
 - a. Tensile bond strength (ASTM C190)....385 psi.
 - b. Flexural bond strength (ASTM C78)....603 psi.
 - c. Shear bond strength (ASTM C39).....470 psi.
 - d. Will withstand extreme temperature changes without loss of bond and will pass 2-hr fire test in accordance with ASTM E119.
2. Shall be Weld-Crete by Larsen Products Corp.

G. Chemical Hardener

Shall be equal to "Lapidolith" by Sonneborn/Rexnord.

2.03 MIXES

A. General

Concrete for all parts of the Work shall be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by the Specifications and Drawings.

B. Strength

The strength of the concrete shall be a minimum of 3500 PSI. Strength requirements are based on 28-day compressive strength.

C. Method of Proportioning

1. Proportion, batch, and mix concrete in accordance with Method I or Method II of the Building Code. The Engineer designated for Controlled Inspection is responsible for acceptance of the method used and for approval of all design mixes, subject to review by the Architect of Record.

a. Method I - Mixes with Minimum Cement Content

1) Proportion concrete mix in accordance with the requirements of paragraph 27-605(a)(4), "Previously Accepted Mixes". The previously accepted mixes shall have included the admixtures specified and/or those to be added to increase workability.

2) If previously accepted mixes are not available, proportion concrete mix in accordance with paragraph 27-605(a)(3), "Preliminary Tests". Under this method, engage a licensed concrete testing laboratory approved by the Engineer for Controlled Inspection and the Architect of Record to design a concrete mix with minimum cement content and perform the necessary tests. Include all admixtures that will be used during construction. Any testing required under 27-605(a)(3) shall be at the Contractor's expense.

b. Method II - Proportioning on the Basis of Field Experience

Proportion concrete mix in accordance with paragraph 27-605(b)(1), "Proportioning". Mixes shall have included all admixtures that will be used during this construction.

2. Pumping of concrete is permitted if a pump mix is submitted and approved by the Engineer for Controlled Inspection. Provide a minimum of ¼ bag extra of cement over the amount required to attain the correct concrete strength for pump mixes.

D. Normal Weight Concrete

1. Unless otherwise specified, proportion and produce normal weight concrete to have a slump of 4" or less, prior to addition of any water-reducers if used. A tolerance of up to 1" above the indicated maximum shall be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. The slump shall be determined by ASTM C143.
2. Normal weight concrete shall be air-entrained with an air content for the grading size of coarse aggregate as follows:
 - a. No.8.....7½%
 - b. No.67.....6%

Tolerance on air content as delivered shall be ±1.5%.

2.04 SOURCE QUALITY CONTROL

A. Tests

1. The Contractor's Testing Laboratory will review and/or check test proposed materials for compliance with the Specifications prior to construction.
2. The Testing Laboratory will perform field tests as work progresses as listed in "Field Quality Control".

B. Inspection

1. Testing Laboratory

a. The Contractor shall engage a Licensed Concrete Testing Laboratory to inspect batching of the concrete and perform all field tests. The Laboratory will perform the following services:

- 1) Review and/or check-test the Contractor's proposed materials for compliance with the Specifications.
- 2) Review and/or check-test the Contractor's proposed mix design as required by the Engineer for Controlled Inspection.
- 3) Secure production samples of materials at plants or stock-piles during the course of the Work and test for compliance with the Specifications.
- 4) Perform tests during construction as required by paragraph 27-607 of the Building Code. The Laboratory will obtain samples at the mixer and when directed by the Engineer for Controlled Inspection at the point of placement by the following methods:
 - a) Secure composite samples in accordance with ASTM C172. Each sample shall be obtained from a different batch of concrete on a random basis, avoiding any selection of the test batch other than by a number selected at random before commencement of concrete placement.
 - b) Mold and cure specimens from each sample in accordance with ASTM C31. The minimum number of specimens to be taken daily will conform to ACI 318-83 paragraph 4.7 as modified by the Building Code except that four (4) test cylinders shall be molded for each 50 cubic yards of each class of concrete placed in any one day's concreting.

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- b. The Laboratory will assign, under the requirements of paragraph 27-605(a)(5), at least one qualified concrete technician to be stationed at the batch plant. If Method II is used for proportioning, batching, and mixing, the Engineer for Controlled Inspection has the option of stationing the technician at the plant. At least one qualified concrete technician will be stationed at the site to obtain the test specimens.

 - c. The Laboratory will be responsible to and under the supervision of the Engineer designated for "Controlled Inspection".
2. Engineer for Controlled Inspection
- a. The Contractor shall engage a Licensed Professional Engineer, under the requirements of Sections 27-132, 27-607 and Tables 10-1 and 10-2 of the Building Code, who will supervise the testing of the materials and the inspection of concrete construction. The Engineer is responsible for approval of all design mixes, subject to review by the Architect of Record, and any required filing with the Building Department, as well as maintaining the controlled inspection log book required by paragraph 27-607(a)(3).

 - b. The Engineer will check that all required tests are made and the results submitted and shall have the right to order the Contractor to make such changes of the mix of concrete as required to produce concrete of the necessary strength. The Engineer will also report to the Building Department Superintendent any deviation from the requirements of the Code, as indicated by records of inspection and reports of tests.
3. Notification
- a. The Contractor shall notify the Testing Laboratory 72 hours in advance of each concrete placement to order out the necessary concrete technicians to cover the work.

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- b. Do not mix concrete or add admixtures unless the Technician is present as per paragraphs 27-605(a)(5) and 27-608 of the Building Code.
4. Contractors Responsibility for Quality Control
 - a. The Contractor will receive a copy of all reports prepared by the Laboratory and/or Engineer for Controlled Inspection. Copies of all daily concrete reports prepared by the Engineer and Testing Laboratory reports shall be sent in triplicate to the Architect of Record.
 - b. The tests and inspections, as provided in the Code, do not in any way relieve the Contractor of responsibility to construct the Work in accordance with the Drawings and Specifications and to use safe, standard methods of construction at all times, safeguarding the public, workmen, and structure. The Contractor shall be solely responsible for the physical control of the materials and concrete mixes, and shall see that such mix designs, tests, and controls are in accordance with the Code and Specifications.
 - c. Exercise extreme care in selecting the mixing plant and check whether the plant has the proper equipment. Visit the plant periodically and take whatever steps are necessary to assure the compliance with the Contract Documents, the Building Code, and ASTM C94.
 - d. It shall be the Contractor's complete responsibility to adjust, alter, and/or correct any controls necessary in materials and/or concrete operation based upon tests and inspections made by his Testing Laboratory and Engineer. If, during the course of the concrete operations, more cement is needed per cubic yard above the amount specified or required, provide same at no additional cost to the MMMHS Representative.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to placement of concrete, verify that the concrete cover over the reinforcement is that specified on Drawings.
- B. Verify that dowels, reinforcement, and all other embedded items are provided and held securely, positioned accurately, and will not be a detriment to concrete placement.
- C. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the MMMHS Representative any conditions which prevents the performance of this Work.

3.02 PROTECTION

- A. Protect adjacent finish materials against spatter during concrete placement.
- B. Provide barricades and safeguards around openings, etc. to protect workmen from injury and to comply to all Building Code, OSHA, and other authorities having jurisdiction regulations.

3.03 PREPARATION

- A. Remove ice, excess water, trash, and rubbish from forms.
- B. Remove hardened concrete from inner surfaces of conveying equipment and all formwork, reinforcement, and dowels.
- C. Prepare existing concrete to be in contact with new concrete by roughening and cleaning the surface and applying a bonding agent.

3.04 EMBEDDED ITEMS

- A. Embedded items
 - 1. Place all fence pipe sleeves, dowels, and other embedded items required for the Work of other Divisions or for their support prior to concreting.
 - 2. Provide ample notice and opportunity for items of other Division to be introduced and/or furnished for installation before concrete is placed. Coordinate the Work of the other Divisions so all items are placed in their proper location.

3. Set metal pipe sleeves, etc. into concrete to receive fence posts or any other items, all as indicated on details.

B. Placement of Embedded Items

Position embedded items accurately and support against displacement. Fill voids in sleeves temporarily with readily removable material to prevent the entry of concrete into the voids.

3.05 MIXING AND PLACING CONCRETE

A. General

1. Notify MMMHS Representative at least 72 hours in advance of each concrete placement. Do not place concrete without approval of the Engineer for Controlled Inspection.
2. Do not allow rain water to increase mixing water nor damage surface finish.

B. Mixing

1. Batch, mix, and transport ready-mixed concrete in accordance with the appropriate sections of ASTM C94. Truck mixers and agitators shall meet the requirements of the Truck Mixers Manufacturer's Bureau or shall comply with Section 8.1.2 of ASTM C94. Batch all other concretes in accordance with subchapter 7.2 of ACI 301.
2. Batch ready-mixed concrete only in plants which meet the latest standards of the National Ready-Mix Concrete Association (NRMCA). Only plants meeting the requirements for certification of the NRMCA for automatic batching and automatic recording will be permitted.
3. Tempering and control of mixing water
 - a. Mix concrete only in quantities for immediate use. Concrete which has started to set shall not be retempered, but shall be discarded.

- b. When concrete arrives at the project with slump below that suitable for placing as indicated in the Specifications, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded.
 - c. The water shall be incorporated by additional mixing equal to at least half of the total mixing required. An addition of water above that permitted by the limitation on water-cement ratio shall be accompanied by a quantity of cement sufficient to maintain the proper water-cement ratio. Such addition shall be authorized by the Engineer for Controlled Inspection.
4. Weather Conditions
- a. Cold weather
 - 1) The temperature of concrete delivered at the site shall conform to the temperature limitations given in Table 7.6.1.1 of ACI 301.
 - 2) If water or aggregate is heated above 100°F, combine the water with the aggregate in the mixer before cement is added. Cement shall not be mixed with water or with mixtures of water and aggregate having a temperature greater than 100°F.
 - 3) Detailed requirements are given in ACI 306.
 - b. Hot Weather
 - 1) Cool the ingredients before mixing, or substitute flake ice or well-crushed ice of a size that will melt completely during mixing for all or part of the mixing water if, due to high temperature, low slump, flash set, or cold joints are encountered.
 - 2) Detailed requirements are given in ACI 305.

5. Admixtures - General

- a. Add all admixtures prior to mixing unless otherwise specified or directed.
- b. Air-entraining admixtures and other chemical admixtures shall be charged into the mixer as solutions and shall be measured by means of an approved mechanical dispensing device. The liquid shall be considered a part of the mixing water. Admixtures that cannot be added in solution may be weighed or may be measured by volume if so recommended by the manufacturer. The accuracy of measurement of any admixture shall be within ± 1.5 percent.
- c. If two or more admixtures are used in the concrete, add them separately to avoid possible interaction that might interfere with the efficiency of either admixture or adversely affect the concrete. Do not charge admixtures into the mixer in such a manner that they will come in direct contact with the cement.
- d. Use of accelerating admixtures in cold weather must be approved by the Engineer for Controlled Inspection. Use of such admixture will not relax cold weather placement requirements.
- e. Use of retarding admixtures in hot weather must be approved by the Engineer for Controlled Inspection. Use of such admixtures will not relax hot weather placement requirements.

C. Placing

1. General: Place concrete in accordance with ACI 304R and ACI 318.
2. Conveying
 - a. Handle concrete from the mixer to place of final deposit as rapidly as practicable by methods which will prevent separation or loss of ingredients and in a manner which will assure that the required quality of concrete is obtained.

- b. Conveying equipment shall be approved and shall be of a size and design such that detectable setting of concrete shall not occur before adjacent concrete is placed. Conveying equipment shall be cleaned at the end of each operation or work day. Conveying equipment and operations shall conform to the following additional requirements:
- 1) Truck mixers, agitators, and nonagitating units and their manner of operation shall conform to the applicable requirements of ASTM C94.
 - 2) Chutes shall be metal or metal-lined and shall have a slope not exceeding 1 vertical to horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20' long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.
 - 3) Pumping or pneumatic conveying equipment shall be of suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation is not apparent in the discharged concrete. The loss of slump in pumping or pneumatic conveying equipment shall not exceed 2". Pumping is permitted only if a pump mix has been approved by the Engineer for Controlled Inspection.
3. Depositing: Detailed recommendations are given in ACI 304R.

a. General

- 1) Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section.
- 2) Carry out placement at such a rate that the concrete which is being integrated with fresh concrete is still plastic. Do not deposit concrete which has partially

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hardened or has been contaminated by foreign material.

b. Segregation: Deposit concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure which will cause segregation.

c. Consolidation

1) Consolidation of concrete and the use and type of concrete shall be in accordance with ACI 309R.

4. Cold Weather Concrete Protection: Detailed requirements are given in ACI 306.

When the mean daily temperature of the atmosphere is less than 40°F during concreting, or within 24 hours thereafter, follow the procedures outlined in ACI 306R to protect the concrete. Temperature of the plastic concrete shall be no lower than 55°F. Heat all forms, reinforcing steel, and surfaces to receive concrete above the freezing point and keep them completely free of frost, snow, and ice.

5. Hot Weather Protection: When the mean daily temperature of the atmosphere is over 90°F during concreting, follow the procedures outlined in ACI 305R to protect the concrete.

a. All concrete, at the time it is actually deposited in the forms, shall have a temperature not lower than 50°F but never above 90°F.

b. Cover reinforcement with water-soaked burlap to cool steel so its temperature will not exceed the ambient air temperature immediately before concrete placement.

c. Dry surfaces which are to receive concrete should be wet down before commencing placement of concrete and the temperature of such surfaces should not exceed the temperature of the concrete being placed.

3.06 FINISHING OF FORMED SURFACES AND REPAIR OF SURFACE DEFECTS

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A. General

1. Repair surface defects, including tie holes and cracks, immediately after form removal. Patches shall be of quality to match the specified finish.
2. Remove oil, grease, compounds, and other contaminants from surfaces and areas to be repaired and those receiving coatings (ie. membranes of any kind).
3. Provide finishes specified below immediately after form removal.
4. Provide curing and protection.

B. Repair of Surface Defects

1. Remove all honeycombed and other defective concrete down to sound concrete. If chipping is necessary, the edges shall be perpendicular to the surface or slightly undercut. Undercut all cracks a minimum of 1" x 1". No feathered edges will be permitted. Dampen the area to be patched and an area at least 6" wide surrounding it to prevent absorption of water from the patching mortar. A bonding grout shall be prepared using a mix of approximately 1 part cement to 1 part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick cream, and then well brushed into the surface.
2. The patching mortar shall be made of the same materials and of approximately the same proportions as used for the concrete, except that the coarse aggregate shall be omitted and the mortar shall consist of not more than 1 part cement to 2¹/₂ parts sand by damp loose volume. The quantity of mixing water shall be no more than necessary for handling and placing. Mix the patching mortar in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
3. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the premixed patching mortar. The mortar shall be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface. To

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permit initial shrinkage, leave it undisturbed for at least 1 hr before final finishing. Keep the patched area damp for 7 days. Do not use metal tools for finishing a patch in a formed wall which will be exposed.

C. Tie Holes and Other Repairs

1. Remove ties, nails, and other form accessories below the concrete surface for surfaces to receive membrane waterproofing.
2. Undercut surfaces of holes. After cleaning and thoroughly dampening the holes, fill them solid with the patching mortar.

3.07 SLABS

A. Placement

1. Mixing and placing shall be carefully coordinated with finishing. Do not place concrete more rapidly than it can be spread, straightedged, and darbied or bull floated. Provide darbying, floating, troweling, etc. at the correct time interval after poring to prevent dusting and a non-durable surface as specified in ACI 302.1R. These operations must be performed before bleeding water has an opportunity to collect on the surface.

B. Leveling and Finishing

1. General

- a. Unless otherwise indicated on the Drawings or specified herein, make all roof slabs pitch uniformly with the slope of the existing adjacent roof slabs.
- b. Follow detailed recommendations for finishing given in ACI 301, Chapter 11, and ACI 302.1R.
- c. Protect finishes from contamination from time of placing until time of acceptance, placement of topping, etc.
- d. Remove defects that do not meet tolerances by grinding.

2. Finishes

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- a. Surfaces intended to receive roofing, water-proofing membranes: Darby and float surface. Leave surface free from depressions, bulges, rough spots, and other defects.
- b. Top of fence post foundations: Finish surface with a wood float.

3.08 PATCHING AND REPAIRING EXISTING CONCRETE

- A. Provide bonding agent whenever new concrete is to be poured against existing concrete and wherever bonding agent is indicated on the Drawings to be applied.
- B. Remove loose concrete from existing concrete surface to be bonded with new concrete and clean. Remove rust from reinforcement and structural steel by power chipping and power driven brushes.
- C. Apply bonding agent in accordance with manufacturer's specifications. Pour concrete as soon as bonding agent has cured.

3.09 CURING AND PROTECTION

- A. General
 1. Begin curing concrete immediately after placement and finishing. Protect all freshly deposited concrete from premature drying and excessively hot or cold temperatures and maintain it with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Detailed procedures are given in ACI 308.
 2. Do not apply curing compounds to surfaces receiving cement coat waterproofing, adhesives, membranes or additional concrete unless approved by adhesive or material manufacturer. Provide only wet curing.
- B. Procedure
 1. Concrete surfaces not in contact with forms:
 - a. Absorptive mat or fabric, sand, or other covering kept continuously wet.
 - b. Curing compounds conforming to ASTM C309.

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2. Continue curing until a total of 7 days has elapsed during which the temperature of the air in contact with concrete has remained above 50°F. Prevent rapid drying during and at the end of the curing period.

C. Cold Weather Curing

Concrete must be protected from water loss. This shall be accomplished by the application as soon as possible without harm to the concrete surfaces of either (a) exhaust steam, or vapor-resistant paper or polyethylene film, or (b) curing compounds. In all other respects, curing shall conform to applicable provisions of this Section. Concrete temperature shall be maintained between 50°F and 70°F.

D. Hot Weather Curing

1. During the period June 1 to October 1 or when hot weather conditions require it, maintain continuous water curing for a minimum period of twenty-four hours. Provide for wind breaks, shading, and other necessary provisions.
2. After 24 hours, curing shall be by one of the methods specified under B above. In all other respects, curing shall conform to applicable provisions of this Specification. Upon termination of the specified moist curing, every effort should be made to reduce the rate of drying by avoiding air circulation.

E. Protection from mechanical injury: Protect concrete from mechanical disturbances during curing period as described under "Protection and Cleaning".

3.10 FIELD QUALITY CONTROL

A. Tests

Tests to be performed by the Contractor's Testing Laboratory during construction are as follows:

1. Compliance of materials to Specifications tested from production samples.
2. Determination of the slump of the concrete for each sample taken and whenever consistency of the concrete appears to vary using ASTM C143. The Engineer designated for Controlled Inspection will reject any concrete that does not meet the slump requirements.
3. Strength tests on the specimens in accordance with ASTM C39. Each group of specimens is considered one strength test. Three cylinders shall be tested at 28 days for acceptance and one at 7 days for information. If one specimen in a test manifests evidence of improper sampling, molding, or testing, it shall be discarded and the average strength of the remaining cylinders shall be considered the test result. Should all specimens in a test show any of the above defects, the entire test shall be discarded.

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4. Determination of air content and unit weight of normal weight concrete sample for each strength test in accordance with ASTM C173 or C231 and ASTM C138.
5. Determination of air content and unit weight of lightweight concrete sample for each strength test in accordance with ASTM C173 or C231 and ASTM C567.
6. Determination of temperature of concrete sample for each strength test.
7. Determination of water soluble chloride content in the concrete, percent by weight of cement, of each sample.

B. Inspection

1. Refer to "Source Quality Control" for responsibility and procedure.

C. Evaluation and Acceptance of Concrete

1. Strength tests on structural concrete will be evaluated according to ACI 318-83, paragraph 4.7 as modified by the Building Code.
2. When the average strength of the test cylinders, as defined in ACI 318-83 paragraph 4.7 as modified by the Building Code, falls consistently below the specified strength ($f'c$), the MMMHS Representative shall have the right to order the Contractor to change the proportions or the water content of the concrete to secure the required strength for the remaining portion of the structure, all at the Contractor's expense. It is the Contractor's complete responsibility to modify the concrete mix design, material controls, and/or concrete operations where necessary to obtain the compressive strength required by the design and Specification.
3. When the average strength of test cylinders for any portion of the structure is less than that required by the design or Specification, or where there is other evidence that the quality of the concrete is below Specification requirements, the adequacy of the concrete will be checked according to the requirements of paragraph 27-597 of the Building Code either by structural analysis or by core or load tests or by any combination of these

procedures. The Architect of Record will determine which procedures to use:

- a. Structural Analysis Computations (27-597), which will be performed by the Architect of Record.
 - b. Core Tests (27-598) - Performed in accordance with ASTM C42.
 - c. Load Tests (27-599(b)).
 - d. Non-destructive tests.
4. Low Strength Tests of Concrete - Results
- a. Pay for additional costs of labor and materials required at the job for all damages resulting from load tests and the taking of cores. Remove and replace concrete work that is not of adequate strength and cannot be made to work by remedial methods acceptable to the MMMHS Representative at own cost. The Contractor shall be held responsible for all delays and damages to the work of other Divisions that occur as a result of non-conformance.
 - b. Pay for all expenses borne by the MMMHS Representative resulting from low strength test procedures specified above.

3.11 PROTECTION AND CLEANING

A. General

During the curing period, and thereafter as conditions may require, protect the concrete from damaging mechanical disturbances, particularly excessive load stresses, heavy shock, and excess vibration. Protect all finished concrete surfaces from damage caused by construction equipment, materials or methods, and by rain or running water. Self-supporting structures shall not be loaded in such a way as to overstress the concrete.

3.12 ACCEPTANCE OF CONCRETE WORK

A. General

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1. Completed concrete work which meets all applicable requirements will be accepted without qualification.
2. Completed concrete work which fails to meet one or more requirements but which has been repaired to bring it into compliance will be accepted without qualification.
3. Completed concrete work which fails to meet one or more requirements and which cannot be brought into compliance may be accepted or rejected as provided in these Specifications or in the Contract Documents. In this event, modifications may be required to assure that remaining work complies with the requirements.
4. Concrete work judged inadequate by structural analysis, core test, results of load test or deemed unacceptable due to appearance shall be repaired, reinforced with additional construction if so directed by the Architect of Record, or be replaced if so directed by the Engineer at the Contractor's expense.
5. Pay all costs incurred by the MMMHS Representative in providing additional testing and/or analysis required by this Section.

B. Dimensional Tolerances

1. Finished slabs exceeding the tolerances may be repaired provided that strength is not adversely affected. High spots may be removed with a terrazzo grinder, low spots filled with a patching compound, or other remedial measures performed as permitted.

C. Strength of Structure

1. The strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements which control the strength of the structure, including but not necessarily limited to the following conditions:
 - a. Low concrete strength as described under "Field Quality Control".
 - b. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the

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requirements of Section 03200 or the Contract Documents.

- c. Concrete which differs from the required dimensions or location in such a manner as to reduce the strength.
 - d. Curing less than that specified.
 - e. Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.
 - f. Mechanical injury as defined under "Protection and Cleaning", construction fires, accidents, or premature removal of formwork likely to result in deficient strength.
2. Structural analysis and/or additional testing may be required when the strength of the structure is considered potentially deficient.
 3. Core tests may be required when the strength of the concrete in place is considered potentially deficient.
 4. If core tests are inconclusive or impractical to obtain or if structural analysis does not confirm the safety of the structure, load tests may be required and their results evaluated in accordance with Chapter 20 of ACI 318.

END OF SECTION

SECTION 03610
GROUTING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish material, equipment, labor, services required to provide non-shrink grout. Work includes, but is not limited to grouting under steel, equipment supports, filling of fence and rail posts sleeves, and wherever else shown on Drawings or required.

1.02 RELATED SECTIONS AND WORK

- A. Chain Link Fences and Gates.....Section 02831
- B. Cast-in-Place Concrete.....Section 03300
- C. Metal Fabrications.....Section 05500

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM) Standards, latest editions.

1.04 SUBMITTALS

- A. Product Data

Submit manufacturer's information on the non-shrink grout.

1.05 QUALITY ASSURANCE

- A. Qualifications

Company Specializing in performing the work of this section shall have three years minimum experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect material from the elements and from other damage at site.
- B. Replace and pay for material and work damaged to the satisfaction of the MMHS Representative.

1.07 ENVIRONMENTAL REQUIREMENTS

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- A. Follow manufacturer's recommendations for placement temperatures.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Grout

1. US Grout Corp., Old Greenwich, Connecticut
2. Sika Corp., Lyndhurst, NJ or approved equal

2.02 MATERIALS

A. Grout

1. Grout shall be non-shrink, made from factory-premixed material containing no corrosive irons, aluminum, or gypsums, with the following properties:
 - a. Non-shrink from time of mixing ASTM C827
No expansion after set.....ASTM C827
Initial set time.....ASTM C191
Compressive Strength.....ASTM C109
 - b. An effective bearing area (EBA) of 95 to 100 percent.
 - c. Grout that contains water reducers, accelerators or fluidifiers shall have no drying shrinkage greater than the equivalent sand cement and water mix as tested under ASTM C596.
2. The grout shall not shrink below its placement volume and shall not expand after set. Grout shall have a 1-day compressive strength of not less than 3000 psi and a minimum compressive strength of 7000 psi in 28 days.
3. Grout shall have a initial setting time of not less than 45 minutes.
4. Products:
 1. "Five Star Grout" by U.S. Grout Corp.

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2. SikaGrout 212 by Sika Corp.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the MMMHS Representative any conditions which prevents the performance of this Work.

3.02 SURFACE PREPARATION

- A. Concrete surface shall be free of all loose material.
- B. Steel shall be clean and free of corrosion.
- C. Surfaces shall be free of oil, grease, loose paint, corrosive deposits, dust, latence and other contaminants.
- D. Sleeves and holes shall be clean of dust and debris.

3.03 APPLICATION

- A. Perform all grouting in accordance with the recommendations of ACI, CSI, and the grout manufacturer's published specifications for site preparation, product mixing, and placing. For grouting in weather below 50°F, contact manufacturer for cold weather instructions.
- B. Arrange with the manufacturer of the grout for the services of a qualified field representative to instruct the work crews in the mixing of components, preparation of surfaces, technique of installation, and inspection procedures. The representative shall remain at the job site after work commences until the representative is satisfied that the grout is being installed correctly.
- C. Locations
 1. Provide grout, unless otherwise specified, under loose lintels. Work grout under plates to provide full and even bearing.
 2. Provide grout for grouting fence poles into sleeves.
 3. Provide grout under equipment supports.

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4. Provide grout wherever else it is indicated on Drawings or Specifications.

D. Follow manufacturer's instructions for curing.

3.04 PROTECTION AND CLEANING

A. Clean all adjacent area of excess material and clean all floors and walls of powder and droppings.

3.05 FIELD QUALITY CONTROL

A. The MMMHS Representative will inspect and reject any that contains cracks or other defects. These areas shall be fixed at contractor's expense.

END OF SECTION

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SECTION 03733
CONCRETE REPAIR WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, services to provide for the structural repair of basement exterior concrete foundation/retaining wall with manufactured structural repair concrete/mortar as shown on Drawings and as specified herein. Work includes removing spalled and deficient concrete surfaces and cleaning and coating of exposed steel reinforcement.

1.02 RELATED SECTIONS

- A. Selective Removals and Demolition.....Section 02070
- B. Concrete Reinforcement.....Section 03200

1.03 REFERENCE STANDARDS

- A. American Society of Testing and Materials (ASTM)
- B. Steel Structures Painting Council (SSPC)
 - 1. "Hand Tool Cleaning - SP2"
 - 2. "Power Tool Cleaning - SP3"

1.04 SUBMITTALS

- A. Product Data

Provide manufacturer's information on the anti-corrosion coating and structural repair concrete/mortar.
- B. Quality Control Submittals
 - 1. Certificates: Furnish manufacturer's certification that materials meet or exceed Specification requirements.
 - 2. Manufacturer's Instructions: Furnish manufacturer's literature, specifications, and application instructions.

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3. Repair Procedure: Submit written description of repair procedures and operations sequencing based on manufacturer's requirements prior to commencing the Work.

1.05 QUALITY ASSURANCE

A. Qualifications

Company specializing in the Work of this Section shall have a minimum of three years experience and at least two projects with similar quantity of materials.

B. Manufacturer's Representative

All work of this Section shall be performed under the supervision of the repair material manufacturer's representative.

C. Job Mockups

Prior to performing the work of this Section, prepare a sample panel of not less than 10 sq. ft. of concrete repair work. Do not proceed further with the work until the sample panel has been approved by the Authority's representative. Sample shall be a portion of the area to be restored and may be kept if approved.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Materials specified shall be delivered to the site in sealed, properly labeled containers. Containers shall indicate manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

- B. Keep containers tightly closed when not in use. Comply with manufacturer's printed instructions for storing and protecting materials.

- C. Do not store liquid material in hot sun. Keep material from freezing.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply if the temperature is below 50°F or above 85°F unless the material manufacturer is consulted for recommendations.

- B. Do not use frozen materials or materials coated with ice or frost.

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- C. Do not apply when there is expectation of rain within 24 hours.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. U.S. Grout Corp., Fairfield Connecticut.
B. Sto Concrete Restoration Div., Atlanta Georgia

2.02 MATERIALS

- A. Structural Repair Concrete - Non-formwork Application
1. Shall have non-shrink characteristics and be of high compressive and bond strength, capable of being troweled in place for vertical and overhead applications without the need of formwork, conforming to the following properties:
 - a. Compressive strength of 5500 psi in 28 days when tested in accordance with ASTM C109.
 - b. Bond strength of 2000 psi in 7 days when tested in accordance with ASTM C882.
 - c. Flexural strength of 1200 psi in 7 days when tested in accordance with ASTM C78.
 - d. Maximum linear length change shall be 0.075% when tested in accordance with ASTM C157.
 2. Repair concrete/mortar shall be " CR702 Sto Overhead Mortar" as manufactured by Sto Concrete Restoration Division.
- B. Anti-corrosion Coating
1. Corrosion-inhibiting, epoxy/acrylic resin, protective coating for steel reinforcing bars which will not form a vapor barrier or bond break with the repair mortar with the following properties:
 - a. Bond strength of 1800 psi in 2 hours when tested in accordance with ASTM C882.
 - b. Flexural strength of 2000 psi in 28 days when tested in accordance with ASTM C78.

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- c. Tensile strength of 800 psi in 28 days when tested in accordance with ASTM C190.
2. Anti-corrosion coating shall be "CR246 Sto Bonding and Anti-corrosion Agent" by Sto Concrete Restoration Division.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine all adjoining work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Authority any conditions which prevents the performance of this Work.

3.02 PREPARATION AND PROTECTION

A. Protection

Protect adjacent surfaces not to be restored. Protect sills, ledges, and projections from material droppings.

B. Surface Preparation

1. Remove spalled and weak concrete and remove all loose and foreign material. Chip substrate by bush hammering or other mechanical means acceptable to the repair concrete/mortar manufacturer to obtain a minimum surface profile of 1/16" with a new aggregate fractured surface. Perimeter of repair shall have a minimum of 1/8" in depth. Feather edging is not permitted.
2. If steel reinforcing is exposed, chip out behind the reinforcing steel. Chip a minimum of 1/4" behind the bar and 3" past the point where the bar is exposed. Concrete behind bars shall be removed enough to allow for entire bar to be cleaned. Remove concrete to the point past where sound material begins.
3. Exposed steel reinforcement and steel beams shall be free of all rust, scale, oil, paint, grease, loose mill scale, and all other foreign matter which will prevent bonding with the repair concrete. Use power chipping or power driven brushes and clean to an SSPC-SP2 or SP3 surface preparation.

3.03 ANTI-CORROSION COATING APPLICATION

- A. Mix anti-corrosion coating in accordance with manufacturer's instructions. Apply to dry reinforcing steel using a stiff bristle brush. Brush in well to ensure continuous coverage. Apply in two coats of approximately 10 mils each or as per manufacturer's latest recommendations.
- B. Protect coated steel from weather and allow to dry a minimum of 30-45 minutes between coats or repair concrete/mortar application. However, apply repair material within 24 hours after last coating. If 24 hour period elapses, reapply bonding agent and allow to dry as above.

3.04 REPAIR CONCRETE/MORTAR APPLICATION

- A. Mix structural repair concrete in accordance with manufacturer's instruction. Follow time limits set by manufacturer to prevent hardening of material prior to placement.
- B. Prior to application of material, thoroughly saturate surface with water. Remove any standing water prior to patching.
- C. Apply a scrub coat of the repair material of proportions determined by manufacturer (indicate in written repair procedure). While still damp, apply repair concrete/mortar.
- D. Apply material behind and around rebars first to completely fill void.
- E. Apply repair concrete/mortar, non-formwork, on vertical surfaces with a trowel or other such device, all in accordance with the manufacturer's recommendations. Apply in lifts of up to 2" or as determined by material manufacturer at a consistency that the material will not slump. Follow manufacturer's instructions for scoring, curing, priming, and approximate time between layers. Do not leave voids. Trowel exposed surface smooth and to same shape and finish as existing wall.
- F. Pour or trowel repair concrete, horizontal application, into hole until it is to the same level and at the same pitch as the surrounding area. Trowel exposed surface smooth and to same shape and finish as existing surface.

3.05 CURING

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- A. As soon as surface of patch has hardened, cure patch a minimum of 48 hours by applying water-based acrylic curing compounds conforming to ASTM C309, misting, wet burlap, etc.
- B. Follow manufacturer's latest recommendations for any other recommendations. The curing provision of A above shall not be waved unless manufacturer does not permit it.

3.06 PROTECTION AND CLEANING

- A. Clean all adjacent areas of excess material and clean all horizontal surfaces and walls of powder and droppings. Remove misplaced materials from surfaces immediately.
- B. Protect material from freezing and from rainfall prior to final set.

3.07 FIELD QUALITY CONTROL

- A. The Authority will inspect surfaces and reject any that contain cracks or other defects. The repair will be tested for soundness and structural integrity. Any defective areas shall be fixed at Contractor's expense.
- B. Engage the services of the material manufacturer's representative to instruct in the proper usage of the material and to inspect the work throughout the project.

END OF SECTION

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LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Anti-corrosion coating		
2. Repair concrete/mortar		
Certificates:	_____	_____
1. Material certification		
Manufacturer's Instructions:	_____	_____
1. Anti-corrosion coating		
2. Repair concrete/mortar		
Procedure:	_____	_____
1. Detailed written repair procedure		

* * *

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SECTION 04200
UNIT MASONRY

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide concrete unit masonry work as specified herein, as shown on the Drawings, and as needed for a complete and proper installation. The terms Concrete Masonry Unit (CMU) and Concrete Block are inter-changeable.

1.02 WORK INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Loose lintels.....Section 05500

1.03 RELATED SECTIONS

- A. Concrete Reinforcement.....Section 03200
- B. Grouting.....Section 03610
- C. Painting.....Section 09900
- D. Electrical.....Division 16

1.04 DESIGN REQUIREMENTS

- A. No air-entraining admixtures or material containing such shall be permitted in the mortar. Also, no anti-freeze compounds, calcium chloride, or other compounds, unless expressly permitted otherwise, shall be permitted in the mortar.
- B. Mortar types to be used at the following locations, unless otherwise stated:
 - 1. Reinforced concrete masonry units - Type S

1.05 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
 - A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Products.
 - C33 Standard Specification for Concrete Aggregates.

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- C90 Standard Specification for Hollow, Load-Bearing Concrete Masonry Units.
- C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50 MM Cube Specimens).
- C129 Standard Specification for Non-Load-Bearing Concrete Masonry Units.
- C140 Standard Methods of Sampling and Testing Concrete Masonry Units.
- C144 Standard Specifications for Aggregate for Masonry Mortar.
- C150 Standard Specification for Portland Cement.
- C207 Standard Specification for Hydrated Lime for Masonry Purposes.
- C270 Standard Specification for Mortar for Unit Masonry.
- C331 Standard Specification for Lightweight Aggregates for Concrete Masonry Units.
- C595 Standard Specifications for Blended Hydraulic Cements.

B. Industry Standards.

"Standard for Concrete Masonry Units" - UL 618-
Underwriters Laboratory.

1.06 SUBMITTALS

A. Product Data

1. Submit complete data for concrete masonry units. Submit a list indicating the maximum dry weight of each type and size of CMU to be used in the project.
2. Provide name of lightweight aggregate producer.

B. Samples

1. Submit 3 of each type of anchor, tie, continuous reinforcement.

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C. Quality Control Submittals

1. Schedule of Uses: By mortar type.
2. Certificates
 - a. Submit the lightweight CMU producer's and GCB manufacturer's certificate stating that the minimum equivalent thickness and mix design are in conformance with UL 618 for the indicated fire rating.
 - b. Submit lightweight CMU producers certificate stating aggregate used is 100% lightweight, expanded shale, clay, or slate (rotary kiln) aggregate, in accordance with ASTM C331.
 - c. Furnish notarized Building Department affidavit from masonry manufacturer (Form 10H) stating materials delivered to project comply with the Specification requirements.
 - d. Furnish notarized Building Department affidavit from masonry supplier (Form 10J) stating materials delivered to project comply with the specification requirements.
 - e. Submit MEA toxicity approval for the GCB.

1.07 QUALITY ASSURANCE

A. Qualifications

Company specializing in the Work of this Section shall have a minimum of three years experience and at least two projects with similar quantity of materials.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.
2. UL 618: Fire rating of CMU and assemblies shall conform to the requirements UL 618.
3. NYC Board of Standards and Appeals (BSA) approvals, or
4. NYC Materials and Equipment Acceptance (MEA) approvals.

C. Certification

Reinforced and unreinforced masonry shall conform to the materials acceptance, certification and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 of the Building Code (Title 27).

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in undamaged condition and store in location and with protection as needed for the following:

1. Concrete Masonry Units: Prevent harm from contaminants, temperature changes, corrosion, and other causes. Limit moisture absorption in conformance with the applicable ASTM.
2. Cementitious Mortar: Keep in dry conditions.

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3. Aggregates: Keep in dry, clean area where grading can be controlled.
4. Accessories, Ties, and Reinforcement: Keep in area to prevent corrosion and to keep clean.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Masonry units and mortar shall be preconditioned and masonry protected for the following cold weather conditions:
1. For average daily air temperature between 40°F and 32°F:
 - a. Heat mixing water and aggregate to minimum a 70°F and to a maximum 120°F.
 - b. Protect masonry from rain or snow for 24 hours.
 2. For average daily air temperature between 32°F and 25°F:
 - a. Heat mixing water and aggregate to minimum a 70°F and to a maximum 120°F.
 - b. Completely cover masonry for 24 hours.
 3. For average daily air temperature between 25°F and 20°F:
 - a. Heat mixing water and aggregate to minimum a 70°F and to a maximum 120°F.
 - b. Provide heat source on both sides of masonry construction.
 - c. Provide wind breaks for wind in excess of 15 miles per hour.
 - d. Cover masonry completely with insulating blankets for 24 hours.
 4. For average daily air temperature below 20°F:
 - a. Heat mixing water and aggregate to a minimum 70°F and to a maximum 120°F.

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- b. Provide enclosures and heat to maintain 32°F when laid.
- c. Keep temperature of masonry units a minimum of 30°F when laid.
- d. Maintain masonry temperature above 32°F for 24 hours by enclosure and supplemental heat.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Aggregate for Concrete Masonry Units (CMU)
 - 1. Northeast Solite Corporation, Mt. Marion, N.Y.
 - 2. Norlite Corporation, Cohoes, N.Y. or approved equal
- B. Reinforcement and Ties
 - 1. Hohmann & Barnard, Inc., Hauppauge, N.Y.
 - 2. Dur-O-Wall, Arlington Heights, IL. or approved equal

2.02 MATERIALS

- A. Base Materials
 - 1. Cement
 - a. Type I ASTM C150
 - 2. Sand for Mortar Mix ASTM C144
 - 3. Aggregate for CMU - 100% light-weight aggregate, expanded clay shale or slate (rotary kiln process). No mixture with other aggregates allowed. ASTM C331
 - 4. Aggregate for Masonry Grout ASTM C404
 - 5. Hydrated Lime ASTM C207
Type "S"
 - 6. Water - Clean, potable New York City water free of injurious materials.

- B. Concrete Masonry Units (CMU)
 - 1. Types
 - a. Hollow Load Bearing: ASTM C90, Grade N-I. Aggregate shall conform to ASTM C331.
 - 2. Size
 - a. Nominal face dimension 8" x 16", except as noted otherwise.
 - 3. Unit weight: Unit weight of concrete for CMU not to exceed 90 pcf when tested in accordance with ASTM C140.
 - 4. UL fire ratings: Units manufactured with equivalent solid thicknesses, face shell thicknesses, web thicknesses, and other characteristics to obtain fire ratings as indicated on the Drawings.
- C. Reinforcement and Ties
 - 1. Material
 - a. Reinforcement and Ties for Concrete Masonry Walls: Hot-dip galvanized (after fabrication), ASTM A153.
 - 2. Manufactured Units. All units listed manufactured by Hohmann & Barnard.
 - a. Concrete Masonry Unit Walls: LOX-ALL #120 Truss-Mesh, 9 gage, of proper width for wall thickness.
 - b. Concrete Masonry Unit Walls (Non-Loading Bearing):
 - 1. For Wall Carried up Separately: Hot dip galvanized steel straps, 1/4" x 1 1/2" x 24" with 2 bent ends (90 degrees).

2.03 MIXES

A. Mortar (basic)

Shall conform to ASTM C270 and BIA M1-88. Provide Type I cement. Masonry cement shall not be used as a substitute.

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1. Type N: 1 part gray cement, 1 part lime, 6 parts sand. Minimum compressive strength shall be 1800 psi at 28 days.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine all adjoining Work on which this Work is in anyway dependent for proper installation and workmanship. Report to the MMMHS Representative any conditions which prevents the performance of this Work.

3.02 PROTECTION

- A. Remove excess mortar from walls as soon after laying units as practicable to prevent staining and to facilitate cleaning of wall.
- B. Brace walls as needed until sufficiently set, or until intersecting walls provide lateral support.

3.03 MIXING PROCEDURES FOR MORTAR

- A. Measure material by volume or equivalent weight. Do not measure by shovel.
- B. Mix ingredients in a clean mechanical mixer for a minimum of 3 minutes, maximum of 5, with the minimum amount of water to produce a workable consistency.
- C. Mortar that has stiffened because of evaporation of water from the mortar shall be retempered as frequently as needed to restore the required consistency. Mortar shall be used within 2¹/₂ hours after initial mixing.

3.04 LAYING - GENERAL

- A. Lay units true to dimensions, plumb and level, square; bond work in bond indicated on the Drawings or specified herein. Lay courses level with joints uniform; vertical joints spaced properly for plumb alignment.
- B. Fill bed joints and cross joints solid with mortar. Furrowed bed and spotted cross joints not permitted. For hollow block units, apply mortar full length on all bearing surfaces.
- C. Remove excess mortar, leaving masonry surface clean.
- D. Cut concrete masonry units with circular masonry saw.
- E. Build-in miscellaneous metal inserts and other items not furnished under this Section but specified to be installed under this Section.

3.05 CONCRETE MASONRY UNITS (CMU)

- A. General
 - 1. Lay blocks in type N mortar, with cells vertical. Provide running bond unless shown otherwise on the Drawings or as indicated below.
 - 2. Extend interior partitions and furring up to underside of slabs. Leave sufficient space to install non-shrink firestopping mortar and caulking (See Section 07270).
 - 3. Where concrete masonry wall intersect existing columns, bond together with metal wall ties spaced

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8" o.c. min., vertically. Refer to Article on
"Reinforcement".

B. Horizontal and Vertical Face Joints

1. Make joints uniform and 3/8" thick, unless otherwise indicated.
2. Shove vertical joints tight.
3. Tool joints with a smooth, non-staining tool, when thumb print hard, at surfaces to be painted or exposed.

C. Exposed and Painted Surfaces

1. Smooth, even texture, free of chips, cracks, or other imperfections and free from any material that will stain paint.
2. Set block up with special care for plane, jointing, pattern, and cutting.
3. Keep faces of units clean; clean off mortar droppings on block face immediately.
4. Defective units will be rejected. Replace defective units with perfect units at no extra cost to the MMMHS.
5. Tool joints with a smooth, non-staining tool to produce a smooth and slightly concave surface.
6. See Drawings for thickness of Concrete block.

3.06 CUTTING AND FITTING (CMU BLOCKS)

- A. Cut units with a motor-driven carborundum saw; provide smooth, straight edges.

3.07 REINFORCEMENT

A. Concrete Masonry Unit and Glazed Concrete Block Walls:

1. Provide mesh continuous at every third block course.
2. Provide galvanized, corrugated metal wall ties at 8" o.c. vertical spacing. Embed in masonry 4" minimum each wall.

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- B. Size (width) of reinforcement as required for 4", 6", 8", 10" partitions.

3.08 CLEANING

A. Concrete Masonry Units

1. Clean wall surfaces to be painted; rub with carborundum stone: remove mortar from surfaces; remove rough edges from joints.
2. Point up holes and joints. Brush with stiff bristle brush. Leave surface in condition to receive paint.
3. Do not use wire brush.

END OF SECTION

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SECTION 04435
CAST STONE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The Work of this Section includes all labor, materials, equipment and services necessary to:

Provide cast stone copings, bandings; window sills, windows surrounds and all other units as indicated on Drawings, specified herein, and as needed for a complete and proper installation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Unit Masonry Section 04200
B. Flashing Section 07600
C. Joint Sealers Section 07900

1.03 REFERENCES

- A. American Concrete Institute (ACI).
B. Concrete Reinforcing Steel Institute (CRSI).
C. Precast Concrete Institute (PCI).
D. American Society for Testing and Materials (ASTM).

1.04 SUBMITTALS

- A. Submit the following product information
1. Materials list of items proposed to be provided under this Section.
 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 3. Laboratory Tests Reports (for Source Quality Control) from a qualified testing laboratory indicating compliance with the requirements specified herein. Source Quality Control testing requirements will be waived if the casting plant

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is PCI certified. Submit documentation of PCI Plant Certification Program in order to obtain waiver.

4. Qualification Data: For firms specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- a. Include copies of material test reports for completed projects, indicating compliance of cast stone with ASTM C 1364.

5. Shop Drawings showing complete information for fabrication and erection of the Work of this Section, including, but not limited to:

- a. Show fabrication and installation details for cast stone units. Include dimensions and cross sections; details, locations, size, and type of reinforcement and anchorages, including special reinforcement and lifting devices necessary for handling and erection. Indicate finished faces.

Include plans and building elevations showing layout of units and locations of joints and anchors.

- b. Erection procedures, sequence of erection, and required handling equipment.
 - c. Layout, dimensions, and identification of each precast unit corresponding to the sequence and procedure of installation.
 - d. Details of inserts, connections, and joints, including accessories.
 - e. Location and details of anchorage devices that are to be embedded in other construction.

B. Samples

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1. Cast Stone: Submit 3 cast stone samples approximately 12" x 12" x 4", showing quality, texture, and color of the proposed finish.
2. Samples for Initial Selection of Mortar Color: Submit the full range of colors available. Where mortar color is to match existing, provide proposed colors.
3. Samples for Verification of Mortar Color: For each mortar color required, submit the full range expected in the finished construction. Make samples using the same ingredients to be used on Project. Label samples to indicate type and amount of colorant used.
4. Submit 3 samples each of anchorages and other attachments and accessories.
5. Full Size Cast Stone Samples: Prior to start of installation, and after the review of finish Samples, submit one full size Sample of each shape of required cast stone unit, delivered to the job site. Acceptable full size samples may be incorporated in the construction.
6. Review of samples by the Authority will be for color, texture, and general condition only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

1.05 QUALITY ASSURANCE

A. Use adequate numbers of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Manufacturer Qualifications

A firm experienced in manufacturing cast stone units similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to manufacture required units.

- C. Testing Laboratory Qualifications: An independent testing laboratory qualified according to ASTM E 329 to conduct the testing specified, as documented according to ASTM E 548.
- D. Source Limitations for Cast Stone: Obtain cast stone units through one source from a single manufacturer.
- E. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver the Work of this Section to the job site in such quantities and at such times as to assure the continuity of construction; carefully pack or crate to prevent damage.
- B. Store units at the job site in a manner to prevent cracking, distortion, warping, staining, and other physical damage, and in a manner to keep markings visible.
- C. Lift and support the units only at designated lifting points or supporting points as shown on the approved Shop Drawings.
- D. Any units damaged before final acceptance shall be replaced.
- E. Patching of units will not be acceptable.
- F. Pack, handle, and ship cast stone units in suitable packs or pallets.
 - 1. Lift with wide-belt slings; do not use wire rope or ropes that might cause staining. Move cast stone units, if required, using dollies with wood supports.
 - 2. Store cast stone units on wood skids or pallets with nonstaining, waterproof covers. Arrange to distribute weight evenly and to prevent damage to units. Ventilate under covers to prevent condensation.

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- G. Store installation materials on elevated platforms, under cover, and in a dry location.
- H. Store mortar aggregates where grading and other required characteristics can be maintained and contamination avoided.

PART 2 - PRODUCT

2.01 CAST STONE MATERIALS

- A. General: Comply with ASTM C 1364 and the following:
 - B. Portland Cement: ASTM C 150, Type I, white, containing not more than 0.60 percent total alkali when tested according to ASTM C 114.
 - C. Coarse Aggregates: Granite, quartz, or limestone complying with ASTM C 33; gradation as needed to produce required textures.
 - D. Fine Aggregates: Manufactured or natural sands complying with ASTM C 33, gradation as needed to produce required textures.
 - E. Coloring Admixture for Cast Stone: ASTM C 979 , synthetic mineral-oxide pigments or colored water-reducing admixtures, temperature stable, nonfading, and alkali resistant.
 - F. Air-Entraining Admixture: ASTM C 260, certified by the manufacturer to be compatible with other admixtures used.
 - 1. Add to mixes for units exposed to the exterior at manufacturer's prescribed rate to result in an air content of 5 to 7 percent.
 - G. Other Admixtures: ASTM C494.
 - H. Reinforcement: Deformed steel bars complying with ASTM A 615/A 615M.
 - 1. Epoxy Coating: ASTM A 775/A 775M.
 - I. Anchors, pins and Inserts: Fabricated from stainless steel complying with ASTM A 276 or ASTM A 666, Type 304.

J. Sealant (Provided under Section 07900):

1. Type 1C Sealant (one-part polyurethane) as specified in Section 07900 - JOINT SEALERS, as applicable for vertical joints and for horizontal joints.

2.02 CAST STONE UNITS

A. Provide cast stone units complying with ASTM C 1364.

1. Compressive Strength: At 28 days after manufacture, not less than 6500 psi, when tested in accordance with Test Method ASTM C 1194.
2. Absorption, Cold Water: At 28 days after manufacture, not greater than 6%, when tested in accordance with Method A, Cold Water of Test Method ASTM C 1195.
3. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666, Procedure A, as modified by ASTM C 1364.
4. Fabricate the Work of this Section to the sizes and shapes indicated, and of texture matching the approved Samples.
5. Provide finished units which are straight, true to size and shape, and within the specified casting tolerances.
6. Make exposed edges sharp, straight, and square, unless indicated otherwise. Make flat surfaces into a true plane.
7. Warped, cracked, broken, spalled, stained, and otherwise defective units will not be acceptable.
8. Place and secure in the forms all anchors, clips, stud bolts, inserts, lifting devices, shear ties, and other devices required for handling and installing the precast units and for attachment of subsequent items as indicated or specified.

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- B. Reinforce units as indicated and as required by ASTM C 1364. Use epoxy-coated reinforcement.
- C. Fabricate units with sharp arris and details accurately reproduced with indicated texture on all exposed surfaces, unless otherwise indicated. Match existing units in texture, color and shape where units are being replaced. Take all molds as necessary.
 - 1. Slope exposed horizontal surfaces at least 1:12, unless otherwise indicated.
 - 2. Provide raised fillets at backs of sills and at ends indicated to be built into jambs.
 - 3. Provide drips on projecting elements, unless otherwise indicated.
- D. Colors and Textures
 - 1. Color shall be as selected by the Architect.
 - 2. Color shall be uniform for each unit and consistent for all units.
- E. Casting tolerances

Maintain casting, bowing, warping, and dimension tolerance below the following maximums:

 - 1. Overall dimension for height and width of units: Plus zero, and minus 1/16" of unit length.
 - 2. Make thickness of units plus or minus 1/8" maximum.
 - 3. Bowing or warping: Do not exceed 1/360 of the length.
 - 4. Insert locations: Place within plus or minus 1/4" in each direction.
- F. Cure and finish units as follows:
 - 1. Cure units in totally enclosed curing room under dense fog and water spray at 95 percent relative humidity for a minimum of 24 hours. Follow PCI recommendations.

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2. Yard cure units until the sum of the mean daily temperatures for each day equals or exceeds 350 deg F.
3. Acid etch units to remove cement film from surfaces indicated to be finished.

2.03 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color, white, or a blend to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Mortar Aggregate: ASTM C 144.
 1. White-Mortar Aggregates: Natural, white sand or ground, white stone.
- D. Mortar Coloring: Provide pure mineral pigments, natural and synthetic iron oxides, and chromium oxides compounded for use in mortar mixes. Material shall conform to ASTM C979. Coloring shall not contain alkalyde salts. No liquid colorants shall be permitted. Use only pigments with record of satisfactory performance in masonry mortars.
- E. Water: Potable.

2.04 MORTAR MIXES

- A. Setting Mortar: Comply with ASTM C 270, Proportion Specification, Type S.
 1. Limit cementitious materials to portland cement and lime. The use of masonry cement is not permitted.
 2. Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1:10, by weight.

2.05 ACCESSORIES

- A. Anchors: Type and size indicated, fabricated from stainless steel complying with ASTM A 276 or ASTM A 666, Type 304.
- B. Dowels: Round stainless-steel bars complying with ASTM A 276, Type 304, 1/2-inch (12-mm) diameter.
- C. Job-Mixed Detergent Solution: Solution of 1/2 cup (125 mL) of dry-measure tetrasodium polyphosphate and 1/2 cup (125 mL) of dry-measure laundry detergent dissolved in 1 gal. (4 L) of water.

2.06 SOURCE QUALITY CONTROL

- A. Employ an independent testing agency to sample and test cast stone units according to ASTM C 1364-97 and the specific test methods specified herein.

Include testing for:

- 1. Compressive Strength in accordance with Test Method ASTM C 1194. Test units from each 500 ft³ of cast stone.
 - 2. Absorption Cold Water in accordance with Test Method ASTM C 1195. Test units from each 500 ft³ of cast stone.
 - 3. Resistance to Freezing and Thawing in accordance with Test Method ASTM C 666. Test one unit from each cast stone mixture design.
- B. If test specimens fail, the specimens and the entire 500 ft³ lot they came from shall be rejected and shall not be used in the project.
 - C. The requirements for Source Quality Control testing, will be waived by the Authority if the casting plant is PCI Certified. See Art. 1.04,A.,3. for submittals.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of cast stone.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Coordinate as required with other trades to assure proper and adequate accommodation with the Work of this Section.
 - B. Set cast stone as indicated on Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure units in place. Set units accurately in locations indicated with edges and faces aligned according to established relationships and indicated tolerances.
- C. Drench units with clear water just before setting.
- D. Set units in full bed of mortar with full head joints, unless otherwise indicated. Build anchors and ties into mortar joints as units are set. Anchors to be set in substrate with non shrink grout.
 - 1. Coping Stone: Set 3/8" of mortar prior to installation of flashing providing full bed. Rake joint to allow for sealant installation. Seal flashing penetrations with sealant. Install another 3/8" mortar on top of flashing and place stone. Provide full bed of mortar.
 - 2. Fill dowel holes and anchor slots with mortar.
 - 3. Fill collar joint solid as units are set.
 - 4. Build concealed flashing into mortar joints as units are set.
- E. After units are set in or on the wall they shall have all top surfaces covered and protected from the elements at the close of each day's work and shall be kept covered and protected until all the Work is completed.
- F. Lead, Plastic or hard rubber buttons shall be used in setting large units to sustain the weight until mortar has set.
- G. All joints in units shall be raked out 3/8" deep and shall be filled with joint sealer, (after bond breaker tape) as specified in Article 2.01 in this Section.

H. Expansion Joints

Provide expansion, control, and pressure-relieving joints of widths and at locations indicated.

Provide expansion joints at a maximum spacing of approximately 40 feet on center. Match joint spacing with parapet expansion joints.

Provide filler seal, bond breaker tape, and joint sealers at expansion joints where indicated on the Drawings and where required for proper installation. (See Section 07900 Joint Sealers).

Keep joints free of mortar and other rigid materials.

I. Protect mortar and cast stone units from freezing during construction and maintain an ambient temperature for cast stone work of at least 32°F for a period of at least 72 hours.

At 40°F and below, heat water or sand to a minimum of 70°F and to maximum of 160°F.

At 32°F and below, heat mixing water and sand to a minimum of 70°F and to maximum of 160°F.

Do not use admixtures to lower the freezing temperature of the mortar.

J. Discrepancies

1. Immediately notify Authority's Representative.
2. Do not proceed until fully corrected.

3.03 INSTALLATION TOLERANCES

- A. Variation from Plumb: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m) or 1/4 inch in 20 feet (6 mm in 6 m) or more.
- B. Variation from Level: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 3/8 inch (9 mm) maximum.

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- C. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches (3 mm in 900 mm) or one-fourth of nominal joint width, whichever is less.
- D. Variation in Plane between Adjacent Surfaces (Lipping): Do not exceed 1/16-inch (1.5-mm) difference between planes of adjacent units or adjacent surfaces indicated to be flush with units.

3.04 FIELD QUALITY CONTROL

- A. If there is evidence that the strength of cast stone units may be deficient or may not comply with the specified requirements, the Authority will employ an independent testing laboratory to obtain, prepare, and test cores drilled from hardened cast stone units to determine the compressive strength according to ASTM C 42. Include in the bid, a minimum of 3 units to be field tested and destroyed. If the units are found to be defective, other units will be tested and replaced at no cost to the Authority.
 - 1. Allow the Authority's testing laboratory access to material storage areas. Cooperate with the Authority's testing laboratory and provide samples of materials and concrete mixes as may be requested for testing and evaluation.
 - 2. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by the Authority.
 - 3. Cores will be tested in an air-dry condition.
 - 4. The strength of the cast stone for each series of 3 cores will be considered satisfactory if the average compressive strength is equal to at least 85 percent of the 28-day design compressive strength and no single core is less than 75 percent of the 28-day design compressive strength.
 - a. Test results will be made in writing on the same day that tests are performed, with copies to Authority, Contractor, and cast stone fabricator. Test reports will include the following:
 - b. Project identification name and number.

- c. Date when tests were performed.
 - d. Name of cast stone fabricator.
 - e. Name of testing laboratory.
 - f. Identification letter, name, and type of cast stone, unit or units represented by core tests; design compressive strength; type of break; compressive strength at breaks, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of cast stone as placed.
- B. Defective Work: Cast Stone units that do not comply with the specified requirements, including compressive strength, manufacturing tolerances, and finishes, are unacceptable. The Contractor shall remove and replace defective Work with cast stone units that comply with the specified requirements at no cost to the Authority.
- C. Additional testing, at Contractor's expense, will be performed by the Authority's testing laboratory to determine compliance of corrected Work with specified requirements.

3.05 ADJUSTING AND CLEANING

- A. Remove and replace stained and otherwise damaged units and units not matching approved Samples.
- B. Replace units in a manner that results in cast stone matching approved Samples, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean cast stone as work progresses. Remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, and after completion of other work liable to damage or soil cast stone units, clean exposed cast stone as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

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2. Protect adjacent surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.

3. Clean in conjunction with the cleaning of all other masonry work. Do not clean in temperature below 50 degrees F. Clean by scrubbing with soap powder and water, applied vigorously with stiff fiber brushes, adding clean, sharp, fine, white sand to the soap and water mixture where necessary. After scrubbing, drench all surfaces of the cast stone units thoroughly with clean water. The use of sand blast, wire brushes; or acids of any kind will not be permitted under any circumstances for the cleaning of cast stone Work. Start the cleaning operation at the top of the structure and proceed downward.

END OF SECTION

SECTION 04520
MASONRY RESTORATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Provide all masonry restoration Work as indicated on the Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Unit Masonry Section 04200
- B. Cast Stone Section 04435
- C. Masonry Cleaning Section 04510
- D. Joint Sealers Section 07900

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
- B. N.Y. State Office of Parks, Recreation and Historic Preservation (OPRHP)/State Historic Preservation Office(r) (SHPO)

1.04 SUBMITTALS

- A. Product Data
 - 1. Portland Cement: Brand and manufacturer's name.
 - 2. Lime: Brand and manufacturer's name.
 - 3. Mortar Pigments: Brand and manufacturer's name.
 - 4. Packaged Products: Manufacturer's specifications and application instructions.
 - 5. Sand: Location of pit, name of owner, and previous test data.

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6. Masonry reinforcement, anchors and helical masonry ties.

B. Samples

Deliver to the Site for comparison with existing masonry.

1. Mortar for Exposed Joints and Cracks: Each required type, minimum 12" long by full thickness, showing finish and color.
2. Masonry Units: Each required type, full size, showing finish and full color range.
3. Masonry reinforcement, anchors and helical masonry ties.

C. Tests

Provide test results prepared by the helical masonry tie manufacturer's Company Field Representative (CFR) for the helical masonry tie pull out tests with recommendations.

D. Quality Control Submittals

1. Schedule of Uses: By mortar type.
2. Certificates
 - a. Furnish notarized Building Department affidavit from masonry manufacturer (Form 10H) stating materials delivered to project comply with the Specification requirements.
 - b. Furnish notarized Building Department affidavit from masonry supplier (Form 10J) stating materials delivered to project comply with the Specification requirements.

E. Certifications

1. Provide a letter signed and sealed by a New York State Professional Engineer or Registered

Architect describing the Contractor's method of operation for removal and installation of masonry, and stating whether bracing/shoring for structural stability is required or not required. Provide calculations, if requested.

2. If bracing/shoring of the masonry is required, submit stability drawings prepared, signed and sealed by a New York State Professional Engineer or Registered Architect.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Company specializing in the Work of this Section shall have a minimum of three years experience and at least three successful projects with similar quantity of materials. References shall list address and completion date of project and the name and telephone number of contact person.

B. Regulatory Requirements

Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.

C. Certification

Reinforced and unreinforced masonry shall conform to the material acceptance certification and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packaged Products

1. Deliver materials to the site in manufacturer's original, sealed containers. Do not deliver

materials which have exceeded shelf life limitation set forth by the manufacturer. Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable). This includes individual bags of pre-bagged mortar mixes.

2. Comply with manufacturer's printed instructions for storing and protecting materials.

B. Bulk Aggregate

Store in a manner which will keep aggregate clean and protected from the weather elements.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Construction Requirements

For factory packaged products, comply with manufacturer's printed limitations and instructions.

Salt or other chemicals for lowering the freezing temperature of the mortar shall not be used.

Masonry units, mortar, and grout shall be preconditioned and masonry protected for the following cold weather conditions:

1. Air temperature 40°F to 32°F:
 - a. Heat mixing water or sand to minimum of 70°F and to maximum of 160°F.
2. Air temperature 32°F to 25°F:
 - a. Heat mixing water and sand to minimum of 70°F and to maximum of 160°F.
 - b. Provide heat source to maintain a minimum air temperature 32°F on each side of masonry construction.
3. Air temperature 25°F to 20°F:

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- a. Heat mixing water and sand to minimum of 70°F and to maximum of 160°F.
 - b. Provide heat source to maintain a minimum air temperature of 32° on each side of masonry construction.
 - c. Provide wind breaks for wind in excess of 15 miles per hour.
4. Air temperature 20°F and Below:
- a. Heat mixing water and sand to a minimum of 70°F and to maximum of 160°F.
 - b. Provide enclosures and heat source to maintain a minimum air temperature of 32°F on each side of masonry construction during construction.
 - c. Keep temperature of masonry units a minimum of 30°F when laid.

B. Protection Requirements

1. Mean Daily Air Temperature of 40°F to 32°F:
 - a. Protect masonry from rain or snow for 24 hours.
2. Mean Daily Air Temperature of 32°F and Below:
 - a. An air temperature of at least 32°F shall be maintained on each side of masonry for a period of at least 72 hours for Type N mortar and for pointing mortar.

C. Wetting of Clay Masonry Units

For units with initial rates of absorption which require their wetting before laying, follow the following cold weather requirements:

1. If surface temperatures are above 32°F, use water heated to about 70°F.

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2. If surface temperatures are below 32°F, use water heated to about 120°F.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Reinforcement and Ties

1. Hohmann & Barnard, Inc., Hauppauge, N.Y.
2. Dur-O-Wall, Arlington Heights, IL.
3. Helifix North America Corporation (Rep.: Patrick Sweeney, 888 992-9989)
4. Blok-Lok Ltd. (Rep.: Scott Burns, 800 561-3026),

B. Mortar Coloring

1. "SGS" Mortar Colors, Solomon Grind-Chem Services, Inc.
2. "True Tone Mortar Colors", Davis Colors, Rockwood Industries, Inc.
3. "Flamingo Colors ", The Riverton Corporation.

C. Masonry Cleaner

1. ProSoCo, Inc., South Plainfield, N.J.
2. Sure-Kleen

D. Restoration Mortar

1. Cathedral Stone Products
2. Edison Coatings, Inc.

2.02 FACE BRICK DISTRIBUTORS

- A. Consolidated Brick and Building Supplies, Inc., N.Y., N.Y.
- B. Tri-State Brick & Building Materials, Inc. N.Y., N.Y.
- C. Belden-Stark Brick Corp., N.Y., N.Y.

B. Masonry Units

1. Match existing units in type, grade, size, appearance, and texture unless otherwise indicated.
2. In addition to 1. above, brick shall be clay or shale, ASTM C216, grade SW, solid.

C. Accessories:

1. Material

a. Reinforcement and anchors

- 1) Stainless Steel: 18-8, type 304
- 2) Sheet Steel: (No. 2B finish), cold-rolled, annealed, ASTM A240.
- 3) Wire Steel: ASTM A580

b. Manufactured Units: All manufactured units shall be as follows:

- 1) LOX-ALL #120 Truss-Mesh, 9 gage, of proper width for the wall thickness.
- 2) Veneer Anchor: DW-10HS Manufacturers Hohmann & Barnard or approved equal. Stainless steel Type 304, ASTM A580.
- 3) Vee Tie: Stainless steel, masonry wire ties. Manufacturer - Hohmann & Barnard or approved equal.
- 4) Anchors: Manufacturers - Rawlplug; RKL. ¼" diameter, 2" long flat head stainless steel Zamac Nailing Fastener by Rawlplug Company Inc. of approved equal.
- 5) Wire: Stainless steel continuous wire by Hohmann & Barnard or approved equal.
- 6) If the actual space between wythes of solid masonry limits the use of a particular anchor, notify the Engineer

of Record for an acceptable alternate anchor.

- 7) Seismicclips: #187 by Hohmann & Barnard or approved equal.

2.04 MIXES

A. Mortar Types

1. All Mortar:
 - a. Comply with ASTM C270 and BIA-M1-88.
 - b. Provide Type I Portland cement. Masonry cement shall not be used as a substitute.
 - c. Preconstruction testing with the proportions carefully monitored is to be used to establish the upper end of the strength range of the mortar, which should generally be near the minimum strength of the next higher strength mortar.
 - d. The maximum strength of each mortar shall not exceed the minimum strength of the next higher strength mortar type.
 - e. Air content of mortar shall be less than 12%.
2. Rebuilding Mortar; Type N: 1 part Portland cement, 1 part lime, 6 parts dry sand.
3. Repointing Mortar: Comply with ASTM C 270, X3 Tuck Pointing Mortar. Add sufficient water to dry mix to produce a damp mix that will retain its shape when pressed into a ball by hand. Mix from 3 to 7 min. in mechanical mixer. Let mortar stand for not less than 1 hour nor more than 1-1/2 hours for prehydration. Add sufficient water to bring mortar to proper consistency for tuck pointing, somewhat drier than mortar used for laying units. Use mortar within 2-1/2 hours of its initial mixing; tempering is permitted during this period.
 - a. Brick: (Type O) 1 part Portland cement, 2 parts lime, 7 parts dry sand.

- d. For all pointing mortar: In addition to use of mortar pigments, color, white Portland cement and colored aggregates may be used as required to accomplish the matching of mortar color desired.

4. Masonry Repair Mortar:

- a. Material capable of filling the holes created due to the installation of the helical masonry ties in bricks. Material shall match properties of the existing natural material, be freeze-thaw resistant and shall be color to match the existing bricks.

- 1) Repair mortar for bricks shall be Jahn Repair Mortar M100 as manufactured by Cathedral Stone Products or Custom Series 45 as manufactured by Edison Coatings, Inc.

B. Mortar Color

For exposed mortar, select materials (complying with the requirements) and proportion pigments with other ingredients as necessary to match the color of existing corresponding materials. White Portland cement and colored aggregates similar to the existing may be used as required to accomplish the matching of mortar color desired.

2.05 SOURCE QUALITY CONTROL

- A. The Authority will assign a Licensed Professional Engineer designated for Controlled Inspection who will inspect the masonry construction under the requirements of paragraphs 27-132 and 27-602, Tables 10-1 and 10-2 (Reinforced and Unreinforced Masonry), and R&R 9/29/83 (Appendix A) (Curtain Wall Construction) of the Building Code

- B. Preconstruction testing of mortar properties will be done in accordance with ASTM C780. The Contractor shall assist the Authority's laboratory by any means

necessary and shall supply the approved base materials to the laboratory for testing.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protection: Protect adjacent surfaces not being restored. Protect sills, ledges, and projections from material droppings. Also protect any painted surfaces which are not included in the Work from impact or damage.

B. Surface Preparation

1. Prepare surfaces to be restored in compliance with product manufacturer's printed instructions and as specified.
2. Remove dirt, dust, and foreign material from surfaces to be restored.
3. Clean areas to be restored with compressed air or water flushing, except as otherwise recommended by the mortar manufacturer.

C. Materials Preparations

1. Do not further wet concrete masonry units and stone that are already wet.
2. Wet bricks that have a high absorption rate. Wet bricks until water runs off. Install bricks when surface is slightly damp.
3. Prepare exposed mortar to match the color and appearance of existing adjoining mortar.

3.02 PROTECTION

A. Cover top of masonry wall with waterproof plastic membrane at the end of the work period and at other times when Work needs to be protected from rain and other precipitation. Extend cover down sides as needed to thoroughly protect the Work.

- B. During cold weather, do not use wet masonry units and frozen masonry units.
- C. Do not use frozen materials or lay masonry on frozen materials; remove frozen materials from wall. Refer to Part 1 of this Section, "Environmental Requirements" for temperature restrictions.
- D. Remove excess mortar from walls as soon after laying units as practicable to prevent staining and to facilitate cleaning of wall.
- E. Brace walls as needed until sufficiently set, or until intersecting walls provide lateral support.
- F. Scaffolding shall not be supported from a parapet wall on which work is being performed.

3.03 MIXING PROCEDURE FOR MORTAR

- A. Use following procedure (B., C., and D.) for Type N mortar; for Pointing Mortar, use procedure specified in 2.01 A.3. and B. and C. in this Article.
- B. Measure material by volume or equivalent weight. In measuring by volume, use a container to measure ingredients. Do not measure by shovel.
- C. Mix ingredients in a clean mechanical mixer for a minimum of 3 minutes, maximum of 5, with the minimum amount of water to produce a workable consistency.
- D. Mortar that has stiffened because of evaporation of water from the mortar shall be retempered as frequently as needed to restore the required consistency. Mortar shall be used within 2¹/₂ hours after initial mixing.
- E. For prepackaged masonry repair mortar, mix with water or manufacturer's polymer in proportions defined by manufacturer to provide the required consistency.

2.04 REPOINTING JOINTS

- A. The Contractor shall take all precautions required to ensure the original appearance of the building is maintained (not changed) and the existing brick is not damaged. The new mortar shall match the original in color & texture and the new joint shall match the existing joint tooling, size and profile. For joints that are set back from the brick face (raked joints), provide a sloping joint starting at the original depth at the top and sloping to the brick face at the bottom that will prevent water sitting on the brick while maintaining the intended shadow line.
- B. Rake or cut out joints to a minimum uniform depth of 3/4" and until sound surface is reached. Do not spall edges of masonry units or widen joints.

1. Mortar Removal for Non SHPO Designated/Landmark Buildings

Where cutting is required to remove existing mortar and joint filler, use a rotary power masonry saw wherever possible without damaging masonry. Masonry saw shall have a vacuum attachment to reduce dust. Use non-power tools for vertical brick joints.

2. Mortar Removal for SHPO Designated/Landmark Buildings:

The Contractor has the option of removing existing mortar from historic masonry surfaces using either hand held non-power tools for all joints or a combination of power tools/hand held non-power tools for horizontal joints & non-powered hand held tools for vertical joints. Removal of mortar shall be done without damaging the existing masonry units.

a. Mortar Removal With Hand Held Non-Power Tools

Use chisels with 1-1/2" maximum heads for cutting out the mortar. Sharpen chisels hourly to minimize chipping. One quarter inch chip per linear yard of cutting is the minimum standard of acceptable skill.

Additional damage may be grounds for removal of the technician from the project.

b. Mortar Removal With Combination of Power Tools & Hand Held Non-Power Tools

1) Use of power tools is permitted only on horizontal joints thicker than 1/8". Hand rake head (vertical) joints and any joints less than or equal to 1/8" in thickness. The width of the chisel must not exceed three quarters of the width of the mortar joint. The pneumatic carving tool is preferable for raking narrow joints. Sharpen chisels hourly to minimize chipping.

2) Existing mortar from horizontal joints may be removed by first cutting the center of the joint using either:

a

a 4-1/2" (maximum) angle grinder, such as Type 100 Black and Decker Industrial Heavy Duty slow speed grinder or equal, with a 4" maximum 1/8" thick diamond blade circular head.

or

a Barre Short Stroke Pneumatic Carving Tool (type S or D with a Splitter or Cape Chisel) as manufactured by Trow and Holden Co., Barre, VT 05641.

3) Hand rake out the mortar after a single pass has been made with the angle grinder or carving tool. Use chisels with 1-1/2" maximum heads for cutting out the mortar. Sharpen chisels hourly to minimize chipping. One quarter inch chip per linear yard of cutting is the minimum standard of acceptable skill. Additional damage may be grounds for removal of the technician from the project.

3. Cut the mortar and joint filler cleanly from the sides of the joints, leaving square corners. Flush joints clean with water or compressed air.
- C. Dampen joints slightly before application of mortar, making sure there is no free water. Pack pointing mortar tightly in joints in thin layers (1/4" max.), with each layer "thumbprint hard" before applying the next layer. Tool joints to match existing adjoining joints.
1. Where joint sealant is required, backpack the joints tightly out to a uniform depth of 1/4", or as indicated on Drawings. Refer to Section 07900 for sealants. Apply bondbreaker tape prior to installing sealants.
- D. Cure mortar by maintaining in a damp condition for at least 72 hours.

3.05 REPLACING MASONRY UNITS

- A. The Contractor is responsible for performing Work in a safe manner. Provide temporary shoring or other supports as required to prevent displacement of existing masonry that is to remain. Perform the removal Work with such care as may be required to prevent failure of the masonry or damage to adjoining masonry that is to remain. Follow method of operation and/or bracing scheme required to be provided in Article 1.04 titled "Submittals".
- B. Remove the deteriorated and damaged masonry units to their full depth, including the surrounding joint mortar. Wet masonry to reduce dust. Install helical masonry ties at perimeter of replacement prior to removal as indicated in details on the Drawings. Wherever possible without damaging masonry, use a rotary power masonry saw for cutting Work. Masonry saw shall have a vacuum attachment to reduce dust. Leave square corners at adjoining masonry which is to remain. Clean joints and cavities by flushing with water or compressed air.
- C. Dampen contact surfaces slightly before application of mortar, making sure there is no free water. Install

matching masonry units with Type N mortar. Install units to match and align with existing masonry. Maintain bonding and coursing pattern of existing masonry. Use presoaked wood wedges where necessary to properly set the units and maintain uniform matching joints. Backpack and fill joints full of mortar. Finish joints to match existing adjoining joints as described in Art. 3.04- Repointing Joints. Fill open joints in backup. In solid masonry construction, ensure that entire collar joint is filled between the backup and the face masonry. Collar joint is likely to vary substantially, up to 3" in locations.

D. Install accessories as indicated on Drawings.

E. Area Face Brick Replacement

1. Single wythes of brick shall be replaced in 4 foot lengths maximum unless indicated otherwise by the "methods of operation" submitted by the Contractor's Engineer as required to be submitted in the Article 1.04 titled "Submittals".
2. Install reinforcement every 16" each way and secure it to backup masonry as indicated on Drawings.

F. Replacement by Brick Stitching

Remove and replace existing brick to their full depth with new face brick, one brick each on both sides of crack in masonry. Also remove and replace all existing pushed-out, missing, split or otherwise defective face bricks to match the adjoining existing good sound masonry. If the existing masonry work has a solid masonry common-bond pattern, existing sound header bricks shall remain. However, any cracked, defective or loose header brick shall be replaced. All new brick work shall be toothed into existing good work. At horizontal cracks the replacement of bricks shall be done in 4 foot lengths maximum unless indicated otherwise by the "methods of operation" submitted by the Contractor's Engineer as required to be submitted in Article 1.04 titled "Submittals". Existing mortar bed for replaced brick shall be thoroughly removed and

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the back parged with a coat of new mortar to fill the
collar joint.

3.06 FIELD QUALITY CONTROL

- A. The Authority will assign, under the requirements of paragraphs 27-132 and 27-602, Tables 10-1 and 10-2 (Reinforced and Unreinforced Masonry), and R&R 9/29/83 (Appendix A) (Curtain Wall Construction) of the Building Code a Licensed Professional Engineer designated for Controlled Inspection who will inspect the masonry construction. If the masonry work is not designated for Controlled Inspection, the masonry work will be subject to Quality Control Inspection, with testing and inspection similar to that listed below for Controlled Inspection.
- B. The Contractor, upon award of the Contract, will receive a signed statement stating that the Engineer designated for Controlled Inspection has assumed the responsibility for masonry inspection and will file all reports as required by the Building Department.
- C. The Engineer will make inspections and any testing deemed necessary. Mortar suspected or tested to be too strong or too weak will be subject to petrographic analysis or other methods deemed necessary by the Engineer of Record and Engineer designated for Controlled inspection. The Contractor shall pay for all tests if they verify improper work. Inspection are to include, but not be limited to, the following:
1. Proper installation of reinforcement of brick on angles.
 2. Proper installation of mortar. Those mortar properties listed in the Appendix of ASTM C780 are to be tested at the discretion of Engineer designated for Controlled Inspection or the Architect/Engineer of Record. Mortar strengths, when tested, will be determined in accordance with ASTM C780 using cubes.
 3. Proper installation of weeps, flashing, cleaning of cavity (if cavity wall construction), etc.
- D. The Architect or Engineer of Record will analyze any results not found to be in conformance with the applicable ASTM, industry practice, and the

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Specifications and determine if the masonry in question is to be removed and redone.

- E. Cooperate with the Engineer for Controlled Inspection and the Testing Laboratory performing Controlled Inspection testing.
- F. The contractor's engineer shall monitor the restoration procedure to ensure compliance with the "methods of operation" and to ensure safety of the structure.

3.07 CLEANING

- A. As the Work proceeds and after completion of Work, remove excess mortar, droppings, smears, stains, and other soiling substances resulting from the Work of this Section. Remove misplaced materials from surfaces immediately.

END OF SECTION

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SECTION 05120
STRUCTURAL STEEL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish and erect all structural steel, including but not limited to that defined by the AISC "Code of Standard Practice for Steel Buildings and Bridges" and as shown on Drawings. Provide shop painting and galvanizing as specified.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Anchor Bolts for Casting into Concrete....Section 03300

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Loose Bearing and Base Plates.....Section 05500

1.04 RELATED SECTIONS AND WORK

- A. Cast-in-place concrete fireproofing.....Section 03300
- B. Grouting under base and bearing plates....Section 03610
- C. Masonry and erection of loose lintels....Section 04200
- D. Metal DeckSection 05300
- E. Metal Fabrications - Non-framing fabrications affecting structural steel work including loose lintels and spandrel beam lintels secured to concrete.....Section 05500
- F. Ornamental Metal.....Section 05700
- G. Steel Stairs.....Section 05710
- H. Cementitious Sprayed Fireproofing.....Section 07250
- I. Firestopping.....Section 07270
- J. Field coat painting.....Section 09900
- K. Sheave beams and guides for elevators....Division 14

1.05 REFERENCES

- A. American Society of Testing and Materials (ASTM) standards, latest editions.
- A6 Standard Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use.
- A36 Standard Specification for Structural Steel.
- A108 Standard Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.
- A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- A194 Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
- A307 Standard Specification for Carbon Steel Bolts and Studs, 60000 psi Strength.
- A325 Standard Specification for High-Strength Bolts for Structural Steel Joints.
- A490 Standard Specification for Heat-Treated, Steel Structural Bolts, 150 ksi (1035 MPa) Tensile Strength.
- A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- A501 Standard Specification for Hot-Formed Welded Seamless Carbon Steel Structural Tubing.
- A563 Standard Specification for Carbon and Alloy Steel Nuts.
- A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality.
- A780 Standard Practice for Repair of Damaged Hot-Dip Galvanized Coating.

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F436 Standard Specification for Hardened Steel Washers.

- B. "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" 8th edition, including supplements. (RS 10-5a of NYC Building Code) - American Institute of Steel Constructors (AISC).
- C. "Standard Welding Symbols - A2.0" - American Welding Society (AWS).
- D. "Specification for Mild Steel Covered Arc-Welding Electrodes - A5.1" - AWS.
- E. "Specification for Low-Alloy Steel Covered Arc-Welding Electrodes - A5.5" - AWS.
- F. "Structural Welding Code - D1.1" - AWS.
- G. "Code of Standard Practice for Steel Buildings and Bridges" - AISC.
- H. "Solvent Cleaning - SP1" - Steel Structures Painting Council (SSPC).
- I. "Hand Tool Cleaning - SP2" - SSPC.
- J. "Power Tool Cleaning - SP3" - SSPC.
- K. "Commercial Blast Cleaning - SP6" - SSPC.
- L. "Pickling - SP8" - SSPC.

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1.06 SUBMITTALS

A. Product Data

Submit manufacturers' specifications for the following products:

1. Primer paint, galvanizing repair paint
2. Stud shear connectors
3. Proprietary bolts, fasteners

B. Shop Drawings

1. Failure to submit legible shop drawings will be cause for disapproval without review.
2. Moment connections have been designed by the Engineer of Record and are shown on the Drawings. Shear connections (framed beam, seated beam, single plate, etc.) shall be designed and detailed by the structural steel detailer, unless otherwise shown on Drawings.
3. Immediately after award of Contract and before preparing steel shop drawings, submit for review a set of job standards showing all necessary joint details with full particulars of connection pieces, shop and field welds, and holes for erection bolts and permanent bolts. These shall include the moment and shear connections designed by the Engineer of Record as well as those designed by the detailer. Appropriate marks for designating all types and sizes of joint details shall be included. After approval of these job standards, the erection plan shall be marked to indicated unmistakably the type and size of joint to be used for every beam connection. Do not order steel in advance of approval of the job standards and the erection plans with joint marks, except at own risk.
4. Prepare remainder of steel shop drawings after approval of erection plan. Submit drawings gradually and not all at the same time so that sufficient time is allowed for checking and approval. All drawings shall be prepared under supervision of and bear the seal of a Licensed Professional Engineer (New York State). Do not submit unchecked shop drawings. First submissions

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of all drawings shall have one set sealed and signed by the Engineer. After final approval of all shop drawings, submit a final set sealed and signed by the Professional Engineer.

5. Steel shop drawings shall include framing plans, bolted and welded work, and details such as camber and other pertinent data not shown on job standards. Connection details for individual beams are not required to be submitted provided that all such connections are covered by the job standard details. Detail openings and reinforcement due to other Work. Coordinate with Drawings of other Work.
6. Indicate welds by standard AWS symbols and show size, length, and type of each weld in accordance with AWS A2.0.
7. Identify columns using same identification system shown on Drawings.
8. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed under other Sections.
9. Shop drawings will be checked for size of material and strength of connection by the Engineer of Record, which shall not render the Engineer responsible for any errors in construction dimensions, etc. which shall have been made in preparation of shop drawings. The Contractor shall assume full responsibility for the correctness of dimensions and fit.
10. Calculations shall be submitted upon request.

C. Quality Control Submittals

1. Certificates and Affidavits
 - a. Furnish notarized Building Department affidavit from steel manufacturer (Form SS24) certifying materials conform to Specification requirements.
 - b. Furnish bolt manufacturer's test reports, covering physical and chemical tests, for each lot of high strength bolts submitted.

- c. Furnish steel manufacturer's certificate certifying welders employed on the Work have met AWS qualifications within the previous twelve months.
 - d. Furnish complete listing of ASTM's of materials listed in Part 2 of this Section and certification that materials supplied meet those listed.
2. Surveys: Submit signed and sealed copies of each survey conducted by a Licensed Land Surveyor showing elevations and locations of base plate and anchor bolts to receive structural steel and final elevations and locations for major members. Indicate discrepancies between actual installation and Contract Documents.

1.07 QUALITY ASSURANCE

A. Qualifications

1. Fabricator: Company specializing in the fabrication of steel products to be used in this Contract shall have a minimum of five years experience.
2. Erector: Company specializing in performing the Work of this Section shall have a minimum of three years experience and have done at least three projects with similar quantity of material.
3. Detailer: Connections not detailed on the Drawings shall be detailed under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed by the State of NY.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health, noise, and anti-pollution regulations. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.

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2. New York City Board of Standards and Appeals (BSA): Rules for Arc and Gas Welding and Oxygen Cutting and Steel Covering the Specifications for Design, Fabrication, and Inspection of Arc and Gas Welded Steel Structures and Qualification of Welders and Supervisors.
3. Industry Standards: Standards specified herein apply to Work of this Section. Where more severe requirements than those contained in the Standards are given in this Section or the Building Code, requirements of this Section or the Building Code shall govern.
 - a. "Code of Standard Practice for Steel Buildings and Bridges" - AISC. Modification to the code shall be as follows:
 - 1) Paragraph 1.2 Definitions:
 - a) Modify "Architect/Engineer" to read "The Authority's designated representative for the preparation of the plans and specifications."
 - b) Modify "General Contractor" to read "The Authority's designated representative for construction of the structure."
 - c) Modify "Owner" to read "The Owner for the purpose of construction of the proposed school building is the NYC School Construction Authority."
 - 2) Paragraph 3.1 Structural Steel: Modify beginning of first sentence to read "In order to insure adequate and complete bids, the Contract Documents provide structural steel plans showing in sufficient detail the Work to be performed..."
 - 3) Paragraph 3.1.1: Add to the end of the sentence the words "unless otherwise noted."

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- 4) Paragraph 3.3 Discrepancies: Delete and replace with the following: "In case of discrepancies in the plans and specifications or between the two, the more restrictive shall govern unless otherwise agreed upon by the Engineer. Notify the Engineer of any discrepancies. In case of discrepancies between scaled dimensions on the plans and figures written on them, the figures shall govern."
 - 5) Paragraph 4.1 Owner Responsibility: Delete this paragraph and replace with the following: "Paragraph 4.1 Contractor's Responsibility - The Contractor is responsible for supplying the fabricator and erector with all Drawings and Specifications in order that they may proceed properly and expeditiously with the Work."
 - 6) Paragraph 4.2 Approval: Delete the second sentence in its entirety.
 - 7) Paragraph 4.2.1: Delete the second sentence in its entirety.
 - 8) Paragraph 4.2.2: Delete the paragraph in its entirety.
 - 9) Paragraph 5.2.3: After the words "Owner" on the next to last line, remove the words "except where the quality of the material could not affect the integrity of the structure."
 - 10) Paragraph 9.1.1: Remove the word "completely".
- b. RS 10-5a - AISC. As modified by the New York City Building Code.
 - c. "Specifications for Structural Joints using ASTM A325 or A490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation (RCRBSJ) - AISC.
 - d. "Structural Welding Code" - AWS.

C. Certifications

1. Structural steel shall conform to the material acceptance, certification, and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).
2. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the site at such intervals as to insure uninterrupted progress of Work.
- B. Deliver anchor bolts and other anchorage devices, which are to be embedded in cast-in-place concrete or masonry in ample time so to as not to delay Work.
- C. Store materials to permit easy access for inspection and identification.
 1. Shop-primed steel. (Painted or galvanized): Primed steel stored in the field or shop shall be kept off ground (using pallets, platforms, or other supports) and so positioned as to minimize water-holding pockets, dust, and other contamination of the primer. Repair damage to primed surfaces due to improper storage in a manner approved by the Authority.
 2. Unpainted Steel: Steel stored in field or shop shall be kept off ground (using pallets, platforms or other supports), kept clean and in general protected against damage and corrosion.
- D. Do not store materials on erected structure in a manner that might cause distortion or damage to the members or supporting structures. Repair or replace damaged materials or structures as directed by the Authority.

1.09 FIELD MEASUREMENTS

- A. Take field measurements as required by Drawings. Where possible take field measurements of existing conditions prior to fabrication. Verify that field measurements are same as those shown on Drawings and shop drawings. Report all deviations to the Authority in writing.

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PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Stud Shear Connectors
 - 1. KSM Products, Inc.
 - 2. Nelson Stud Welding Co.
- B. Paint
 - 1. Tnemec Co.
 - 2. Sherwin Williams
 - 3. Con-Lux
- C. Proprietary Anchor Bolts, Fasteners
 - 1. Hilti, Inc.
 - 2. ITW Ramset/Redhead, Inc.

2.02 MATERIAL

- A. Structural Steel Shapes, Plates, and Bars

Structural steel shall conform to the provisions of ASTM A36 and tube steel to the provisions of ASTM A500, Grade B, unless otherwise noted.
- B. Headed Stud-Type Shear Connectors Shall conform to the provisions of ASTM A108, Grade 1015 or 1020, and Articles 4.26 and 4.27 of AWS D1.1.
- C. Bolts
 - 1. Anchor Bolts: Shall conform to the provisions of ASTM A36. Size and detailing indicated on Drawings.
 - 2. Unfinished Bolts: Shall conform to the provision of ASTM A307.
 - 3. High-Strength Bolts: Shall conform to the requirements of ASTM A325 unless otherwise indicated on Drawings.

4. Proprietary Expansion Bolts, Fasteners, etc.: Provide types as indicated on Drawings.

D. Hardware

1. Nuts for anchor bolts and unfinished bolts shall conform to the requirements of ASTM A563.
2. Nuts for high-strength bolts shall conform to the provisions of ASTM A194 or ASTM A563 as specified in ASTM A325.
3. Washers shall conform to the provisions of ASTM F436.

E. Filler Metal for Welding

1. Welding electrode shall conform to E70XX classification of AWS A5.1, except as described below.
2. Welding electrode shall be compatible with steel where connections are made to steel of existing building.

F. Structural Steel Primer Paint

Provide type of primer indicated on steel under the following application conditions.

1. General application: Modified alkyd rust-inhibitive type containing no lead equal to Tnemec Co. No. 10-99 or Con-lux Ferrox 25 Red Primer. Product shall have BSA or MEA approval for use on structural steel. Red oxide paint is not acceptable.
2. Cavity wall and exterior application: Epoxy paint equal to Tnemec Co. Series 27 Typoxy or Con-lux Epolon Low Temperature Cure Epoxy Mastic.
3. Touch-up primer for cavity wall and exterior application: High adhesion high-solids epoxy coating equal to Tnemec Co. Series 135 Chembuild or Con-lux Epolon Mastic 36 White.

G. Hot-Dip Galvanizing

1. Galvanize structural shapes in accordance with ASTM A123.

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2. Galvanize hardware in accordance with ASTM A153.
3. Galvanizing repair paint for regalvanizing welds and damaged areas shall conform to ASTM A780 and comply with Military Specification MIL-P-21035.

2.03 SHOP ASSEMBLY - FABRICATION

A. General

1. Do not fabricate until shop drawings have been approved.
2. Fabricate and assemble steel in shop to greatest extent possible. Fabricate items and assemblies in accordance with AISC Specifications and the shop drawings.
3. Properly mark members for field assembly. Fabricate items in order to match delivery sequence which will expedite erection.
4. Mill column ends at base plates, cap plates, and splices to a common plane by means of an approved milling machine.

B. Shop Connections

1. Weld or high-strength bolt shop connections as indicated on Drawings.
2. High-strength bolt connections are friction (slip-critical) connections. Install high-strength bolts in accordance with "Specification for Structural Joints using ASTM A325 or A490 Bolts" (RCRBSJ).
3. Welding: Comply with "Structural Welding Code" for procedures, appearance, and quality of welds and methods used in correcting welded work.
4. Holes for other Work
 - a. Provide holes and openings required for securing other Work to steel framing and for passage of other Work through framing members. Coordinate with Drawings of other Work.
 - b. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other Work.

- c. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.
 - d. Reinforce all openings with steel shapes as shown on shop drawings.
- C. Shear Stud Connectors (Non-Metal Deck Construction)
- 1. Weld shear studs to beams with automatically timed stud welding equipment at spacing shown on Drawings. Size, type, and length specified on Drawings.
 - 2. Top flanges of beams must be free of paint, heavy rust, mill scale, dirt, ice and/or water, and any other material which will interfere with the welding operation.

2.04 SHOP PAINTING

A. General

Apply one shop coat of primer paint on structural steel except as follows:

- 1. Structural steel that is encased in concrete.
- 2. Steel work or portions of such to receive sprayed fireproofing.
- 3. Top flanges of structural steel members requiring stud shear connectors or supporting metal deck.
- 4. Contact surfaces of structural steel that are to be bolted or welded together.
- 5. Surfaces of structural steel within 2" of field welds, unless paint is approved to be weldable by BSA or MEA.
- 6. Contact milled bearing surfaces.
- 7. Exterior steel members and clips to be galvanized.

B. Cleaning and Surface Preparation

- 1. Clean all steel first in accordance with SSPC-SP1.

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2. Clean steel work not to be painted (except steel work to be galvanized) in accordance with SSPC-SP2.
3. Clean steel work to be painted within the same day as it will be applied and in accordance with the following methods, determined by location and exposure:
 - a. Interior steel not exposed to view: SSPC-SP2.
 - b. Interior steel exposed to view: SSPC-SP3.
 - c. Cavity wall and exterior steel exposed to weather: SSPC-SP6.

C. Shop Coat

1. Apply structural steel primer paint (general application) at a rate to provide dry film thickness of 2.0 to 3.5 mils. Apply primer paint (cavity wall and exterior application) at a rate to provide dry film thickness of 4.0 to 6.0 mils. Provide full coverage of joints, corners, edges, and exposed surfaces.
2. Apply to dry surfaces only, when surface temperatures are above dew-point, by brush, spray, or roller, thoroughly and evenly, in strict accord with manufacturer's instructions for every detail of handling.
3. Apply second coat of the approved primer, in a darker shade, to surfaces inaccessible to painting after assembly or erection.
4. Protect machined surfaces with an approved rust-inhibitive coating which is readily removable prior to erection.

D. Concrete Contact Surfaces

Paint steel work at least two inches into the area in contact with concrete, where applicable.

2.05 GALVANIZING

A. General

Hot-dip galvanize the following members:

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1. All angles supporting exterior masonry or exposed to the weather, including shelf, arch, and relieving angles.
 2. All connections between the above angles and the supporting structural member, including clip angles and hardware.
 3. All exterior steel supporting mechanical equipment (dunnage steel) and any other steel members indicated on Drawings.
- B. Cleaning and Surface Preparation
1. Hardware (bolts, nuts, etc.): Clean and leave free of mill scale before galvanizing.
 2. Steel members: Clean in accordance with SSPC-SP8 before galvanizing.
- C. Shop Coat - Hot-dip Galvanizing
1. Galvanize hardware in accordance with ASTM A153.
 2. Galvanize steel shapes in accordance with ASTM A123. Apply zinc coating as per Thickness Grade specified in ASTM A123.

2.06 SOURCE QUALITY CONTROL

- A. Testing
1. General
 - a. Structural steel work is subject to all tests required by the Controlled Inspection requirements of the NYC Building Code.
 - b. Cooperate with the Testing Laboratory in making all required tests.
 2. Tests: To be performed by the Authority's Testing Laboratory.
 - a. Shop bolted connections: Tested in accordance with AISC specifications.
 - b. Shop welding: The laboratory will perform the following functions:

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- 1) Certify welders.
 - 2) Visually inspect all welds, record type and locations of defects, and perform tests if necessary. Check all corrected work.
 - 3) Perform following non-destructive tests if necessary or as required by Engineer for Controlled Inspection. Tests used shall be at Engineer for Controlled Inspection or Testing Laboratory option:
 - a) Liquid Penetrant Inspection: ASTM E165.
 - b) Magnetic Particle Inspection: ASTM E109. Perform on roof pass and on finished weld.
 - c) Radiographic Inspection: ASTM E94 or E149. Minimum quality level 2-2T.
 - d) Ultrasonic Inspection: ASTM E164.
- c. Coupon Test: The laboratory will perform coupon tests of the steel of the existing building to determine compatible electrode for welding new steel to existing.
3. Welding of Critical Joints
- a. All welded joints that are critical to the integrity of the structure, and require non-destructive testing to assure the adequacy of the critical weld, are indicated on the Drawings.
 - b. To insure general weld quality of less critical groove and butt welds, a quality control program may be required to check the welds by non-destructive testing. The Drawings specify whether non-destructive testing is required and, if necessary, the method of inspection.

- c. Requirements of critical welds and non-destructive testing shall be in conformance with NYC BSA Rules for Arc and Gas Welding, Rules 16.5 through 16.5.3, and Rule 17.

B. Inspection

1. Testing Laboratory

- a. The Authority will engage an approved Testing Laboratory or Inspection Agency to assist in the inspection of steel fabrication and conduct tests at the mill, shop, or foundry. The laboratory will assist in checking erection tolerances and provide shop and field testing required for all structural steel work, including metal deck and studs.
- b. The Testing Laboratory will be responsible to and under the supervision of the Licensed Professional Engineer designated for "Controlled Inspection".

2. Engineer for Controlled Inspection

- a. The Authority will assign, under the requirements of paragraphs 27-132, 27-616, and Tables 10-1 and 10-2 of the Building Code, a Licensed Professional Engineer to supervise the Work listed above under "Testing Laboratory.
- b. The Contractor, upon award of the Contract, will receive a signed statement stating that the Engineer designated for Controlled Inspection has assumed the responsibility for inspection of the structural steel and will file all reports required by the Building Department.

3. Notification: Notify the Authority before beginning fabrication of the structural steel and supply laboratory with copies of agreements, approved drawings, approved prints of all shop details, etc., and all necessary information relating thereto. Do not ship material to job site until after inspection and approval by the Testing Laboratory.

4. Discretionary Inspections: No mill, shop, foundry, or field inspection, such as is above provided for, shall be held to prohibit or preclude inspection of

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such materials during delivery and erection at the building by such other persons as the Authority shall direct.

5. Reports: Shop and field reports, including shipments, will be submitted by the Testing Laboratory to the Authority as the work proceeds at the shop or job site. A final report will be submitted by the Testing Laboratory when work is completed at the shop, and again when work is completed in the field. The Engineer for Controlled Inspection reserves right to reject material not in compliance with specified requirements at any time.
6. Corrections: Correct deficiencies in work which inspections and tests have indicated to not be in compliance with requirements. Pay for additional tests, at own expense, necessary to reconfirm any non-compliance of original work and as necessary to show compliance of corrected work.
7. Contractor's Responsibility: Inspection and acceptance or failure to inspect shall in no way relieve the Contractor or the mill and shops from their responsibility to furnish satisfactory material strictly in accordance with Drawings and Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and that erection may proceed. Notify the Authority in writing of conditions which adversely affect the Work. Do not proceed with erection until conditions have been corrected. Beginning of installation means the erector accepts existing conditions.

3.02 ERECTION

A. General

1. Erection shall conform to paragraphs 27-1033 through 27-1035 of the NYC Building Code and Section 1.25 of Reference Standard RS 10-5a, as amended.

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2. All work shall be erected plumb, square, and true to lines and levels in strict accordance with the structural requirements of the building.
3. Provide all machinery, apparatus, and staging required for the erection of steel work in a thoroughly safe and efficient manner. Install, maintain and remove, without injury to other Work, such temporary bracing, scaffolding, etc. as may be necessary or required. Care shall be taken that no part of the structure is overloaded during construction.
4. Arrange for deliveries of material to facilitate the rapid and continuous progress of operation, but the site or streets adjacent to same shall not be used for the storage of material unless absolutely necessary and then only under special permission of the Authority and other authorities having jurisdiction.
5. Employ a Licensed Professional Engineer or Land Surveyor to ensure accurate erection of the steel.
6. Do not alter or cut structural members without approval of the Engineer of Record.

B. Temporary Shoring and Bracing

Provide temporary shoring and bracing members with connections of sufficient strength to bear erection loads and guy wires to maintain structure plumb and in true alignment until completion of erection. Remove temporary work when permanent members and bracing are in place and final connections are made.

C. Anchors Bolts

1. Furnish to the concrete and brick masons anchor bolts and other connectors required for securing structural steel to the foundation and other in-place concrete work, together with instructions, templates, etc. necessary for setting them.
2. Tighten anchor bolts after support members have been positioned and plumbed. Cut off protruding edges of wedges or shims flush with edge of base or bearing plate prior to packing with grout.

D. Base and Bearing Plates

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1. Clean concrete and masonry bearing surfaces of loose and bond-reducing materials.
2. Set loose and attached base plates and bearing plates for structural members on shims and other adjusting devices.
3. Grouting under plates is part of the Work of Section 03610.

E. Field Assembly

1. Erect structural frames accurately to lines and elevations indicated. Align and adjust members forming a part of a complete frame or structure before permanently fastening.
2. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly.
3. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
4. Level and plumb individual members of structure within specified AISC tolerances.
5. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.
6. Splice members only where indicated and accepted on shop drawings.

F. Connections

1. Field connections shall be bolted except where indicated on Drawings.
 - a. Provide high-strength bolts for bolted connections except where unfinished bolts are indicated on the Drawings. High-strength bolt connections are friction (slip-critical) connections. Install high-strength bolts in accordance "Specification for Structural Joints using ASTM A325 or A490 Bolts."
 - b. Provide unfinished bolts where indicated on Drawings. Lock nuts by upsetting bolt end or

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by similar method when unfinished bolts are not encased in concrete. Tighten all bolts and nuts fully.

- c. Proprietary expansion bolts or fasteners shall be tightened to the torque values specified by the manufacturer.
- d. For ASTM A307 or A325 bolts, hardened washer shall be installed under the turned element. For ASTM A490 bolts, hardened washer shall be installed under the head and nut.

2. Holes

- a. The size of bolt holes shall be in accordance with AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings."
- b. Ream holes that must be enlarged to admit bolts. Burning or use of drift pins is not permitted.

G. Erection Holes

Fill erection bolt-holes on exposed to view members with plug welds and grind smooth.

H. Lintels and Relieving Angles

- 1. Furnish and erect all exterior steel lintels and relieving angles connected (by hangers, clips, bolts or otherwise) to the structural steel work.
- 2. Galvanize all exterior lintels and hardware.
- 3. Loose lintels (interior and exterior) and lintels secured to concrete are part of the Work of other Sections.

I. Gas Cutting

Gas cutting in field of primary members to correct fabrication errors is not permitted. Gas cutting of secondary members not under stress is permitted with approval of Engineer of Record.

J. Field Touch-Up

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1. Painted Members: After erection, clean all damaged areas in shop coat, exposed surfaces of bolts, bolt heads, nuts and washers, abrasions, and all field welds and unpainted areas adjacent to field welds to the same standards as the shop coat and paint with primer paint to same thickness as the shop coat. Finish painting is specified in Section 09900.
2. Galvanized Members: After erection, clean and paint all damaged areas to the galvanizing, welds, and areas adjacent to welds with the galvanizing repair paint. Primer and finish painting specified in Section 09900.

3.03 TOLERANCES

- A. Erection tolerances shall be in accordance with "Code of Standard Practice for Steel Buildings and Bridges".

3.04 FIELD QUALITY CONTROL

- A. Cooperate with the Engineer for Controlled Inspection and the Testing Laboratory performing Controlled Inspection testing.
- B. The Engineer for Controlled Inspection and the Testing Laboratory will check erection of structural framework for permissible tolerances and test field bolting and welding as listed in Part 2 of this Section.

3.05 CLEANING

- A. Structural steel or portions of such to receive sprayed fireproofing shall be clean of dust, grease, oils, loose material, and any other matter which would impair the adhesion of the fireproofing material to the steel.

END OF SECTION

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LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Primer paint, repair paint		
2. Stud shear connectors		
3. Proprietary bolts, fasteners		
Shop Drawings:	_____	_____
1. Job standards		
2. Erection drawings		
3. Steel shop drawings		
4. Calculations		
Certificates:	_____	_____
1. Steel affidavit		
2. Bolt test reports		
3. Welders qualifications		
4. Material listing		
Surveys:	_____	_____
1. Erection survey		

* * *

SECTION 05170
SUPPORT SYSTEM FOR SUSPENDED CEILINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide structural ceiling suspension system as indicated on the Drawings and as specified herein, for all suspended ceiling systems.
- B. This suspension system shall include the attachment to overhead slab, steel angle, plate hanger, and running channels.
- C. Provide supports for furred areas, and for opening frames, lighting fixtures frames, furred ceilings and other items as indicated on the Drawings.
- D. Furring members and other attachments for the various ceiling materials and systems shall be as specified in the respective Section.

1.02 RELATED SECTIONS

- A. Furring and Lathing Section 09205
- B. Gypsum Board Section 09250

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. A36 - Specification for Structural Steel
 - 2. A307 - Specification for low Carbon Steel Externally Threaded Standard Fasteners.
 - 3. A446 - Standard Specifications for Steel sheet, Zinc-Coated by the Hot-Dip Process, Structural Quality.
 - 4. A525 - Standard Spec. for General Requirements for Steel Sheet, Zinc-Coated by the Hot-dip Process.
 - 5. A568 - Standard Spec. for Steel, Sheet, Carbon, and High Strength, Low-alloy, Hot-rolled

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and Cold-rolled, General Requirements
for.

1.04 SUBMITTALS

- A. Submit Shop Drawings showing suspension assembly, indicating all components, connections and anchorages, and grid layout.
- B. Submit three (3) samples of each component of the assembly.
- C. Submit sample of anchor and descriptive literature indicating its characteristics; submit laboratory report certifying pullout and shear capabilities for the anchor embedded in the materials to be used in this Project.

1.05 REGULATORY REQUIREMENTS

- A. New York City Building Code.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel Angle and Plate

ASTM A-36. Provide angle 3"x3"x3/16"x1" wide, with 1³/₈" long slot for 3/8" bolt. Provide plate 1" wide x 3/16" thick with 1³/₈" long slot for 3/8" bolt. Provide shop coat of asphaltum paint.

- B. Bolts

ASTM A307, 3/8" diameter, with lock washers and nuts. Provide shop coat of asphaltum paint.

- C. Running Channels

1¹/₂" deep x 7/16" wide flanges, 475 lbs. per 1000' painted, 508 lbs. per 1000', galvanized. $S(\text{in.}^3) = .0538$, $I(\text{in.}^4) = .0404$. Provide shop coat of asphaltum paint for paint channels.

ASTM A568 for painted channels.

- D. Sleeve Anchors (Angle to Deck) - Installed after Deck in Place:

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1. Manufacturers
 - a. Hilti Fastening Systems.
 - b. Illinois Tool Works, Inc.
2. Stainless Steel
3. Bolts: Minimum diameter of 3/8", with hex head.
Threaded stud at Optional Method.

2.02 PAINTING

- A. All steel members and accessories of the support system shall be dipped or painted with one coat approved asphaltum paint.

PART 3 - EXECUTION

3.01 COORDINATION WITH OTHER TRADES

- A. Coordinate this Work with the various trades who may have ducts, pipes, conduits, or other Work in the spaces above the suspended ceilings, in order that anchors, hangers and running channels may be properly placed to avoid such ducts, pipes, conduits, and other obstructions. Any changes required to be made in the locations of anchors, hangers, and running channels by reason of the Contractor's failure to observe this requirement shall be made by the Contractor without additional cost to the MMMHS.
- B. Coordinate Work with Ceiling Systems Work.

3.02 SUPPORT SYSTEM LOCATIONS

- A. Provide support system: for all suspended ceiling systems as indicated on the Drawings; for duct enclosures; for other enclosures or furring systems indicated on the Drawings and specified herein.

3.03 INSTALLATION

- A. Secure 3" x 3" steel angle to structural concrete deck with drop in anchors; install anchors as recommended by the manufacturer. Space at 48" o.c. maximum in each direction to accommodate the running channel layout.

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- B. Attach steel plate hangers to angle with 3/8" diameter bolt, lock washer, and nut.
- C. Attach running channels to plate hangers with 3/8" diameter bolt, lock washer and nut. Install channels level, at proper height, and ready to receive the ceiling system: provide furring channels for gypsum board.

3.04 CEILING OPENINGS

- A. Provision shall be made for the installation of lighting fixtures, ventilating or air conditioning equipment, access openings, and other ceiling openings.
- B. Rigid frames of furring channels or angles shall be provided around openings, adequately braced and reinforced.

END OF SECTION

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SECTION 05300
METAL DECK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish material, labor, equipment, services necessary to erect all metal deck, including connections, welding and accessories required for installation of Work. Field cut and fit deck as required and cut all openings.

1.02 RELATED SECTIONS AND WORK

- A. Concrete Reinforcement Section 03200
- B. Cast-in-Place Concrete Section 03300
- C. Structural Steel Section 05120
- D. Support systems for suspended
ceilings Section 05170
- F. Cutting of holes and attachment
of material in deck for
mechanical trades Division 15 &
Division 16

1.03 REFERENCES

- A. American Society Testing and Materials (ASTM) standards, latest editions.
- A36 Standard Specification for Structural Steel.
- A108 Standard Specification for Steel Bars, Carbon, Cold-finished, Standard Quality.
- A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- A780 Standard Practice for Repair of Damaged Hot-Dip Galvanized Coating.
- B. "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", 8th edition

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including supplements (RS 10-5a of NYC Building Code).
- American Institute of Steel Constructor's (AISC).

- C. "Load and Resistance Factor Design Specification for Structural Steel Buildings" 1st edition, including supplements. (RS10-5b of NYC Building Code) - American Institute of Steel Constructors (AISC).
- D. "Specification for the Design of Cold-Formed Steel Structural Members" (RS 10-6 of NYC Building Code). - American Iron and Steel Institute (AISI).
- E. "Structural Welding Code - AWS D1.1" - American Welding Society (AWS).
- F. "Specifications for Mild Steel Covered Arc - Welding Electrodes - AWS A5.1" - AWS.
- G. "Design Manual for Floor Decks and Roof Decks" - Steel Deck Institute (SDI).
- H. "Fire Resistance Directory" - Underwriters Laboratory (UL).

1.04 DESIGN REQUIREMENTS

- A. Design of metal deck shall be governed by RS 10-6 of the Building Code.
- B. Metal deck unit sizes and gages are indicated on the Drawings.
- C. Metal decks shall be capable of carrying the total loads indicated on Drawings without exceeding a maximum fiber stress of 20,000 psi. Metal deck shall be able to resist wet concrete plus construction loads without the use of shoring.
- D. Maximum allowable deflection under live load shall not exceed 1/360 of the span.
- E. Unit shall span over three or more supports except where steel layout does not permit. Units shall abut at end joints over beams requiring studs. Otherwise, end laps of deck sheets shall be a minimum of 2".
- F. Shoring of metal deck is not permitted.

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- G. Stud design shall conform to Section 1.11.4 of RS 105a.
- H. Use of piercing, non-piercing, and integral hanger tabs is not permitted.
- 1. Units included in a fire rated assembly must be classified in appropriate UL designs and MEA approvals.
- J. The use of fasteners of equal or greater uplift capacity than welds for anchoring deck to steel for A, D, and G series assemblies is permitted in accordance with the UL Fire Resistance Directory.

1.05 SUBMITTALS

A. Product Data

Submit manufacturer's specifications for

- 1. Shear stud connectors
- 2. Deck Fasteners, if used

B. Shop Drawings

- 1. Prepare metal deck shop drawings immediately after award of Contract.
- 2. Shop drawings shall include, but not be limited to the following:
 - a. Type and gage of metal deck.
 - b. Welding or fastener pattern.
 - c. Side and end details of metal deck.
 - d. Supplementary framing details.
 - e. Location of all openings and fittings.
 - f. Shop finish.
 - g. Size, location, and spacing of stud shear connectors, where required, for each beam.

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- h. Designation of welding electrode strength to be used.
3. Shop drawings reviewed by the Engineer of Record for general conformity with the Drawings shall not relieve the Contractor or the metal deck supplier of responsibility for correctness of fit, quantities of materials, and adequacy of attachment details of deck and accessories to the structural steel. Deck must have BSA or MEA approval as part of the fire rated assembly. Approval of shop drawings does not absolve the Contractor of this requirement. Coordinate with Section 07250.
4. Calculations: Submit calculations for the load tables of the metal deck supplied. Calculations shall be signed and sealed by a licensed Professional Engineer.

C. Quality Control Submittals

1. Certificates
 - a. Submit notarized certificates from the manufacturers of the specified materials stating compliance with the applicable requirements set forth for all materials specified in this Section.
 - b. Submit certificate stating welders employed for installation of the metal deck have met AWS qualifications within the previous 12 months.
 - c. Furnish BSA or MEA resolution for approval of material as part of fire rated assembly. Refer to Section 07250.
2. Manufacturers' Instructions: Furnish manufacturers' printed material, specifications and installation instructions for each type of decking, accessories, and studs.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Manufacturer: Company specializing in the manufacture of metal deck as used in this Contract shall have a minimum of five years experience.
2. Erector: Company specializing in performing the Work of this Section shall have a minimum of three years experience and have done at least three projects with similar quantity of material.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of other governmental authorities. Where more severe requirements than those contained in the Building Code are given in this Section, the requirements of this Section shall govern.
2. New York City Board of Standards and Appeals (BSA) and Materials and Equipment Acceptance (MEA)
 - a. Rules for Arc and Gas Welding and Oxygen Cutting and Steel Covering the Specifications for Design, Fabrication, and Inspection of Arc and Gas Welded Steel Structures and Qualification of Welders and Supervisors.
 - b. Composite metal deck shall have NYC BSA or MEA approval with respect to the following:
 1. Floor and roof construction to be used as a composite floor and a composite beam system (structural steel beams with approved shear connectors).
 2. Load tests to substantiate load tables for metal deck use in conjunction with concrete slab to form composite action.
 3. As a component part of a one and a half-hour fire resistive floor construction without need for sprayed fireproofing on underside of deck.
 4. As a component part of a three-hour fire resistive floor construction with use of

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sprayed fireproofing on underside of
deck.

- c. Roof deck shall have NYC BSA or MEA approval as a component part of a one and a half-hour fire resistive roof construction without the need for sprayed fireproofing on underside of deck, unless indicated otherwise.
 - d. Stud shear connectors shall have NYC BSA or MEA approval with respect to material and welding of studs through the metal deck by automatically-timed welding equipment.
 - e. All conditions and requirements of the required approvals must be fully complied with.
3. Industry Standards: Standards specified herein shall apply to Work of this Section. Where more severe requirements than those contained in the standards are given in this section or the Building Code, requirements of this Section or the Building Code shall govern.
- a. RS 10-5a - AISC - As modified by the Building Code.
 - b. RS 10-5b - AISC - As modified by the Building Code.
 - c. RS 10-6 - AISC - As modified by the Building Code.
 - d. "Rules for Design of Composite Construction with Metal Decks or Lightweight Concrete" - Department of Buildings.
 - e. Fire Resistance Directory - UL.
4. Recommendations or suggestions in the codes and references listed in this Article and under "References" shall be deemed to be mandatory unless they are in violation of the Building Code.

C. Certifications

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1. Structural metal deck and stud shear connectors shall conform to the material acceptance, certification and inspection requirements of Article 7, Chapter 1 - Subchapter 1 and Tables 10-1 and 10-2 of the Building Code (Title 27).
2. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver deck to site undamaged with each deck unit bearing the UL label and marking for specific system detailed.
- B. Store deck units off the ground with one end elevated to provide drainage. Protect units from the elements with a waterproof covering.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Metal Deck and Accessories
 1. H.H. Robertson Company.
 2. Bowman Construction Products, Cyclops Corp., E.G. Smith Division.
 3. United Steel Deck, Inc.
- B. Stud Shear Connectors
 1. KSM Products, Inc.
 2. Nelson Stud Welding Co.

2.02 MATERIALS

- A. Steel for Roof Deck
 1. Formed from galvanic steel sheets conforming to ASTM A653.

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2. Minimum yield point of 33000 psi.
3. Deck to receive sprayed fireproofing shall be free of lubricants or oils that would impair the adhesion of the fireproofing material.

B. Miscellaneous Steel Shapes

Shall conform to the requirements of ASTM A36. Members to receive sprayed fireproofing shall be unprimed and free of lubricants or oils that would impair the adhesion of the fireproofing material.

C. Shop Finish

1. Metal deck: Steel sheet shall receive before being formed a coating of zinc conforming to ASTM A653 coating class G90 or to Federal Specification QQ-S-775d, Class e (both sides).
2. Steel roof deck: Steel sheet shall receive before being formed a coating of zinc conforming to ASTM A653 coating class G90 or to Federal Specification QQ-S-775d, Class e (both sides). Roof deck exposed to view, such as in the gymnasium, shall be cleaned and phosphatized prior to priming. Primer shall be applied in the shop and is specified in Section 09900 (Zinc dust-zinc oxide primer - 2.5 Mils DFT).

D. Filler Metal for Welding

Welding electrodes shall conform to E70XX classification of AWS A5.1.

E. Metal Deck Accessories (cants, closure pieces, etc.)

Shall conform to the requirements of ASTM A653, coating class G90. Unless a thicker gage is required by design considerations, minimum thickness shall be same gage as metal deck. Accessories to receive sprayed fireproofing shall be free of lubricants and oils that would impair the adhesion of the fireproofing material.

F. Headed Stud Type Shear Connector

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Shall conform to the requirements of ASTM A108, Grade 1015 or 1020, and Articles 4.26 and 4.27 of AWS D1.1.

G. Galvanizing Repair Paint

Shall conform to the requirements of ASTM A780 and comply with Military Specification MIL-P-21035.

H. Power Driven Fasteners (if used)

Power driven fasteners of a type that will provide equal or greater uplift resistance than a $\frac{3}{8}$ " puddle weld.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin placement of metal deck until all surfaces and members are deemed acceptable to receive the deck. Do not proceed with Work until any unsatisfactory conditions have been corrected to the satisfaction of the deck installer.

3.02 ERECTION

A. General

1. Care should be taken to avoid overloading the supporting structural elements when placing bundles of metal deck or other construction loads on floors and roof.
2. Do not use floor deck units for storage or working platforms until they are permanently secured.

B. Metal Deck and Accessories

1. Lay units in strict accordance with manufacturer's instructions and requirements and as shown on Drawings.
2. Adjust units in place before permanent fastening and accurately align end to end. Rectify inaccuracies in alignment and level of bearing before units are finally placed.

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3. Provide proper bearing at all supports. Metal deck must be placed to bear fully on surface of beam flanges.
4. Provide angle and channel supports for metal deck at locations where deck cannot be properly seated due to obstructions by structural connections and where shown on Drawings.
5. Anchor deck by welding directly through the bottom of the rib at all structural supports by welds not less than 3/4" in diameter or power driven fasteners of equivalent strength, spaced not more than 12" across the width of the unit. Where two units abut, each unit shall be so fastened to the steel framing. Welds shall be free of sharp points or edges.
6. Fasten side laps of adjacent units between supports by mechanically fastening with sheet metal screws of size and spacing indicated on the Drawings to provide diaphragm strength required by seismic design. In no case shall fasteners exceed three feet. Fasteners for exposed to view roof deck shall be attached from underside of deck and have a pan-head finish.
7. Furnish, install, and weld in position all accessories, including closures, cant strips, etc., where required.
 - a. Furnish sheet metal closures for open ends of all cell raceways at columns, walls, and openings shown on Drawings.
 - b. Provide sheet steel cover plate (or closure tape) as required to close panel end conditions where panels change direction or abut.
 - c. Furnish material for column closures to close openings between panels and structural columns.
 - d. Provide welding hole cover, with friction fastening, to close welding access holes when required.

C. Stud Shear Connector Welding

1. Weld studs to steel beams through the steel deck with automatically-timed stud welding equipment.
2. Stud welding shall conform to the requirements of AWS D1.1 with respect to workmanship, quality control, and field inspection.
3. Manufacturer shall supply guidance and instruction in proper installation method
4. Additional requirements for stud welding with metal deck:
 - a. Top flanges of beams must be free of paint, heavy rust, millscale, dirt, ice and water, and any other material that will interfere with the welding operation.
 - b. Metal deck must be free of dirt, ice, water, and other foreign materials which will interfere with the welding operation.

D. Cutting, Drilling, and Reinforcing of Openings

1. Where predetermined openings (such as stairs, elevators, etc.) are framed by structural steel beams on all sides (shown on the Drawings), the metal deck shall be engineered by the manufacturer to fit these conditions.
2. Any opening which is not framed by structural steel beams on all sides, and which is required in steel decking, shall be cut by the respective trades requiring it.
3. Reinforcing of Openings in Steel Deck
 - b. Holes 6" or less in dimension need not be reinforced.
 - b. Holes greater than 6" but less than 30" in any dimension shall be reinforced by the General Contractor as shown on the Structural Contract Drawings.

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E. Field Touch Up

Clean scarred and rusted areas in galvanizing after deck installation is completed and paint welds and the scarred and rusted areas with the galvanizing repair paint. Apply in accordance with the manufacturer's instructions.

3.04 FIELD QUALITY CONTROL

A. Welding of metal deck and shear studs is subject to Controlled Inspection and Testing and is included in the Quality Control Work of Section 05120.

3.05 CLEANING

A. Metal deck and accessories to receive sprayed fireproofing shall be clean of dust, grease, excessive oils, loose materials, and any other matter which would impair the adhesion of the fireproofing material to the deck and accessories.

END OF SECTION

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SECTION 05500
METAL FABRICATIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide metal fabrications and miscellaneous metals as indicated on the Drawings and as specified herein, including, but not limited to the following:
 - 1. Apparatus supports, miscellaneous hangers and accessories
 - 2. Lintels (Interior) - Furnish to Mason
 - 3. Lintels (Exterior) - Furnish to Mason
 - 4. Painting

1.02 RELATED SECTIONS

- A. Furring and Lathing Section 09205
- B. Plaster Section 09210
- C. Painting Section 09900
- D. Mechanical/Electrical.....Divisions 15 & 16

1.03 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Lintels (Interior)
- B. Lintels (Exterior)

1.04 REFERENCES

- A. American Society for Testing and Materials (ASTM)

1.05 SUBMITTALS

- A. Shop Drawings
 - 1. Show all locations, markings, quantities, materials, sizes and shapes.

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2. Indicate all methods of connecting, anchoring, fastening, bracing and attaching work of other trades.
3. Do not fabricate before approval of Shop Drawings.

1.06 QUALITY ASSURANCE

- A. Items provided in this Section shall be manufactured and fabricated by firms experienced in the type of Work specified.
- B. Installation shall be by installers experienced in the type of Work specified for the respective item.

1.07 PRODUCT HANDLING

- A. Before shipment to the job, all finishes shall be adequately protected for transporting and erecting periods.
- B. Replace damaged items, with the approval of the MMMHS Representative, and at no additional cost to the MMMHS.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All hot-rolled steel members in this Section
ASTM A36.
- B. Anchor Bolts
ASTM A307.

2.02 GALVANIZING

- A. All items in this Section indicated to have galvanized coating

Comply with ASTM A123 for Structural shapes and ASTM 153 for hardware items.

2.03 APPARATUS SUPPORTS, MISCELLANEOUS HANGERS AND ACCESSORIES

- A. Provide bolts, stud bolts, for and any proprietary bolts and fasteners for the support of apparatus and other items as indicated on the Drawings or as required.

2.04 LINTELS (INTERIOR)

A. Scope

Furnish to the mason at proper time for setting, all loose lintels for all openings in walls and partitions.

B. General Locations

1. Lintels for all openings for registers and louvers in connection with Heating and Ventilation Equipment.
2. Lintels for all conditions of openings in walls and partitions where ducts, pipes and other mechanical equipment pass through walls.
3. Lintels for doors in masonry walls.
4. See Drawing Details for size and number of lintels required for the support of masonry for the various wall thicknesses.
5. All loose lintels indicated on the Drawings.
6. Bear lintels a minimum of 4" on wall at each jamb.

2.05 LINTELS (EXTERIOR)

- A. Furnish to mason at the proper time for setting all steel lintels in exterior walls.
- B. All lintels in exterior walls shall be hot-dip galvanized in accordance with ASTM A123.
- C. Lintels for masonry openings for auditorium unit ventilator louvers.

2.06 MISCELLANEOUS

- A. Provide all other miscellaneous metal Work. All Work in connection with bolts, anchors, and inserts shall be furnished at the proper time for setting.

PART 3 - EXECUTION

3.01 INSPECTION

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- A. Make all required measurements in the field to ensure proper and adequate fit.

3.02 DISCREPANCIES

- A. Immediately notify the MMMHS Representative.
- B. Do not proceed until fully corrected.

3.03 FABRICATION

- A. Welding

Comply with requirements of the American Welding Society (AWS).

- B. All Welding: By licensed welder.
- C. Welding Electrodes: E60XX classification of AWS A5.1.
- D. Grind welds smooth.

3.04 ERECTION

- A. Coordinate with other trades involved. Secure and anchor item as detailed.
- B. After erection, all damaged surfaces of shop coat shall be touched up, with Tnemec primer.

END OF SECTION

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SECTION 05710
STEEL STAIRS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide Steel Stairs Work as indicated on the Drawings and as specified herein, including, but not limited to the following:

1. Egress stairs

1.02 RELATED SECTIONS

A. Painting Section 09900

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM).
- B. American Welding Society (AWS).

1.04 SUBMITTALS

A. Shop Drawings

1. Prepare and submit complete Shop Drawings of all stair work, windows guards, and frames to receive wire mesh panels.
2. Compare the stairs Drawings with the superstructure Contract Drawings at the time the structural steel Shop Drawings or reinforced concrete Shop Drawings are being prepared to ensure the maintenance of proper sized openings, head room and all other clearances.
3. Assume all responsibility for the correctness and accuracy of installation, and take and verify all measurements at the Building. The Contractor shall assume full responsibility for the correctness of dimensions and fit.
4. Provide all work and material necessary to comply with requirements of N.Y.C. Building Code for such stairs.

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5. All drawings shall be prepared under supervision of and bear the seal of a Licensed Professional Engineer. Do not submit unchecked shop drawings. First submissions of all drawings shall have one set sealed and signed by the Engineer. After final approval of all shop drawings, submit a final set sealed and signed by the Professional Engineer.
6. Shop drawings will be checked for size of material and strength of connection by the Engineer of Record, which shall not render the Engineer responsible for any errors in construction dimensions, etc. which shall have been made in preparation of shop drawings.

B. Samples

1. Submit three (3) samples of metal stair treads and platform material for approval.

1.05 QUALITY ASSURANCE

A. Fabricators

Five (5) years minimum experience in steel fabrications of stairs or similar Work.

B. Welding

By a licensed welder.

- C. Comply with requirements of the New York City Building Code.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect stairs and all other fabricated items during shipment, storage, erection, and after erection until the Project Work is completed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Cast Iron Treads - As shown on the drawings

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Manufacturers

American Abrasive Metals Co.	Roseland, NJ 07068
American Safety Tread Co., Inc.	Helena, AL 35080
Wooster Products Inc.	Wooster OH 44691

2.02 MATERIALS

- A. Steel plate, angles, channels, beams, bars, and other hot-rolled Sections: ASTM A36.
- B. Gray Cast Iron
ASTM A48.
- C. Seamless Tubular Steel
ASTM A500.
- D. Cold-Rolled Steel Plate
ASTM A568, Grade 36.
- E. Wrought Iron Pipe (Handrails)
ASTM A53.
- F. Bolts
ASTM A325; A563 nuts.
- G. Welding Rods
E70 Classification of AWS A5.1.

2.03 FABRICATION - EGRESS STAIRS

- A. Construction
 - 1. Steel channel stringers, combined with steel plate risers to receive cast iron treads; pipe handrails, bolted and welded connections, or as indicated on the Drawings.

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Secure cast iron treads in place with 3/8" flat head bolts.

Brackets for treads and risers: angle irons securely attached to stringers.

3. Riser for stairs in 1. and 2., above: For 4'-9" or wider: 3/16" crimped steel plates. For less than 4'-9" width: 10 gauge crimped steel plate.
5. Handrails: 1" schedule 40 wrought iron pipe supported on cast-iron brackets and wall plates secured to walls. The bends in railings: cast iron of diameter equal to the external diameter of the pipes with extensions to fit into the pipes. Weld pipes and bends together; grind welds smooth. Railings: free from burrs and imperfections, and perfectly smooth and clean for painting.

2.03 PAINING

- A. Paint stair work, except the tops of the cast iron treads, with one shop coat of rust inhibitive primer: Tnemec 1099 or Benjamin Moore Ironclad Retardo Rust Inhibitive Paint 163 as specified in Section 09900.
- B. Immediately after erection, fill all open joints with a suitable putty; scrape and sand smooth all bolts and all damaged surfaces of shop coat and all rough surfaces and then touch up with the rust inhibitive primer.

PART 3 - EXECUTION

3.01 CONNECTIONS

- A. Connect steel stairs to the structural steel framework before concrete and/or sprayed fireproofing is installed. In a reinforced concrete superstructure or portion thereof, secure the steel stairs to the concrete superstructure as indicated on Drawings.
- B. For minor connections, such as brackets to strings; bolt treads to risers, using hexagonal nuts where exposed.
- C. Other connections

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Fillet welds; grind smooth, where exposed.

3.02 TEMPORARY STAIRS

- A. If the permanent stairs are used as a temporary stairs,
provide wood treads for protection of the steel pans.

END OF SECTION

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SECTION 06100
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide rough carpentry Work as indicated on the Drawings, as required for the completed Work of this Contract, and as specified herein, including, but not limited to, the following:
1. Pressure treated wood blocking for installation of replacement windows.
 2. Pressure treated wood blocking for installation of main roofing system [ITEM 1].
 3. Anchors.
 4. Preservative treatment for wood.

1.02 RELATED SECTIONS

- A. Miscellaneous Building Insulation.....Section 07212
- B. Hot Polymeric Fluid Applied
Waterproofing - Item 1.....Section 07550
- C. Aluminum Projected and Casement Windows....Section 08524

1.03 REFERENCES

- A. U.S. Department of Commerce.
- B. Western Wood Product Association (WWPA).
- C. American Wood Preservers' Association (AWPA).
- D. American Society for Testing and Materials (ASTM).
- E. Underwriters Laboratories, Inc. (UL).
- F. Federal Specifications (FS).
- G. American Lumber Standards Committee (ALSC).
- H. West Coast Lumber Inspection Bureau (WCLIB).

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I. American Wood Preservers Bureau (AWPB).

1.04 SUBMITTALS

A. Quality Control Submittals

1. Certificates: Certification for the following wood treatments:
 - a. Pressure Treatment: Certification by treating plant stating chemicals and process used, net amount of chemical preservative retained, and conformance with specified standards.
 - b. Waterborne Preservatives: Certified written statement that moisture content of treated materials was reduced to a maximum of 19 percent prior to shipment to Project site.

1.05 QUALITY ASSURANCE

A. Mill and Producers Mark

Each piece of lumber shall be gradestamped indicating type, grade, mill, and grading agency certified by the Board of Review of the American Lumber Standards Committee. Mark shall appear on unfinished surface, or ends of pieces with finished surfaces.

1. Pressure Preservative Treated Material: Accredited agency quality mark on each piece of wood including treatment.

B. Standards

Comply with the following unless otherwise specified or indicated on the Drawings:

1. Lumber: American Softwood Lumber Standard PS 20 by the U.S. Department of Commerce. Comply with applicable provisions by each indicated use.
2. Grading Rules:
 - a. Douglas Fir, Hem-Fir, Idaho White Pine, and other Western Woods: Western Wood Products Association (WWPA) or West Coast Lumber Inspection Bureau (WCLIB).

3. Preservative Treatment: American Wood Preservers' Association (AWPA) and American Wood Preservers Bureau (AWPB) Standards, quality control methods, and inspection requirements.

C. Regulatory Agencies

1. NYC Board of Standards and Appeals (BSA).
2. NYC Materials and Equipment Acceptance (MEA).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials dry during delivery. Store materials 6" minimum above ground surface. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber and provide air circulation between stacks.
- B. Cover stored materials until ready for use for protection from moisture. Place and anchor covering in a manner which will assure good ventilation under the covering.

1.07 PROJECT CONDITIONS

- A. Correlate location of supporting members to allow proper attachment of other Work.

PART 2 - PRODUCT

2.01 LUMBER

A. General

Furnish seasoned dimensional lumber dressed to nominal sizes indicated with 19 percent maximum moisture content at time of dressing, marked "S-DRY". Comply with dry size requirements of PS 20.

1. Dress: Surfaced 4 sides (S4S) unless otherwise indicated.

B. Miscellaneous Lumber

Standard grade, No. 3 grade, or better grade of the following species unless otherwise indicated:

1. Blocking: Douglas Fir, Hem-Fir or Idaho White Pine.

2.02 PRESERVATIVE TREATMENT

A. Pressure Treatment (Above Ground Use)

Provide the following wood items with waterborne preservatives for above ground use, complying with AWPB LP-2.

1. Blocking and similar concealed members in contact with masonry.

2.03 FRAMING HARDWARE

A. Anchoring Devices

Provide items of type, size, style, grade, and class as required for secure installation of the Work. Unless shown or specified otherwise, comply with the following:

1. Manufacturers
 - a. Hilti Fastening Systems.
 - b. Illinois Tool Works, Inc.
2. Stainless Steel
3. Bolts: Minimum diameter of 3/8", with hex head. Threaded stud at Optional Method.
4. Safe working loads: for pullout: 400 lbs. (Min.); for sheer: 400 lbs. (Min.) In 3000 p.s.i. lightweight concrete.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

Examine substrate and supporting structure on which rough carpentry is to be installed for defects that will adversely affect the execution and quality of the Work. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 INSTALLATION - GENERAL

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- A. Do not use units of material with defects which impair the quality of the Work and units which are too small to fabricate the Work with minimum joints or with optimum joint arrangement.
- B. Install Work accurately to required lines and levels with members plumb and true, accurately cut and fitted and securely fastened. Closely fit rough carpentry to other associated construction.
- C. Securely attach carpentry Work to substrates by anchoring and fastening as indicated. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

3.03 WOOD BLOCKING

- A. Install required items where indicated and where required for support, attachment of other Work. Form to shapes indicated or required. Coordinate locations and cut and shim as required to provide items at true and level planes to receive Work to be attached.
 - 1. Attach to substrates as indicated; if not indicated, size and space fasteners as required to support applied loading. Maximum spacing of fasteners shall not exceed 16". Unless otherwise shown on the Drawings, install and secure material to non-wood construction as follows:
 - a. To Masonry: Attach materials with anchors.

3.04 ROUGH HARDWARE

- A. Furnish all rough hardware, such as nails, bolts, buck anchors and all other rough hardware required to secure the carpentry work in place, unless otherwise specified.

END OF SECTION

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SECTION 06200
FINISH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all finish carpentry Work as indicated on the Drawings and as specified herein, including, but not limited to the following:
1. Interior wood finish and trim, including, but not limited to: Platforms, casework and plywood paneling (where indicated).
 2. Wood Finish and plywood paneling in Office.

1.02 RELATED SECTIONS

- A. Rough Carpentry Section 06100
- B. Custom Casework Section 06410
- C. Finish Hardware Section 08710

1.03 REFERENCES

- A. Architectural Woodwork Institute (AWI)
- B. American Society for Testing and Materials (ASTM)
- C. American National Standards Institute (ANSI)
- D. Underwriter's Laboratories, Inc. (UL)

1.04 SUBMITTALS

- A. Product Data
- Submit manufacturer's or supplier's product data for each product and process specified as work of this Section and incorporated into items of finish carpentry.
- B. Quality Certification
- Submit woodwork Manufacturer's (Fabricator's) certification, stating that fabricated woodwork complies

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with AWI quality grades and other requirements indicated herein.

C. Wood Treatment Data

Submit chemical treatment manufacturer's instructions for handling, storing, installation, and finish of treated material.

D. Fire-Retardant Treatment

Provide certification by treating plant that treated materials comply with requirements. Submit certification of approval by NYC Board of Standards and Appeals (BS/A) or Materials and Equipment Acceptance (MEA).

E. Shop Drawings

Submit Shop Drawings showing location of each fabricated item, dimensioned plans and elevations, large scale details and profiles, attachment devices and other components.

1. Identify woodwork item using same identification system shown on Architectural Drawings.
2. Coordinate details and cut-outs to accommodate accessories specified under other Sections.

1.05 QUALITY ASSURANCE

A. AWI Quality Standard

Comply with applicable requirements of the AWI "Architectural Woodwork Quality Standards", except where indicated otherwise.

B. Fabrication and Installation Qualifications

Firm which can demonstrate a minimum of 5 years of successful experience in fabricating and installing woodwork items similar in type and quality to those required for this project.

C. Submit name of firm to the Authority for approval.

D. Regulatory Agencies:

1. NYC Board of Standards and Appeals (BS/A)

2. NYC Materials and Equipment Acceptance (MEA)

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect woodwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver woodwork until operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If woodwork must be stored, store only in areas meeting requirements and conditions specified for installation areas.

1.07 PROJECT CONDITIONS

A. Conditioning

Woodwork Installer shall advise the Authority's Representative of temperature and humidity requirements, in writing for woodwork installation and storage areas. Do not install woodwork until required temperature and relative humidity have been stabilized.

B. Maintain temperature and humidity conditions in installation area as required to maintain moisture content of installed woodwork within 1.0 percent of optimum moisture content as follows:

- 1. Optimum moisture content of wood: 5-10%
- 2. Relative humidity required to be maintained in installation and storage areas: 25-55%

PART 2 - PRODUCT

2.01 MATERIAL

A. General

- 1. All interior wood finish shall be made up of thoroughly seasoned, kiln dried woods of the kinds specified.
- 2. All material shall be clear on all exposed faces and edges, free from checks, cracks or other blemishes that would mar the appearance of the finished wood.
- 3. In assembling interior woodwork, arrange so that variations in grain pattern are kept to a minimum.

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4. All material shall be product of one mill.

B. Species and Grades (Lumber)

1. Plain Sawn Appalachian Red Oak, AWI Grade I (for transparent finish): interior wood finish throughout, except as otherwise specified or shown on Drawings.

C. Species, Grades, Types (Plywood)

1. Veneer: Oak and White Birch, as specified herein, AWI Grade I.

2. Grain Appearance: Running Match.

3. Core: Particleboard or fiberboard, medium density, fire-retardant.

2.02 FABRICATION, GENERAL

A. Wood Moisture Content

Comply with requirements of referenced quality standard for moisture content of lumber at time of fabrication and for relative humidity in installation areas. (See Art. 1.07).

B. Fabricate woodwork to dimensions, profiles, and details indicated.

C. Complete fabrication, assembly, finishing, and other work before shipment to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary, provide ample allowance for scribing, trimming, and fitting.

D. Pre-Cut Openings

Provide woodwork with pre-cut openings, where possible, for hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutouts.

E. Measurements

Before fabrication of woodwork to be fitted to other construction, obtain field measurements and verify

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dimensions and shop drawings detail as required for accurate fit.

1. Where field measurements before fabrication would delay the project, fabricate without field measurements and provide ample borders and edges to allow for scribing and trimming of woodwork.

2.03 FIRE-RETARDANT MATERIALS

- A. Where fire-retardant treated lumber, plywood, and panel products are required by Building Code, provide materials which are pressure impregnated with fire-retardant chemicals and comply with the following requirements:

1. Fire-Retardant Chemicals: Use chemicals which do not bleed through or otherwise adversely affect adhesives or finishes. Do not use colorants to distinguish treated lumber and panels from untreated lumber and panels.

- B. Fire-Performance Characteristics

Provide materials which are identical to those tested in accordance with ASTM methods and time periods indicated, are listed for fire performance characteristics by Underwriter's Laboratories, Inc., or other testing agency acceptable to authorities having jurisdiction.

1. Marking: Identify treated lumber with separable paper classification marking of inspecting and testing agency.
2. Surface Burning Characteristics: Not exceeding values indicated below, tested in accordance with ASTM E84 for 30 minutes which no evidence of significant combustion.
 - a. Flame Spread: 25.
 - b. Smoke Developed: 50.

- C. Kiln-dry woodwork after treatment to levels required for non-fire-retardant woodwork materials. Maintain moisture content required by kiln drying, before and after treatment. Do not use treated lumber which does not comply with requirements of referenced woodworking standard.

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- D. Where fire-retardant particleboard and fiberboard are used, provide panels with fire-retardant chemicals to achieve surface-burning characteristics of 20 for flame spread and 25 for smoke developed when tested in accordance with ASTM E84.

Comply with ANSI A108.1 for Grade 1-M-1 panels with density of 45 lbs./cu. ft. for thickness of 3/4" and less and 44 lbs./cu. ft. for thickness of 13/16" to 1 1/4".

Linear expansion: 0.35% for 45 lb. density and 0.50% for 44 lb. density.

Screw-holding capacity, face and edge: 300 lbs. and 250 lbs., respectively, for 45 lb. density, and 250 and 175 lbs., respectively, for 44 lb. density.

2.04 LUMBER THICKNESS

- A. Finish thicknesses of members, and tolerances permitted:

Comply with AWI-100-S-2.

2.05 GLUING

- A. Gluing for wood member thickness and for wood member width

Comply with AWI-100-S-2.

at head of proscenium arch and trim at windows: White birch.

2.06 PAINTING (SHOP APPLIED)

- A. Oak Woodwork:

1 coat of stain

1 coat of filler (wipe off excess)

1 coat of sealer (after filler is dried)

- B. White Birch and White Maple - (Grade I):

1 coat of stain

1 coat of sealer

- C. Final finishing shall be provided in Section 09900.

PART 3 - EXECUTION

3.01 CONDITION OF SURFACES

- A. Examine all grounds, stripping and blocking, to secure paneling and other items provided under this Section.
- B. Do not install until all defects are corrected.

3.02 INSTALLATION

- A. Install woodwork plumb and level without distortion.
- B. Shim as necessary with concealed shims.
- C. Accurately scribe and closely fit all face plates, filler strips and trim strips to irregularities of adjacent surfaces.
- D. Do all Work in strict accordance with the details for the various portions of the Work.
- E. For adjoining pieces of hardboard, carefully select to match the color and grain as closely as possible.
- F. Interior finish

High-speed machine work, free from planing machine marks, sandpapered smooth, ready to receive paint or varnish.
- G. Carefully fit woodwork and secure with finishing nails; countersink nails.
- H. Do not allow kerfing on faces of trim or moldings.
- I. Properly house stiles and rails into framework and properly nail and glue all parts together.
- J. Miter, with miters doweled or clamped, all trim joints except window trim.
- K. For joining of window trim, see Details.
- L. Round base and all other moldings on walls at all salient angles; where columns occur in partitions, follow contour.
- M. Carefully cut and fit wood trim at convectors.
- N. Install all trim, when applied to a surface less than 13 feet in length, in one length: no piecing will be

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accepted. Provide bevel joints, where joints are required; no butt joints will be accepted.

- O. In addition to machine sanding, sand all interior woodwork by hand with 00 sandpaper to give trim a smooth surface for finishing.

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3.03 APPLYING HARDWARE

- A. Apply all miscellaneous hardware not specified to be installed under Section 08710 and other Sections.

END OF SECTION

LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Manufacturer's or supplier's product data for each product and process		
Quality Certification:	_____	_____
1. Compliance with AWI		

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quality grades and other
requirements

Wood Treatment Data:

1. Chemical treatment manufacturer's instructions

Fire-Retardant Treatment:

1. Certification by plant.
2. Certification of approval by NYC BS/A or MEA

Shop Drawings:

1. Location of each fabricated item
2. Dimensioned plans and elevations
3. Large scale details and profiles
4. Attachment devices and other components

Samples:

1. Wood Trim - 12" length of each type and finish (e.g., base, casings, stools, aprons, chair rail, exercise barr)
2. Plywood Paneling - 12" x 12" for each type and finish

Quality Assurance:

1. Certification of experience

Project Conditions:

1. Temp. and humidity reqmt's. for storage and installation

* * *

SECTION 07115
SHEET MEMBRANE WATERPROOFING FOR FOUNDATIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide sheet membrane waterproofing for foundation walls and slabs as indicated on the Drawing and as required for a complete watertight installation.

1.02 RELATED SECTIONS

- A. Earthwork.....Section 02200
- B. Concrete Formwork.....Section 03100
- C. Concrete Reinforcement.....Section 03200
- D. Cast-In-Place Concrete Section 03300

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
- B. Federal Specifications (FS)

1.04 DESIGN CRITERIA

- 1. Waterproofing system shall be complete and consist of all liquid membranes, tapes, and other material required for the system to be watertight. System shown on Drawings and specified herein are based on Grace Construction Products materials. Other manufacturer's listed are acceptable if they have a complete system which meets the performance requirements of this specification. Regardless of manufacturer used, the Contractor is responsible for providing a complete system and shall discuss with manufacturer prior to bid.
- B. The Grace polyethylene membrane (Preprufe) used on the underside of slabs may not require the use of a mud mat. If other systems are used, the use of a mud mat is required. It is also to be used for blind side applications where lagging or formwork is not to be removed. The Carlisle butyl rubber membrane (.120 Butyl) requires protection board on each side as a

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minimum. Mud mat, protection board, and all additional detailing required by the Architect/Engineer of Record to provide for the proper installation of the membrane shall be at no cost to the Authority.

1.05 SUBMITTALS

A. Submittals Package

Submit the Shop Drawings, product data, and samples specified below at the same time, as a package.

B. Product Data

Catalog sheets, Specifications, and installation instructions for each material specified.

1. *Revise the membrane manufacturer's product data as necessary to suit the requirements of the Contract Documents. Manufacturer's details are not to be used for the Work of this Contract.*

a. *Unless approved otherwise in writing by the Authority, the requirements of the Contract Documents take precedence over the approved waterproofing manufacturer's specifications and details.*

b. *Any materials, installation procedures, or details not included in the Contract Documents must be approved by the Authority.*

2. *Manufacturer's Warranty Sample: Submit a sample copy of the membrane manufacturer's five (5) year materials warranty.*

C. Shop Drawings

When there is a proposed deviation from the Contract Documents, submit the revised detail, labeled as such for approval. The revised detail shall show existing conditions and shall be referenced directly to the related details on the Contract Drawings. Details not shown on the Contract Drawings shall be as recommended by the waterproofing manufacturer and approved by the Architect/Engineer.

D. Samples

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1. Sheet Membrane, each type: Two 3-foot square pieces.
2. Liquid membrane
3. Tape
4. Adhesive
5. Drainage panel
6. Primer.

E. Quality Control Submittals

1. Membrane Waterproofing Manufacturer's Certification:
 - a. Submit a letter certifying that the manufacturer has been actively marketing the submitted system for a minimum of three (3) years.
 - b. Submit the names and addresses of 10 previous waterproofing projects. Include the type and size of each project, and name and telephone number of a contact person at the project location.
2. Applicator's Certification:
 - a. Submit a letter certifying that the applicator has been actively installing waterproofing systems for the past five (5) years.
 - b. Submit the names and addresses of five (5) previous waterproofing projects. Include the type and size of each project, the waterproofing manufacturer's name, and the name and telephone number of a contact person at the project location.
 - c. Submit a letter certifying that the supervisor or foreman and the workers applying the waterproofing materials have at

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least three (3) years experience in the application of waterproofing materials.

3. Manufacturer's Instructions: Furnish manufacturer's literature, specifications, and application instructions.
4. Manufacturer's Field Reports: Submit copies of inspection reports.

F. Contract Closeout Submittals:

1. Manufacturer's Warranty: Upon acceptance of the completed Work of this Section, furnish the membrane manufacturer's written five (5) year materials warranty.
2. Contractor's written five (5) years guarantee covering materials and workmanship.

1.06 QUALITY ASSURANCE

A. Membrane Manufacturer's Qualifications

1. The manufacturer must have been actively marketing a self adhering rubberized asphalt sheet membrane waterproofing system in the United States for a minimum of three (3) years.
2. The manufacturer's rubberized asphalt sheet membrane must have previously been installed on a minimum of 10 waterproofing projects of comparable scope and complexity to the Work of this Section.

B. Applicator's Qualifications

1. The waterproofing applicator must have been actively installing waterproofing systems for the past five (5) years.
2. The waterproofing applicator must have previously installed and completed a minimum of five (5) waterproofing projects of comparable scope and complexity to the Work of this Section.
3. The person supervising the Work of this Section and the workers applying the waterproofing materials shall have had at least three (3) years

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of experience in the application of waterproofing materials.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery

Deliver all materials to the site in the manufacturer's labeled, unbroken containers. Membrane rolls must be packaged in rigid containers to prevent membrane distortion.

B. Storage

1. Do not double stack pallets of membrane.
2. Store all materials on wooden platforms in a well-ventilated place.
3. Store insulation and protection board flat.
4. Cover all materials on top and sides with tarpaulins allowing for adequate ventilation. Keep materials dry at all times.
5. Store all materials away from high heat, flames, and sparks.

C. Handling

1. Handle all materials in a manner to prevent damage. Mark and remove all damaged material from the site.
2. Do not smoke or use open flames near primer, mastics, or liquid membrane.

1.08 PROJECT CONDITIONS

- A. Do not execute the Work of this Section without notifying the Authority's Representative at least five (5) days before commencing.
- B. Do not execute the Work of this Section unless the substrate is smooth, dry, and free of all dirt, dust and debris. Concrete shall be cured 28 days minimum prior to installing material.
- C. Unless approved otherwise by the Authority, do not execute the Work of this Section when the air or

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surface temperature of the structural substrate is below 30°F.

- D. Maintain the groundwater level below the waterproofing at all times.
- E. Do not apply the waterproofing system in areas where dust is being generated from adjacent work areas. If necessary, erect temporary dust barrier or screens to keep the area being waterproofed clean and free of dust and dirt.
- F. Do not leave polyethylene type membrane exposed for more than 30 days and the rubberized asphalt type membrane for more than 60 days.

1.08 WARRANTY AND GUARANTEE

A. Warranty

The Contractor shall provide, from the membrane Manufacturer, a written 5-year warranty for the materials used in the membrane application, providing for replacement of defective material.

B. Guarantee

The Contractor shall furnish a written five (5) year guarantee, providing that the membrane materials and workmanship will be free from leaks and defects; and that if leaks and defects do occur, the membrane system and all other work damaged by the failure, including Work which must be removed for access to the waterproofing materials, will be repaired or replaced at the Contractor's expense.

PART 2 - PRODUCT

2.01 MANUFACTURERS

- A. Grace Construction Products, Cambridge, MA.
- B. Carlisle Coatings and Waterproofing, Sapula OK
- C. Northern Elastomeric Inc. (NEI) Brentwood, NH 03833

2.02 MATERIALS

A. Wall and Slab Sheet Membrane Waterproofing

Self-adhesive, cold-applied composite sheet consisting of rubberized asphalt with cross-laminated polyethylene film permanently bonded to the outer surface.

1. Physical Properties

- a. Flexibility - ASTM D1970 (180 degrees bend over one-inch mandrel at -45 degrees F): Unaffected.
- b. Tensile Strength - ASTM D412, Die C modified: 325 psi minimum
- c. Tensile Strength, film - ASTM D882: 5000 lb/in²
- d. Elongation (Rubberized Asphalt) - ASTM D 412 (Die C) modified: 300 percent minimum.
- e. Cycling Over Crack at -25 degrees F - ASTM C836: No effect 100 cycles.
- f. Puncture Resistance - ASTM E154: 40 pounds minimum
- g. Permeance - ASTM E 96 method B: 0.05 perms maximum
- h. Water Absorption - ASTM D570: 0.1 percent maximum
- i. Total Membrane Thickness - ASTM D3767, Method A: 60 mils nominal
- j. Peel Strength - ASTM D1876: 5 lb/in.
- k. Resistance to Hydrostatic Head - ASTM D5385: 231 ft of water

2. Material shall be Bituthene 4000 by Grace Construction Products, CW-701 by Carlisle Coatings and Waterproofing, or Hydroseal 3000 by NEI.

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B. Slab Sheet Membrane Waterproofing (Also for blind side formwork application)

Cold-applied composite sheet consisting of high-density polyethylene film, synthetic adhesive, and protective coating. Material is placed such that concrete is cast against the protective coating.

1. Physical Properties

- a. Flexibility - ASTM D1970 (180 degrees bend over one-inch mandrel at -10 degrees F): Unaffected.
 - b. Tensile Strength, film - ASTM D882: 5000 lb/in²
 - c. Elongation (Rubberized Asphalt) - ASTM D 412 (Die C) modified: 300 percent minimum.
 - d. Cycling Over Crack at -10 degrees F - ASTM C836: No effect 100 cycles.
 - e. Puncture Resistance - ASTM E154: 180 pounds minimum
 - f. Permeance - ASTM E 96 method B: 0.01 perms maximum
 - g. Water Absorption - ASTM D570: 0.5 percent maximum
 - h. Total Membrane Thickness - ASTM D3767, Method A: 56 mils nominal
 - j. Peel Adhesion to Concrete - ASTM D903 Modified: 5 lb/in.
 - k. Resistance to Hydrostatic Head - ASTM D5385 Modified: 231 ft of water
2. Material shall be Preprufe 300R by Grace Construction Products.

C. Slab Sheet Membrane Waterproofing

Cold-applied membrane consisting of butyl rubber.

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1. Physical Properties

- a. Flexibility - ASTM D1970 (180 degrees bend over one-inch mandrel at -10 degrees F): Unaffected.
- b. Tensile Strength, film - ASTM D882: 1200 lb/in²
- c. Elongation (Rubberized Asphalt) - ASTM D 412 (Die C) modified: 300 percent minimum.
- d. Cycling Over Crack at -10 degrees F - ASTM C836: No effect 100 cycles.
- e. Puncture Resistance - ASTM E154: 180 pounds minimum
- f. Permeance - ASTM E 96 method B: 0.01 perms maximum
- g. Water Absorption - ASTM D570: 0.5 percent maximum
- h. Total Membrane Thickness - ASTM D3767, Method A: 120 mils nominal
- j. Peel Adhesion to Concrete - ASTM D903 Modified: 5 lb/in.
- k. Resistance to Hydrostatic Head - ASTM D5385 Modified: 231 ft of water

2. Material shall be .120 Butyl by Carlisle Coatings and Waterproofing.

D. Related Products

Provide the following component accessories to the waterproofing system:

1. Manufacturer's Liquid Membrane
2. Bituthene Preprufe Tape where required for Grace products.
3. Bitustik Tape where required for Grace products.

- 4. Manufacturer's Concrete Primer
- 5. .120 Butyl accessories where required by Carlisle Coatings and Waterproofing.

E. Prefabricated Drainage Panels

1. General

a. Prefabricated drainage panel shall be a composite system consisting of a non-woven geotextile drainage fabric bonded to a three-dimensional, highly impact resistant plastic core with high strength backing film.

b. Material shall be as acceptable to the membrane manufacturer and meet the following characteristics.

- 1) Hydroduct 2 Drainage Composite by Grace Construction Products.
- 2) Miradrain 6000/6200 by MiraDri Moisture Protection Products.
- 3) Sure-Drain V-2 by Carlisle Coatings and Waterproofing.

2. Plastic Core

The core shall have the following minimum physical properties:

- a. Compressive strength (ASTM D1621)....15000 psf
- b. Flow (gradient 0.1,37.9 Kpa - D4716).....15 gpm/ft of width
- c. Thickness (ASTM D1777).....3/8"
- d. Weight (ASTM D3776).....2.9 oz/ft²
- e. Overlaps: shall be capable of mechanical interlocking so as to prevent separation of the overlaps during backfill.

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3. Filter Fabric: The filter fabric shall be a nonwoven geotextile fabric having the following physical characteristics:
 - a. Equivalent opening size COE
CW02215.....70-100
 - b. Burst strength (ASTM D3786).....270 psi
 - c. Permeativity (ASTM D4491).....140
gpm/ft²
 - d. Puncture strength (ASTM D4833).....65 lbs
 - e. Weight (ASTM D3776).....4.0 oz/yd²

The fabric shall be uniformly bonded to the core, so as to resist being pushed into the flow channels of the core during backfilling. The fabric to core bond shall use pressure sensitive adhesive, and the fabric shall extend beyond the edge of the core, so that the fabric can be adhered in the field across all core overlaps.

F. Protection Board

Asphaltic hardboard that will not react with solvent based material. Product shall be acceptable to membrane manufacturer.

2.03 PRE-WATERPROOFING CONFERENCE

- A. At least 35 days prior to the start of the waterproofing construction schedule, the contractor shall conduct a meeting to review the proposed waterproofing design and to discuss the required methods and procedures to achieve the required quality and waterproofing integrity. The contractor shall send a pre-waterproofing conference agenda to all attendees 20 days prior to the scheduled date of the conference.

PART 3 - EXECUTION

3.01 EXECUTION PROCEDURES

- A. The preparation and application procedures in Art. 3.02 and Art. 3.03 are general; follow the membrane manufacturer's recommendations as required to obtain

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the five (5) year warranty and the five (5) year guarantee.

3.02 INSPECTION AND PREPARATION

- A. Do not begin application of membrane waterproofing until all cracks, honeycombs, loose aggregate, sharp protrusions, tie holes, etc. have been repaired, fins removed, and the surface is free of contaminants such as oil, grease, dust, and other foreign materials. Refer to Section 03300.
- B. Concrete substrate shall be cured a minimum of 7 days for rubberized asphalt membrane or longer if required by membrane manufacturer.
- C. Apply additional 8" wide strip of membrane over construction joints, cold joints, control joints, and expansion joints.
- D. Apply double plies of sheet membrane around drains, pipes, and other penetrations; extend 6" horizontally in all directions. Seal terminations thoroughly.

3.03 MEMBRANE APPLICATION

- A. Polyethylene (Preprufe) Membrane Slab Application
 - 1. Preprufe membrane can be placed directly on grade. Grade is to have no sharp objects and shall be acceptable to the membrane manufacturer. Membrane shall be supported on footing formwork at sides. It is also to be used for blind side vertical applications where lagging or formwork is not to be removed. Follow manufacturers recommended lap details. At end lap, provide 3" lap and preprufe tape centered over the end lap. Cut laps to be sealed with liquid membrane covered with tape.
 - 2. Follow all manufacturer's recommendations for slab penetrations. Apply liquid membrane waterproofing, lapping material with the Preprufe membrane and around all penetrations. Install Preprufe tape as per manufacturer's recommendations.
 - 3. Reinforcing chairs and other items supporting reinforcement shall be flat or have flat runners

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so as not to puncture the membrane. Verify suitability or material with membrane manufacturer.

B. Rubberized Asphalt Membrane Slab Application.

1. Material is to be placed on working slab and supported on footing formwork at sides. Follow manufacturers recommended lap details. At end lap, provide 3" lap. Cut laps to be sealed with liquid membrane.
2. Follow all manufacturer's recommendations for slab penetrations. Apply liquid membrane waterproofing, lapping material with the membrane. Apply additional flashings if required.
3. Install protection board upon approval of the membrane installation and prior to placement of reinforcement. Do not allow membrane to be punctured.

C. Walls

1. After concrete walls are poured and have cured a minimum of 7 days, apply primer to the substrate at the rate recommended by the membrane manufacturer; apply primer only to areas which can be covered that same day. All joints are to be done first by applying primer only at the joints and installing the coverstrips.
2. After primer is tack free, apply rubberized asphalt membrane, lapping edge seams a minimum of 3", and end seams a minimum of 4"; apply wall membrane to form lap with slab membrane and up walls to elevation indicated. Seal ends with liquid membrane waterproofing up adjoining walls. Stagger lap ends.
3. Seal all membrane edges, terminations, and pipe penetrations thoroughly with liquid membrane.

- D. Waterstops shall be adhered to the membrane waterproofing with manufacturer's recommended adhesive. Refer to Section 03300 for waterstop materials.

3.04 PREFABRICATED DRAINAGE PANEL

A. General

1. Position the panel with the filter fabric toward the soil. Use manufacturer's recommended adhesive.
2. Install panel as shown on Drawings. Panel shall run form one foot below grade to bottom of footings, providing complete protection of wall membrane waterproofing.

B. Overlaps

Peel the fabric back from the attached panel to expose 3" of core. Overlap the core of the next panel by 2" and interlock. Re-attach the fabric to completely cover the core overlap. Shingle each course, overlapping both the core and the fabric in the direction of water flow.

C. Terminal Connections and Protrusions

Cover all terminal edges with the integral fabric flap by cutting the core back approximately 4" and tucking the fabric around the edge of the core and secure it. At protrusions, cut the core around the protrusion, cut an "X" in the fabric, and tape the fabric around the protrusion. Dirt, plastic, and concrete must not be allowed to infiltrate the core.

D. Backfilling

Place backfill as specified in Section 02200 within 7 days. Avoid damaging the panels with the compactor's hoe, exhaust, or tamper foot. Replace any damaged fabric or panels.

3.05 FIELD QUALITY CONTROL

- A. Notify the manufacturer of the waterproofing materials in sufficient time, but not less than 3 days, prior to start of work to allow inspection of substrates and supervision of the application of the waterproofing membrane by the manufacturer's authorized representative.

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- B. All work to be performed under the direct and continuous supervision of the manufacturer. Contractor shall pay for all services by the manufacturer. Inspections shall be on a regular basis and all joints thoroughly inspected prior to concrete placement or the product being covered with other materials. Work shall be done to the manufacturer's and the Authority's satisfaction.

3.06 PROTECTION

- A. Provide protection for membrane as recommended by the manufacturer, before and during placement of concrete over membrane.

3.07 REMEDICATION

- A. Contractor is responsible for providing a watertight structure. Provide any required remediation for any leakage that may occur with products and methods acceptable to the Authority.

END OF SECTION

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SECTION 07211
PERIMETER FOUNDATION INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish and install foundation insulation against foundation walls as shown on Drawings.

1.02 RELATED SECTIONS

- A. Earthwork Section 02200
- B. Cast-in-Place Concrete Section 03300

1.03 SUBMITTALS

- A. Product Data

Provide manufacturer's information on material and installation instructions.

- B. Samples

- 1. Submit 12" x 12" sample of insulation.
- 2. Sample shall clearly indicate manufacturer's label and material designation.

- C. Certificate

Furnish BSA or MEA resolution of approval of material.

1.04 REGULATORY REQUIREMENTS

- A. NYC Board of Standards and Appeals (BSA) approvals or,
- B. NYC Materials and Equipment Acceptance (MEA) approvals.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be properly identified with manufacturer's name and BSA or MEA approval number.
- B. Store materials on the site in a dry area protected from the weather.

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- C. Protect with white polyethylene film or light colored covering. Do not leave exposed to direct sunlight.
- D. Do not leave exposed in areas where traffic might cause mechanical damage to foam.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Dow Chemical U.S.A., Midland, Michigan 48640
- B. UC Industries, Inc., Parsippany, N.J. 07054

2.02 MATERIAL

- A. Extruded polystyrene foam, with a high density, smooth, extruded-skin surface and square (butt) edges.
 - 1. "Styrofoam" by Dow Chemical Company.
 - 2. Formular 250 by UC Industries, Inc.
- B. Thickness shall be in accordance with Drawings, and insulation shall meet physical property requirements given in ASTM 578 and Federal Specifications HH1524C for Type IV materials.
- C. Product shall not be produced with or contain any of the U.S. EPA regulated CFC compounds which are listed in the Montreal Protocol.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that concrete surfaces are free of defects or protrusions and ready to receive insulation. Do not begin installation until defects are remedied.

3.02 INSTALLATION

- A. Install foam board horizontally against foundation wall as shown on Drawings and in accordance with manufacturer's instructions.

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- B. Foam board shall be tightly butted.
- C. Shape foam board around obstructions by means of saw, knife, or other sharp tool.

3.03 PROTECTION

- A. Protect foam board from sunlight until board is backfilled against.
- B. Backfill against foam board carefully in order to prevent displacement and mechanical damage.

END OF SECTION

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SECTION 07212
MISCELLANEOUS BUILDING INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all miscellaneous insulation (batt or otherwise) not specified in other Sections herein, as indicated on the Drawings and as specified in this Section.

1.02 RELATED SECTIONS

- A. Aluminum Projected and Casement Windows.. Section 08524

1.03 SUBMITTALS

- A. Samples
 - 1. Submit in triplicate 12" x 12" sample of each type of insulation.
 - 2. Sample shall clearly indicate manufacturer's label and material designation.
- B. Certificate
 - Furnish BSA or MEA resolution of approval of material.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements
 - 1. New York City Board of Standards and Appeals (BSA) approvals or,
 - 2. New York City Materials and Equipment Acceptance (MEA) approvals.
- B. Manufacturer: Minimum of Five years successful manufacture of type of product specified.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be properly identified with manufacturer's name and BSA or MEA approval number.
- B. Store materials on the site in a dry area protected from the weather.

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- C. Protect with white polyethylene film or light colored covering. Do not leave exposed to direct sunlight.
- D. Do not leave exposed in areas where traffic might cause mechanical damage to product.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Dow Chemical U.S.A., Midland, Michigan 48640
- B. UC Industries, Inc., Parsippany, N.J. 07054
- C. United States Gypsum Co. or approved equal

2.02 MATERIAL

- A. Batt Insulation
 - 1. Un-backed insulation: Type II, Class A.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are free of defects or protrusions and ready to receive insulation. Do not begin installation until defects are remedied.

3.02 INSTALLATION

- A. Install insulation as shown on Drawings or specified in other Sections herein and in accordance with manufacturer's instructions.
- B. Butt units tightly.

END OF SECTION

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SECTION 07270
FIRESTOPPING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide firestopping at all penetrations and juncture joints of fire-rated walls, floors and ceilings in accordance with the requirements of the Building Code of the City of New York and MEA Standards.

1.02 RELATED SECTIONS

- A. Unit Masonry..... Sections 04200
- B. Mechanical/Electrical.....Divisions 15 & 16

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
- B. Underwriter Laboratories, Inc. (UL)
- C. National Fire Protection Association (NFPA)

1.04 SUBMITTALS

- A. Submit manufacturer's instructions for installing firestopping.
- B. Submit manufacturer's certifications that materials and systems meet or exceed the specified requirements.
- C. Submit certification stating that firestopping has been completed in full accordance with requirements of this Section and of the Building Code of New York City.
- D. Submit two copies of certified test reports of:
 - 1. Fire test reports of firestopping system application to substrate materials similar to project conditions.
 - 2. Reports from reputable independent testing agencies of product proposed for use, which indicate conformance to ASTM E-814 (Fire Tests of Through-Penetration Firestops).

1.05 QUALITY ASSURANCE

- A. All firestopping Work shall be performed by a single Subcontractor, who will be acceptable to the firestopping manufacturer in the application of its products and systems.
- B. Manufacturer

Minimum of 5 years successful experience in manufacture of firestopping material.
- C. Regulatory Requirements

Conform to U.L. requirements and to requirements of the Building Code of the City of New York and Materials and Equipment Acceptance (MEA) Standards. Provide MEA approval certification for systems and materials.
- D. Comply with the following:
 - 1. ASTM E-84 - Surface Burning Characteristics of Building Materials.
 - 2. ASTM E-814 - Fire Tests of Through Penetration Firestops.
 - 3. U.L.-1479 - Fire Tests of Through-penetration Firestops.
 - 4. U.L.- Building Materials Directory; Through-Penetration Firestop Systems (XHEZ).
 - 5. U. L. 723 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.06 CONTROLLED INSPECTIONS

- A. Provide controlled inspection for all firestopping in accordance with Art. 1.02, Section 01400 of the Specifications.

1.07 SYSTEM DESCRIPTION

A. Technical Requirements

1. Firestopping materials shall be UL Classified as "Fill, Void or Cavity Material" for use in Through-Penetration Firestop Systems.
2. Firestop Systems shall provide a fire resistance rating at least equal to the hourly resistance rating of the fire-rated barrier.
3. Firestop Systems shall have been tested in accordance with ASTM E-814 or UL 1479 under a minimum positive pressure of 0.01 in. of water.

B. General Considerations

1. Firestop Systems do not re-establish the structural integrity of load bearing partitions. Contractor consult the MMMHS Representative prior to penetrating any load bearing assembly.
2. Firestop systems are not intended to support live loads or traffic. Contractor shall consult the MMMHS Representative if there is reason to believe these limitations may be violated.
3. When more than one firestop system design is applicable, individual characteristics should be evaluated for secondary benefits in performance, e.g. water/air sealing, ease of installation/-modification, or building movement.

1.08 DEFINITIONS

- A. Penetration: Any opening or foreign material passing through or into a fire-rated barrier.
- B. Fire-Rated: Have the ability to withstand the effects of a standard fire exposure for a specified time period, as determined by qualified testing.
- C. Fire-Rated Barrier: A floor, wall, partition or floor-ceiling assembly able to withstand a standard fire and hose stream test without failure.
- D. Fire resistance rating: The ability of a structure to act as a barrier to the spread of fire and to confine it to the area of origin. Ratings are expressed in hours

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and apply to beams, columns, floors, ceilings, roofs, walls and partitions.

- E. Firestopping: A means of sealing openings in fire-rated barriers to preserve or restore the fire resistance rating.
- F. Firestop System: A material, or combination of materials, installed to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke or gases through penetrations in fire-rated barriers. It shall be used in specific locations as follows:
 - 1. Penetrations for the passage of duct, cable, cable tray, conduit, piping and electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor slabs and floor/ceiling assemblies), and vertical service shafts.
 - 2. Locations shown specifically on the Drawings or where specified in other Sections of the Specifications (refer to Sections noted in 1.02 RELATED SECTIONS).

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Hilti Construction Chemicals, Inc., Tulsa, OK.
- B. The Carborundum Company, Niagara Falls, NY.
- C. 3M Fire Protection Products, St. Paul, MN.
- D. Bio Fireshield, Inc., Concord, MA
- E. Tremco Sealant Division, Tremco LTD, Toronto, Ontario, Canada or approved equal

2.02 MATERIALS

- A. Grout and sealant systems shall meet or exceed requirements as specified in Part 1 of this Section and shall be acceptable to the MMMHS Representative.

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- B. Firestopping systems shall meet the requirements of ASTM E-814, which include, but are not limited to, the following:
 - 1. Prevent flame pass-through.
 - 2. Restrict temperature to not exceed 325 degrees F over ambient on side of assembly opposite flames.
 - 3. Provide a positive smoke seal.
 - 4. Withstand hose stream test.
- C. Firestopping materials shall be asbestos-free, emit no toxic or combustible fumes and be capable of maintaining an effective barrier against flame, smoke, gas, and water in compliance with requirements of this Section.
- D. Firestopping materials/systems shall be flexible to allow for normal movement of building structure and penetrating items(s) without affecting the adhesion or integrity of the system.
- E. Firestopping materials shall not require hazardous waste disposal of used containers/packages.
- F. On insulated pipe, the fire-rating classification must not require the removal of the insulation.
- G. Firestopping materials shall be free of solvents and shall not experience shrinkage while curing.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine and confirm the compatibility of surfaces to receive firestopping materials. Verify that surfaces are sound, clean and dry and are ready to receive the firestopping.
- B. Verify that penetration elements are properly located and securely fixed, with the proper space between the penetration element and surfaces of the opening.

3.02 PREPARATION

- A. Protect adjacent surfaces and equipment from damage.

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- B. Clean surfaces of opening.

3.03 INSTALLATION

- A. Install firestopping system in strict accordance with the manufacturer's instructions to obtain the fire-rating required at the specific location.
- B. Provide escutcheons for piping at each side of penetration.

3.04 FIELD QUALITY CONTROL

- A. Inspect all installations to ensure that all work meets the requirements specified.

3.05 CLEANING

- A. Remove excess materials, droppings, and debris; remove excess materials from adjacent surfaces.

3.06 PROTECTION

- A. Protect firestopping installations from damage until completion of all Project Work.

END OF SECTION

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SECTION 07510
BUILT-UP BITUMINOUS ROOFING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all built-up bituminous roofing Work as indicated on the Drawings and as specified herein, including, but not limited to, the following:

1. Removal of existing roofing materials, as applicable.
2. Built-up Roofing System
3. Rigid Insulation
4. Vapor Barrier

1.02 RELATED SECTIONS

A. Selective Removals & Demolition	Section 02070
B. Asbestos Abatement	Section 02081
C. Cast-in-Place Concrete	Section 03300
D. Unit Masonry	Section 04200
E. Rough Carpentry	Section 06100
F. Flashing and Sheet Metal	Section 07600
G. Flashing at Pipes, Roof Drains, Pads for Roof-Mounted Equipment	Division 15

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM).
- B. Underwriters Laboratories, Inc. (UL).
- C. National Roofing Contractors Association (NRCA).
- D. Thermal Insulation Manufacturers Association (TIMA).

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- E. Federal Specifications (FS)
- F. Factory Mutual System (FMS)

1.04 SUBMITTALS

A. Submittals Package

Submit the Shop Drawings, Product Data, Samples, and Quality Control Submittals specified below at the same time as a package. All submittal packages must be submitted prior to the Pre-Installation conference.

B. Shop Drawings

1. When there is a proposed deviation from the Contract Documents, submit the revised detail labeled as such for approval. The revised detail shall show existing conditions and shall be referenced directly to the related details on the Contract Drawings.
2. Submit an accurate layout of the wood nailers showing their required locations, and required spacing between nailers. Show the direction of the felt run in relation to the slope of the deck and the wood nailers.
3. Grade Survey
 - a. Contractor shall engage a New York State Licensed Surveyor to control accurately the thickness and slope of the concrete fill, screed coat and drain elevations. The cost of the Surveyor's services shall be included in Contractor's bid price. Submit all grade Drawings required hereinafter with Surveyor's seal and signature to Project Architect/Engineer for an approval.
 - b. The elevations shall be taken at the perimeter of roofs, at all drains, and on the edges of square grid not exceeding 25'-0".
 - c. All Drawings shall be done at the scale of 1/8" = 1'-0". All elevations shown on the Drawings shall be referred to a convenient

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datum accessible at all times regardless of the stage of Work, and not altered by the Work.

- d. Submit grade Drawings indicating all existing and proposed grade elevations required to establish a minimum slope of 1/8" per foot prior to removal of existing roofing system.

C. Product Data

Catalog sheets, Specifications and installation instructions for each material specified.

1. Revise the membrane manufacturer's product data as necessary to suit the requirements of the Contract Documents. Manufacturer's details are not to be used for the Work of this Contract.
2. Manufacturer's Warranty: Sample copy of the membrane manufacturer's 10 year warranty covering workmanship and materials.

D. Samples

1. Roofing Membrane: 13 in. by width of roll, each type.
2. Base Flashing: 13 in. by width of roll, each type.
3. Vent Base Sheet: 13 in. by width of roll, each type.
4. Insulation: One 6" sq. piece, each type.
5. Aggregate Surfacing: 1 pound.
6. Fasteners: 6, each type.

E. Quality Control Submittals

1. Fire Hazard Certification: Written certification that the roof system, including the specific insulation, has been tested in conjunction with the type of structural roof deck and roof slope applicable to the project and has achieved an

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Underwriters Laboratories Class A or B external fire resistance rating.

- a. Acceptable Certification: Letter from Underwriters Laboratories, or a copy of the Underwriters Laboratories classification listing for the roofing system.
2. Material Certification: Letter from the roofing membrane manufacturer certifying that the insulation is approved for use with the roofing system.
3. Membrane Manufacturers Certifications:
 - a. Submit a letter certifying that the manufacturer has been actively marketing the submitted system for a minimum of five years.
 - b. Submit the names and addresses of ten previous roofing projects. Include the type and size of each project and name and telephone number of a contact person at the project location.
4. Applicator's Certification:
 - a. Letter from the membrane manufacturer certifying that the applicator is licensed or approved to install the roof system.
 - b. Names, address, and telephone numbers of three buildings where the applicator has installed built-up roofing systems which have the manufacturer's warranty issued. Include the types of built-up roofing systems installed, the manufacturer's name, and the warranty numbers.
 - c. Letter certifying that the job foreman or crew chief and at least one other member of the roofing crew have installed at least three built-up roofing systems and are thoroughly familiar with all aspects of the installation.

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5. Submit prior to installation: A signed statement for moisture testing of roof deck.

F. Contract Closeout Submittals:

Guaranty and Warranty: As specified.

1.05 QUALITY ASSURANCE

A. Membrane Manufacturer's Qualifications:

1. The manufacturer shall have the technical expertise and qualified technical representatives to quickly resolve questions or problems which may arise both during and after the Work is completed.
2. The manufacturer shall have been actively marketing a built-up roof system in the United States for a minimum of five years.
3. The manufacturer shall provide the names, addresses, and telephone numbers of at least ten previous projects of comparable size, scope, and complexity as the Work of this Section.
4. The manufacturer must require that the roof system be installed by a licensed or approved applicator.

B. Roofing Installation Qualifications

1. Roofing Firm Qualifications

- a. Installation of a minimum of ten built-up roofing systems of 3-ply (or greater) membranes, or of roofing system specified in the Contract Documents, including all related sheet metal work.

(List last five such jobs, including address, type of system and number of plies, if applicable, square footage, date installed and owner/agent with whom contracted).

- b. In continuous operation of installing such roofing systems for five years or more.

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- c. Certified installer for nationally recognized roofing materials manufacturer.

2. Project Foreman Qualifications

(Note: For field foremen to be assigned to this Project, identify and substantiate).

- a. Installation of a minimum of five built-up roofing systems of 3-ply (or greater) membrane, or of roofing system specified in the Contract Documents, for which this individual served as field foreman in direct responsible charge of all roofing work crews.

(Note: List last five such jobs, including address, type of system and number of plies, if applicable, square footage, date installed and owner/agent with whom contracted, and name of roofing firm with which employed).

- b. Successful completion of a formal instructional and training program for the installation of the specified roofing systems, as evidenced by:

1. A certificate of journeyman roofer as issued under a union apprenticeship-journeyman training program duly registered with the New York State Department of Labor (or other State Labor Department); or
2. A certificate or diploma issued by a vocational training school or national roofing manufacturer attesting to successful completion of an equivalent formal training program, (Submit copy of certificate for above); or
3. A minimum of five years of practical experience in the installation of all aspects and details of the specified roofing system(s) including related sheet metal work as determined from a pre-qualification interview conducted by

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the Authority's Facilities Inspection
Division.

- c. Must be able to read and communicate in English and be able to read construction drawings and specifications.

C. Fire Department Regulations

Equipment and fuel shall meet the requirements of the New York City Fire Department.

D. Fire Hazard Classification

The built-up roof system shall have an Underwriters Laboratories Class A or B External Fire Resistance rating; as determined by tests conducted in conformity with UL-790 (ASTM E 108).

- 1. The roof system, which includes a specific generic type of insulation and in some instances a specific name brand insulation, shall have been tested in conjunction with the type of structural roof deck and roof slope applicable to the project.

E. Pre-Installation Conference

Before the roofing Work is scheduled to commence, a conference will be called by the Authority's Representative at the site for the purpose of reviewing the Drawings and the Specifications and discussing requirements for the Work. The conference shall be attended by the Contractor, the authorized roofing applicator, the Company Field Advisor, the Architect and the Authority's Roofing Specialist.

F. Company Field Advisor

Secure the services of a Company Field Advisor of the membrane manufacturer for a minimum of 16 working hours. The Field Advisor shall be certified in writing by the manufacturer to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify. The Field Advisor shall be present at the

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beginning of the actual membrane installation for the purpose of:

1. Rendering technical assistance to the Contractor regarding installation procedures of the system.
2. Familiarizing the Authority's Representative with all aspects of the system including inspection techniques.
3. Answering all questions which might arise.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Roofing materials shall be delivered to the site in the manufacturer's unbroken containers and shall bear the manufacturer's printed labels.
2. a. All bitumen delivered in cartons must have the following printed on the carton:

Manufacturer
Type (ASTM)
SP (Softening Point)
FP (Flash Point)
FBT (Finished Blowing Temperature)
EVT (Equiviscous Temperature)

- b. All bitumen delivered in tanker trucks shall be accompanied by the manufacturer's certification stating: manufacturer's name, type, softening point range, flash point, and compliance with ASTM Specifications.

1. Certification for Asphalt Bitumen shall also state the equiviscous temperature range and the finished blowing temperature range.

B. Storage and Handling:

1. Store materials a minimum of 6" off the ground, in a dry, well ventilated place protected from the weather. Enclosed trailers are recommended.

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2. Do not stock pile aggregate surfacing materials on unsurfaced felt which are in place on the roof.
3. Mark for identification all materials which become wet. Remove such materials for the site.
4. Handle roll goods with care; store on end. Do not use roll goods which have been damaged.

1.07 PROJECT CONDITIONS

A. Do not execute the Work of this section unless the Authority's Representative is present, or unless the Representative directs that the Work be performed during the Representative's absence.

B. Temperature

Do not apply built-up roofing when the deck or air temperature is below 40° F.

C. Do not execute the Work of this Section unless the substrate is dry, and free from debris and dust.

D. Moisture Protection

1. Cover, seal, and otherwise protect the roof and all flashings so that water cannot accumulate or flow under the completed portions. When and where required, provide temporary water cut-offs in accordance with the roofing manufacturer's written Specifications.

2. For existing roof: Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

1.08 GUARANTEE AND WARRANTY

A. Contractor's Guarantee

Two year written guarantee covering defects in materials and workmanship. Performance Bond shall be for the entire two year period.

B. Manufacturer's Warranty

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In addition to the Contractor's guarantee, furnish the membrane manufacturer's printed 10-year warranty for the Work of this Section. The warranty shall include but not be limited to, repair of leakage caused by defects in materials or workmanship. The monetary value of the warranty shall be at least equal to the original cost of the installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

A. Asphalt Primer and Asphalt:

1. GAF Building Materials Corp., South Bound Brook, NJ.
2. Manville Sales Corp., Denver, CO.
3. Tamko Asphalt Products, Joplin, MO.

B. Base Sheet:

1. GAF GAFGLAS #75.
2. Manville GlasBase.
3. Tamko Glass-Base.

C. Vent Base Sheet:

1. GAF GAFGLAS Stratavent.
2. GAF GAFGLAS Stratavent Perforated.
3. Manville Ventsulation.
4. Tamko Vapor-Chan.

D. Roofing Membrane, Vapor Barrier and Cover Strip:

1. GAF GAFGLAS Ply 6.
2. Manville GlasPly Premier.
3. Tamko TamGlas Premium.

E. Insulation:

1. Single Layer:

- a. GAF GAFTEMP Composite Board Insulation
- b. Manville Fesco Foam Isocyanurate.
- c. AC Foam II with 1/2" perlite on top, by Atlas Energy Products, Atlanta, GA.

2. Two Layer:

a. Base Layer

- 1. GAFTEMP Isotherm R by GAF.
- 2. Ultragard Gold Isocyanurate by Manville.
- 3. AC Foam II by Atlas Energy Products, Atlanta GA.

b. Top Layer:

- 1. 1/2" High density fiber board by GAF.
- 2. 1/2" Retro-fit Board by Manville.
- 3. 1/2" Perlite Board by Atlas.

F. Base Flashing:

1. Two base plies:

- a. GAF GAFGLAS Ply 6.
- b. Manville GLasPly Premier.
- c. Tamko TamGlass Premium.

2. One ply cap sheet:

- a. GAF RUBEROID MOP FR.
- b. Manville Dynaflex.

- c. Tamko Awaplan Premium.
- G. Mineral Surfaced Asphalt Membrane:
 - 1. GAF GAFGLAS mineral surfaced cap sheet.
 - 2. Manville GlasKap.
 - 3. Tamko Tam-cap.
- H. Emulsion and Aluminized Coating:
 - 1. GAF
 - 2. Manville
 - 3. Tamko
- I. Flashing Cement:
 - 1. Manville MBR two-part Flashing Cement or Type III Steep Asphalt (or equivalent by GAF or Tamko).
- J. Walkway Pads/Splash Pads/Protection Pads:
 - 1. Celotex Corp. "Carey-tred".
 - 2. W.R. Meadows Inc. "Sealtight Whitewalk".
 - 3. Termastic Construction Materials "Roof Walk".
- K. Elastomeric Cement:
 - 1. Tremco Manufacturing Co. "Poly roof".
 - 2. Durok Bldg. Materials "Durok Rubber Cement".
 - 3. Karnak Chemical Corp. "AR Elastomeric".
- L. Perlite Cant Strip:
 - 1. GAF
 - 2. Manville
 - 3. Atlas

2.02 MATERIALS FOR VAPOR BARRIER

- A. Repair of Existing Vapor Barrier:
1. For asphalt vapor barriers:
 - a. Primer: Asphalt primer; ASTM D41.
 - b. Steep Asphalt: ASTM D312, Type III.
 2. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
- B. Asphalt Vapor Barrier Over Concrete Deck or Existing Asphalt Vapor Barrier, and concrete fill/screed.
1. Primer: Asphalt primer, ASTM D41.
 2. Steep Asphalt: ASTM D 312, Type III.
 3. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, type VI. UL Classified.
- C. Asphalt Vapor Barrier Over Existing Coal Tar Vapor Barrier:
1. Steep Asphalt: ASTM D312, Type III.
 2. Asphalt Fiberglass Base Sheet: Glass fiber mat heavily coated with weathering grade asphalt, non-porous. UL Classified.

2.03 MATERIALS FOR BUILT-UP MEMBRANE

- A. Gravel Surfaced Asphalt Membrane:
1. Steep Asphalt: 190°, Type III. (Slopes 0" to 3" per Foot).
 2. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
 3. Crushed stone or gravel: Crushed stone or water-worn gravel, ASTM D 1863. Crushed stone or gravel shall be washed and well graded between 3/16" and

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5/8" such that all will pass a 3/4" screen and not more than 5% will pass 1/4" screen.

B. Smooth Surfaced Asphalt Membrane:

1. Steep Asphalt (Slopes 0" to 3" per Foot): 190°, Type III.
2. Special Steep Asphalt: 220°, Type IV, (Slopes 3" to 6" per Foot).
3. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
4. Asphalt Emulsion: Fibrated emulsion coating, ASTM D 1227, Type IV. UL Classified.
5. Aluminized Coating: Fibrated, bituminous aluminized coating, ASTM D 2824, Type III. UL Classified.

C. Mineral Surfaced Asphalt Membrane:

1. Steep Asphalt (Slopes 1/2" to 3" per Foot): 190°, Type III.
2. Special Steep Asphalt: 220°, Type IV (slopes 3" to 6" per Foot).
3. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
4. Mineral Surfaced Cap Sheet: Asphalt coated mineral surfaced fiberglass cap sheet, ASTM D3909. UL Classified.

2.04 COMPOSITION FLASHINGS

A. Built-Up Base Flashing:

1. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
2. Reinforced Modified Cap Sheet: Reinforced modified Bitumen flashing that incorporates the properties of both a strong fiberglass or polyester mat with an elastermeric base material

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consisting of modified bitumen material and fire retardant additives: ASTM D412; UL Classified.

3. Steep Asphalt: 190°, ASTM D312 Type III.
4. Modified Flashing Cement.

B. Coverstrips:

1. Asphalt Fiberglass Felt: Asphalt impregnated glass mat, ASTM D 2178, Type VI. UL Classified.
2. Plastic Cement: Flashing grade, fibrated asphalt roofing cement, ASTM D 4586. UL Classified.

2.05 INSULATION

A. The specified insulation thickness is nominal, allowing for differences in insulating properties of various name brands. Minor variation in thickness is acceptable, provided the specified thermal value and all other requirements of this Contract are met.

B. Approval of insulation is contingent upon approval by the membrane manufacturer for use with specified roof system.

1. Provide type of insulation as required by the Drawings, maximum of 3.3" thick and minimum aged R value = 20.0. as indicated on Drawings or specified herein.

2. Types

- a. Isocyanurate - FS-HH-I-1972

- b. Perlite - ASTM C 728

- c. Fiberboard - ASTM C 208

3. All insulation: Factory Mutual, Class 1 or U.L. Class A.

C. Rigid Insulation

1. Two Layers of Insulation:

Two layers of insulation consisting of base layer of isocyanurate insulation, and top layer of fiberboard or perlite insulation.

a. Base Layer Insulation: Closed cell isocyanurate foam core skinned on both sides with factory applied facers of the generic type recommended by the membrane manufacturer. FS HH-I-1972, Class 2. UL Classified.

1) For steel decks: Factory Mutual Class 1 approved for direct application on steel decks.

2) Aged R value determined in accordance with TIMA Technical Bulletin No. 281-1.

b. Top layer: 1/2" Perlite board insulation complying with Federal Specification HH1529b, ASTM C-728 and UL Classified.

2. Composite Insulation Board: Consists of a base layer of isocyanurate foam integrally bonded to a layer of perlite or wood fiberboard on one side and a nonasphaltic fiberglass mat on the other.

2.06 FASTENERS

A. Fasteners For Securing Built-Up Base Flashing:

1. Masonry Surfaces: Hardened, masonry nail or drive pin, thru one inch dia. sheet metal disk.

2.07 MISCELLANEOUS MATERIALS

A. Cant Strips (For built-up base Flashings)

Preformed fiberboard, ASTM C 208.

B. Tapered Edgestrips (around drains and at other areas where insulation must be feathered down)

Preformed fiberboard, ASTM C 208.

C. Materials For Pitch Pockets:

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1. Mortar: ASTM C 270, Type S.
2. Elastomeric Cement: Non-sag, cold applied, trowel grade, single component rubber elastomer. Minimum elongation 400 percent.

PART 3 - EXECUTION

3.01 VERIFICATIONS OF CONDITIONS

A. Testing Existing Roof Drains and Conductor Pipes

Before commencing with the Work, water test all existing drains and conductor pipes, submit a written report to the Authority's Representative, indicating which drains or conductors, if any, are not functioning properly.

1. If repairs or other corrective Work are required, the Authority may, at its option, initiate a change order for such Work.

3.02 REMOVALS

- A. Remove all existing roofing, including, but not limited to, felts, asphalt, coal tar, and vapor barrier, down to sound, clean screed coat.

3.03 EXAMINATION

- A. Verify that Work of other trades which penetrates the roof deck or requires personnel and equipment to traverse the roof deck has been completed.
- B. Examine surfaces for inadequate anchorage, foreign material, moisture, and unevenness which would prevent the execution, and quality of application, of the built-up roofing system as specified.
- C. Do not proceed with application of built-up roofing system until defects are corrected.

3.04 PREPARATION

- A. Repair of fill/screed as per Section 03300.

B. Repair of Existing Vapor Barrier:

1. Remove all deteriorated (loss, wet, blistered, torn) portions of the existing vapor barrier so that only sound, firmly bonded felts remain.
2. For asphalt vapor barriers, repair defective areas with 2 plies of asphalt fiberglass felt embedded in and coated with hot steep asphalt. Lap the felts a minimum of 6" beyond the defect.
3. For coal tar vapor barriers, repair defective areas with 2 plies of asphalt fiberglass felt embedded in and coated with hot steep asphalt. Lap the felts a minimum of 6" beyond the defect.

E. Moisture Testing for Roof Deck

1. All roof decks where new roofing is to be installed shall be thoroughly dried out and free of moisture before installing new membrane. There shall be two (2) test areas for every 2500 square feet of area to be roofed.

The Authority's Representative shall be present at these tests and shall submit a signed statement that the tests have been performed and list the test results for each area.

a. Roof Deck Dryness Test (NRCA Approved Method)

1. Use approximately one pint of bitumen that is specified for use in the roof membrane, heated to a temperature that will ensure an application temperature of 400° F. See Built-up Roofing, Section IV-B, (Equiviscous Temperature) NRCA roofing and waterproofing manual.
2. Pour the bitumen on the surface of the deck. If the bitumen foams, the deck is NOT dry enough to roof.
3. After the bitumen has cooled, an attempt should be made to strip the bitumen from the deck surface. If the bitumen strips

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clean from the deck, the deck is NOT dry enough to roof.

4. If the tests prove the deck is damp, it shall be allowed to dry and be retested until dry enough for the roofing to be installed.

F. Priming (for concrete decks)

Prior to application of vapor barrier, and after the deck has passed the dryness test, apply asphalt primer to concrete deck surface at the rate of one gallon per square.

G. Asphalt vapor barrier over existing asphalt vapor barrier:

Prior to application of vapor barrier, and after the deck has passed the dryness test, apply asphalt primer to existing vapor barrier at the rate of one gallon per square.

3.05 HEATING BITUMEN

A. Preparation:

1. Use separate kettles or tankers for heating different types of asphalt.
2. The heating process shall be strictly regulated by means of an automatic thermostatic control of an approved type for positive temperature control. Kettles or tankers shall be the immersion tube type, fire by Liquid LP gas, and shall have 100% safety shutoff.
3. Equip each kettle or tanker with a recording thermometer that will graphically indicate and record on a chart the maximum and minimum temperatures to which materials have been heated. Recording thermometers shall be capable of accurately recording temperatures as high as 600 degrees F. and as low as 0 degrees F. The thermometers shall be properly maintained at all times. Kettles or tankers without recording thermometers in good working condition shall not

be used. At the end of each working day, turn the chart from the thermometer on each kettle or tanker over to the Authority's Representative. If any bitumen is overheated, remove it from the site in the presence of the Authority's Representative.

If any underheated or overheated bitumen has been applied on the roof, remove that portion of the roof.

4. On multi-storied buildings, when directed, locate the heating kettles on the roof. Place kettle on a heavy sheet metal tray on dunnage. Metal tray shall extend 18" beyond the sides and ends of the kettle and be turned up 1" at all edges.
 - a. Only one gas cylinder shall be on the roof at any one time. Locate the cylinder at least four feet away from the kettle. Vertically brace the cylinder and shade it from the sun.
 - b. Provide fire extinguishers on the roof in the vicinity of the kettles as required to ensure the safety of the roof.

B. Heating Asphalt Bitumen:

1. Heat the bitumen in accordance with the Equiviscous Temperature information furnished by the bitumen manufacturer for that specific run of bitumen.
 - a. In no case shall be asphalt be heated to or above the actual COC Flash Point (ANSI/ASTM D-92); or the finished blowing temperature for more than 4 hours.
 - b. Maintain the temperature of the bitumen at the point of application within the Equiviscous Temperature Range. Use insulated pipes, buckets, luggers, and other insulated roofers equipment as required by the field conditions.

Contractor must have at least one hand held thermometer for each crew installing hot

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asphalt in order to ensure compliance with
EVT.

2. Application temperature: The accepted application temperature range for asphalt is the equiviscous temperature, (EVT) $\pm 25^{\circ}\text{F}$. All felt installation must occur in this range to be acceptable.

3.06 INSTALLING VENT BASE SHEET: (NON-NAILBLE DECK)

- A. Install one ply of vent base sheet. Vent sheets shall be butted.
- B. Using vent base sheet, start at the low edge of the roof. Install vent base sheet by spot mopping. The spot mopping shall be applied by machine at the rate of approximately 7 lbs. per square. The spots shall be approximately 12" in diameter and 24" o.c. Each row shall be staggered.
- C. Run vent base sheet up the perimeter or parapet walls to the height of the counter flashing, spot adhering as required. This will allow for proper perimeter venting detail.

3.07 INSTALLING VENT BASE SHEET (NAILBLE DECK)

- A. Install vent base sheet, starting at the low edge of the roof. Vent sheets shall be butted.
- B. Nail along the lap of the base ply at intervals not to exceed 9" and stagger-nail down 11" apart with nails spaced at approximately 18" o.c. stagger.

3.08 INSTALLING VAPOR BARRIER

- A. Installing Vapor Barrier Over Concrete Deck, Existing Vapor Barrier or Light Weight Fill/Screed:
 1. Install 2 plies of asphalt fiberglass felt shingle fashion. Lap plies 19" over each preceding ply.
 2. Embed each ply in a solid mopping of hot steep asphalt applied at the rate of 20 lbs per square. Broom in each ply for complete embedment.

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- B. Installing Asphalt Vapor Barrier Over Existing Coal Tar Vapor Barrier:
1. For repair of existing coal tar vapor barrier: Embed each ply in a solid mopping of hot steep asphalt applied at the rate of 30 lbs per square. Broom in each ply for complete embedment.
 2. Install one ply of asphalt fiberglass base sheet. Lap plies 2" over each preceding ply.
 3. Embed the base sheet in a solid mopping of hot steep asphalt applied at the rate of 30 lbs per square. Broom in the base sheet for complete embedment.
- C. Extend the vapor barrier beyond all edges and openings of the roof so that it can be turned up over the insulation a minimum of 6".
1. If vapor barrier is punctured, repair immediately with fiberglass felt embedded in hot bitumen.
 2. Install the insulation and roofing membrane immediately (same day) as the vapor barrier is installed. Where not possible, protect the vapor barrier with a glaze coat of hot bitumen applied at the rate of 15 lbs per square.

3.09 INSTALLING INSULATION

- A. Installing Single Layer Insulation: Install the insulation with the long joints running in a continuous straight line perpendicular to the direction of the roof membrane. Stagger end joints. Butt edges and ends snugly. "Occasional" joint widths up to 1/8" will be allowed.
1. Set the insulation in a full hot mopping of Type III steep asphalt applied at the rate of 30 lbs per square. Press the insulation into the bitumen to a firm and uniform bearing.
- B. Installing Double Layer Insulation: Install the insulation in 2 separate layers with the long joints of each layer running in the same direction in a continuous straight line perpendicular to the

direction of the roof membrane. Stagger end joints. Install the top layer of insulation with joints staggered from the joints of the base layer.

1. Set each layer of insulation in a full hot mopping of Type III steep asphalt applied at the rate of 30 lbs per square. Press the insulation into the bitumen to a firm and uniform bearing.
- C. Keep insulation absolutely dry at all times. Discard insulation that contains moisture.
1. Install only as much insulation as can be covered with roofing membrane the same day.
 2. Discard all units with broken corners or similar defects.
 3. At roof drains, terminate the insulation with tapered edge strips so that all flashing and coverstrip joint laps can be made within the tapered portion.
 4. Set all cant strips in a solid application of hot bitumen so they are firmly anchored to the deck and the vertical surface.
- E. Installation of insulation shall be in strict compliance with the Manufacturer's recommendations.

3.10 INSTALLING BUILT-UP ROOF

- A. Before application of roof membrane, turn vapor barrier over insulation at all edges and openings and embed in a full hot application of bitumen. At round openings, seal the edges of the insulation with a trowel coat of plastic roof cement.
- B. Installing Built-Up Roof Membrane:
2. For asphalt built-up roofs, install built-up roof membrane consisting of 4 plies of asphalt fiberglass felt. Embed each ply in solid mopping of hot asphalt applied at the rate of 25 lbs per square.

3. For mineral surfaced built-up roofs, install built-up roof membrane consisting of 3 plies of asphalt fiberglass felt and one ply of mineral surface cap sheet. Embed each ply in solid moppings of hot asphalt applied at the rate of 25 lbs per square.

C. Requirements For Back Nailing Felts (if slopes 1/2" per foot and greater):

1. Back Nailing: On roof slopes 1/2" per foot or more, back nailing of the felts may be required by the roofing membrane manufacturer.

- a. Back nail the felts when required by the manufacturer.

- b. Back nail the felts in strict accordance with the manufacturer's Specification for nailing pattern, and nail spacing.

2. For Insulated Decks:

Wood Nailers: Nominal 4" wide wood nailers, the same thickness as the insulation, are required on all slopes requiring back nailing.

- a. Install the wood nailers at and parallel to, ridges, hips, and eaves. Between ridges and eaves, install nailers perpendicular or parallel to the roof slope, as required by the manufacturer.

- b. Space the nailers in strict accordance with the manufacturer's Specifications.

D. Laying Felt:

1. Start laying felts, using split sheets as necessary to secure the required number of plies and laps. Provide 10" minimum end laps. Roll all roofing felt not more than 5'-0" behind the mop as it spreads the bitumen, brooming and pressing the felts into the bitumen from the center outward to the edges so as to ensure thorough sticking and a smooth, firm surface, free of blisters, wrinkles, or buckles.

2. Use three persons for the application of roofing felt as follows; one person to spread bitumen in front of the roll, one person to roll out the felt and one person to smooth out the felt with a stiff street broom or squeegee. The roofing may be installed with an approved applicating machine and broomed or squeegeed smooth producing an equivalent result. In no case shall the felt be rolled out dry and then laid in the bitumen.
3. Direction of Felt Run (on Slopes of 1/2" per foot and greater):
 - a. For all Decks except Uninsulated Wood Decks: If back nailing is required by the membrane manufacturer, install the felts perpendicular to the wood nailers.
 - b. For Insulated Wood Decks: If back nailing is required by the membrane manufacturer, install the felts perpendicular or parallel to the roof slopes, as required by the manufacturer.
4. Where gravel stops are required, install felt pitch dam as follows: At the parallel edge to the felt runs, extend the bottom felt 4" beyond the roof edge. Across the end of the felt runs, install a 12" wide continuous starter strip, extended 4" past the roof edge. After all ply felts are installed and edge trimmed, fold the 4" extension back over the roof surface. Adhere with hot bitumen and broom smooth, leaving the exposed top surface dry.
5. Where built-up flashings are required, extend the mopped roofing felts 2" beyond the top edge of the cant.
6. Where sheet metal base flashings are required, turn up mopped roofing felts a minimum of 4" on all vertical surfaces or apply additional felt plies.
7. Where cant type gravel stops (fascia) are required, carry all membrane plies past the edge

of the water dam member and cut off flush with the face of the cant.

8. For Partial Roof Replacement: Connection to Existing Membrane: Spud off the existing gravel a min. of 2'-6" down to bare felt surfaces. Lap the first ply of the roofing membrane over the existing adjacent membrane a minimum of 6". Lap all other plies over the preceding a minimum of 6".
9. Any protection ply or temporary ply shall not be deemed a part of the 4-ply system.

E. Phasing of Roofing Membrane Installation:

1. Phasing of ply felt application will not be allowed in any case.
2. Where necessitated by job conditions and with approval of the Authority's Representative, a protective glaze coating may be applied as follows:
 - a. Apply protective glaze coatings in addition to all other coatings or moppings specified in this Section. Reduction or omission of specified prime coats, mopped bitumen, flood coats or finish coats in lieu of glaze coatings is not permitted.
 - b. Gravel Surfaced Roofs: If aggregate is not applied the same day, apply glaze coating of hot bitumen at the rate of 15 lbs per square to the completed membrane.
 - c. Smooth Surface Roofs: If permitted under the manufacturer's Specifications, apply glaze coating of hot bitumen at the rate of 15 lbs per square, unless asphalt emulsion is applied the same day.
3. All exposed felts, regardless of type, must be protected with specified surfacing or glaze coating by the end of each working day.

4. Continue the installation of roofing materials on the following work day (weather permitting). Glaze coated surfaces must be clean and dry to ensure complete bonding of felts or coatings.

F. Temporary Flashings

Provide a temporary waterproof seal at all membrane edges, penetrations, drains, etc. Unless complete flashings are installed immediately (same working day) following the membrane application.

G. Installing Built-Up Flashings:

1. Apply asphalt primer to all vertical surfaces before application of built-up flashings.
2. Install built-up flashing consisting of 2 plies of asphalt fiberglass felt, topped with one ply of modified bitumen flashing membrane.
3. Cut all felts into strips not longer than 12 feet. Provide 3" minimum end laps. Stagger all end laps. Cut modified bitumen flashing membrane the width of the roll.
4. Install all plies in hot steep asphalt or if desired install felt in plastic cement, and modified flashing in MBR adhesive.
5. Fasten the top edge of the built-up flashings 8" oc.
6. Seal top edge of flashing with a trowel coat of plastic cement and fabric. If roof system is vented do not seal the top edge.

H. Installing Metal Flashings and Coverstrips:

1. Asphalt Roofs: Plastic Asphalt Cement.
2. Prime metal surfaces and embed portions of all metal flashing which extend over the roof surface in plastic cement.
3. Completely cover all portions of metal flashings which extend over the roof surface with two

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asphalt fiberglass felt coverstrips, each set in plastic cement. Provide strips that are at least 8" and 12" wide respectively. In all cases, carry the strips past the edge of the metal flange and beyond the edge of the preceding felt 4" min. Seal junction of metal and coverstrip with plastic cement.

Coat and surface the top ply to match the adjacent roofing membrane.

4. At roof drains, install cover strips within the slope to the drain so that they do not impede the flow of water from the roof.
5. For Gravel Surfaced Roofs: At cant type gravel stops coat the top ply of the built-up roofing membrane that extends up the cant with aluminized coating applied at the rate of 1-1/2 gal per square.

I. Filling Pitch Pockets:

Fill bottom half of pitch pocket with cement mortar. Fill remaining half of pitch pocket with elastomeric cement. Slope surface to shed water.

J. Applying Flood Coat and Aggregate Surfacing (For Gravel Roofs):

1. Embed the surfacing aggregate in a poured flood coating of hot bitumen.
 - a. Apply asphalt at the rate of 65 lbs per square.
2. Apply gravel or crushed stone at the rate of 600 lbs. per square or as required to completely cover all asphalt, whichever quantity is greater.

3.11 FLOOD TESTING

- A. After completion of roofing work specified above, all drains shall be plugged and all roofs of above locations of Work shall be flooded with a minimum of 1" of water above the high points. Water shall remain for a minimum of 24 hours. If leaks occur, Contractor

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shall do all necessary work to correct them and flood testing shall be repeated until no leaks occur.

3.12 FIELD QUALITY CONTROL

A. Field Samples

Draw a quart sample from each load of bitumen arriving at the job site in the presence of the Authority's Representative, who will take it for laboratory analysis.

B. Test Strip (if requested by the Authority)

1. When and where directed by the Authority's Representative, and before surfacing is applied to the completed membrane, cut a strip 3" wide by 40" long thru all plies of the built-up roofing. Number of such test strips may be as required by the Representative. After removal of the strip, immediately repair the area by applying the same number of plies of the same kind of felt and bitumen to fill the hole level. Repeat the same number of plies of the same kind of felt and bitumen over the filled strip with the first ply lapping each edge 12" and each succeeding ply lapping the preceding ply by at least 3" on all edges. Apply surfacing material to match the adjoining roof. Turn the test strips over to the Authority's Representative for examination.
2. If the test strips indicate the roofing system complies with the Specifications, the Authority will bear the cost of the test strip Work.
3. If the strips indicate the roofing system does not comply with the Specifications, the Contractor shall bear the cost of the test strip Work, and shall repair or replace all roofing Work as required to comply with the Specifications, at the Contractor's expense.

C. Non Compliance

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1. Failure of the bitumen samples or the test strip samples to meet the Specification requirements will be cause for rejection of the Work.

3.13 INSPECTION

- A. After all roofing system Work is completed, an inspection shall be made by the roofing system manufacturer's representative. The representative shall certify that roofing system has been installed according to the Specifications.

3.14 CLEANING

- A. Remove bitumen from surfaces other than those requiring bituminous coatings.
- B. Remove all debris from roof area.

END OF SECTION

SECTION 07550

HOT POLYMERIC FLUID APPLIED WATERPROOFING [ITEM 1]

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all hot polymeric fluid applied waterproofing roofing work including metal flashing, roof drain inserts, insulation and ballast as indicated on the Contract Drawings and as specified in this Section.

1.02 RELATED SECTIONS

- A. Rough Carpentry Section 06100
- B. Flashing and Sheet Metal Section 07600
- B. Joint Sealers Section 07900
- C. Flashing and Equipment Curbs at Roof . . . Division 15

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM).
- B. Underwriters Laboratories, Inc. (UL).

1.04 SUBMITTALS

- A. Submittals Package

Submit the Shop Drawings, Product Data, Samples, and Quality Control Submittals specified below at the same time as a package.
- B. Shop Drawings
 - 1. When there is a proposed deviation from the Contract Documents, submit the revised detail labeled as such for approval. The revised detail shall show existing conditions and shall be referenced directly to the related details on the Contract Drawings.
 - 2. Submit an accurate layout of the insulation showing the slopes to the drains and tapered sections if any.

C. Product Data

Catalog sheets, Specifications and installation instructions for each material specified.

1. Revise the membrane manufacturer's product data as necessary to suit the requirements of the Contract Documents. Manufacturer's details are not to be used for the Work of this Contract.
2. Manufacturer's Warranty: Sample copy of the membrane manufacturer's 15 year warranty covering workmanship and materials.

D. Samples

1. Membrane: Two 6" sq. Pieces.
2. Flashing Sheet: Two 6" sq. Pieces.
3. Protection Board: Two 6" sq. Pieces.
4. Fasteners: Six, each type.
5. Insulation: Two 6" sq. Pieces.
6. Stone Ballast: Five pounds.
7. Filter Fabric: Two 6" sq. Pieces.

F. Quality Control Submittals

1. Fire Hazard Certification: Written certification that the roof system, including the specific insulation, has been tested in conjunction with the type of structural roof deck and roof slope applicable to the project and has achieved an Underwriters Laboratories Class A external fire resistance rating.
 - a. Acceptable Certification: Letter from Underwriters Laboratories, or a copy of the Underwriters Laboratories classification listing for the roofing system.
2. Material Certification: Letter from the roofing membrane manufacturer certifying that the insulation is approved for use with the roofing system.
3. Membrane Manufacturers Certifications:
 - a. Submit a letter certifying that the manufacturer has been actively producing and marketing the submitted system within the United States for a minimum of ten years.

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- b. Submit the names and addresses of ten previous roofing projects. Include the type and size of each project and name and telephone number of a contact person at the project location.
4. Applicator's Certification:
 - a. Letter from the membrane manufacturer certifying that the applicator is licensed or approved to install the roof system.
 - b. Names, address, and telephone numbers of five buildings where the applicator has installed hot polymeric fluid applied waterproof roofing systems which have the manufacturer's warranty issued. Include the types of hot polymeric fluid applied waterproof roofing systems installed, the manufacturer's name, and the warranty numbers.
 - c. Letter certifying that the job foreman or crew chief and at least one other member of the roofing crew have installed at least five hot polymeric fluid applied waterproof roofing systems and are thoroughly familiar with all aspects of the installation.
- G. Contract Closeout Submittals:
- Guaranty and Warranty: As specified.

1.05 QUALITY ASSURANCE

- A. Membrane Manufacturer's Qualifications:
1. The manufacturer shall have the technical expertise and qualified technical representatives to quickly resolve questions or problems which may arise both during and after the Work is completed.
 2. The manufacturer shall have been actively marketing hot polymeric fluid applied waterproof roofing systems in the United States for a minimum of ten years.
 3. The manufacturer shall provide the names, addresses, and telephone numbers of at least ten previous projects of comparable size, scope, and complexity as the Work of this Section.

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4. The manufacturer must require that the roof system be installed by a licensed or approved applicator.

B. Roofing Installation Qualifications

1. Roofing Firm Qualifications

- a. Installation of a minimum of ten hot polymeric fluid applied waterproof roofing systems of double membranes including all related flashing work (List last five such jobs, including address, type of system and number of membranes, square footage, date installed and owner/agent with whom contracted).
- b. In continuous operation of installing such roofing systems for eight years or more.
- c. Certified installer for nationally recognized roofing materials manufacturer.

2. Protect Foreman Qualifications

(Note: For field foreman to be assigned to this project, identify and substantiate)

- a. Installation of a minimum of five hot polymeric fluid applied waterproof roofing systems of double membranes for which this individual served as field foreman in direct responsible charge of all roofing work crews.

(Note: List last five such jobs, including address, type of system and number of membranes, square footage, date installed and owner/agent with whom contracted, and name of roofing firm with which employed)

- b. Successful completion of a formal instructional and training program for the installation of the specified roofing systems, as evidenced by:

1. A certificate of journeyman roofer as issued under a union apprenticeship-journeyman training program duly registered with the New York State Department of Labor (or other State Labor Department); or

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2. A certificate or diploma issued by a vocational training school or national roofing manufacturer attesting to successful completion of an equivalent formal training program (submit copy of certificate for above); or
3. A minimum of five years of practical experience in the installation of all aspects and details of the specified roofing system including related flashing work as determined from a pre-qualification interview conducted by the MMMHS Representative and roofing manufacturer's representative.

c. Must be able to read and communicate in English and be able to read construction drawings and specifications.

C. Fire Department Regulations

Equipment and fuel shall meet the requirements of the New York City Fire Department.

D. Fire Hazard Classification

The hot polymeric fluid applied waterproof roof system shall have an Underwriters Laboratories Class A External Fire Resistance rating; as determined by tests conducted in conformity with UL-790 (ASTM E 108).

1. The roof system, which includes a specific generic type of insulation and in some instances a specific name brand insulation, shall have been tested in conjunction with the type of structural roof deck and roof slope applicable to the project.

E. Pre-Installation Conference

Before the roofing Work is scheduled to commence, a conference will be called by the MMMHS Representative at the site for the purpose of reviewing the Contract Drawings and Specifications and discussing requirements for the Work. The conference shall be attended by the Contractor, the authorized roofing applicator, and the Company Field Advisor.

- F. Secure the services of a Company Field Advisor of the membrane manufacturer for a minimum of 32 working hours. The Field Advisor shall be certified in writing by the

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manufacturer to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify. The Field Advisor shall be present at the beginning of and during the actual membrane installation for the purpose of:

1. Rendering technical assistance to the Contractor regarding installation procedures of the system.
2. Familiarizing the MMMHS Representative with all aspects of the system including inspection techniques.
3. Answering all questions which might arise and resolving problem areas of work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Roofing materials shall be delivered to the site in the manufacturer's unbroken containers and shall bear the manufacturer's printed labels.
2. All polymeric waterproofing delivered in containers shall be accompanied by the manufacturer's certification stating: manufacturer's name, type, softening point range, flash point, and compliance with ASTM Specifications.
 - a. Certification for polymeric waterproofing shall also state the equiviscous temperature range and the finished blowing temperature range.

B. Storage and Handling:

1. Store materials a minimum of 6" off the ground, in a dry, well ventilated place protected from the weather. Enclosed trailers shall be required.
2. Do not stock pile aggregate surfacing materials on unsurfaced felt which are in place on the roof.
3. Mark for identification all materials which become wet. Remove such materials for the site.

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4. Handle roll goods with care; store on end. Do not use roll goods which have been damaged.

1.07 PROJECT CONDITIONS

A. Do not begin the Work of this Section unless the MMMHS Representative is present.

B. Temperature

Do not apply hot polymeric fluid applied waterproof roofing when the deck or air temperature is below manufacturer's recommended temperature.

C. Do not execute the Work of this Section unless the substrate is dry, and free from debris and dust.

D. Moisture Protection

1. Cover, seal, and otherwise protect the roof and all flashings so that water cannot accumulate or flow under the completed portions. When and where required, provide temporary water cut-offs in accordance with the roofing manufacturer's written Specifications.

2. The existing main roof, the bulkhead roofs, and parapet wall membranes and insulation/protection boards shall be removed down to the concrete slabs and masonry walls by an asbestos removal contractor under a separate contract. The Contractor shall be responsible for directing and coordinating the removal work of the asbestos removal contractor in regard to when, where and how much existing roofing shall be removed in any one day. The Contractor shall not allow the asbestos removal contractor to remove any more of the existing roof membrane than the Contractor can replace or protect from the weather in one day. The Contractor shall be responsible for all temporary water cut-offs, tarps, weather coverings, etc. and be held liable for any water damage to the existing school building due to the roofing removal and reroofing work.

1.08 GUARANTEE AND WARRANTY

A. Contractor's Guarantee

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Two year written guarantee covering defects in materials and workmanship. A Performance Bond shall be issued for the entire two year period.

B. Manufacturer's Warranty

In addition to the Contractor's guarantee, furnish the membrane manufacturer's printed 15-year warranty for the Work of this Section. The warranty shall be for the entire roof system including but not limit to the membrane, metal and fabric flashing, sealants, wood blocking, roof drain inserts, polystyrene insulation, filter fabric, and ballast and shall include but not be limited to repair of leakage caused by defects in materials or workmanship, and shall include the removal and reinstallation of ballast, filter fabric, insulation boards and protection boards. The monetary value of the warranty shall be at least equal to the original cost of the installation.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Hot polymeric fluid applied waterproofing - double membrane system:

1. Barrett Company, Millington NJ 07946 or comparable system (meeting all requirements of this Section) manufactured by:
2. American Hydro Tech, Chicago IL.
3. Tremco, Cleveland, OH.

B. Insulation

1. Insulation manufacturer that is acceptable to the membrane manufacturer.

2.02 MATERIAL FOR ROOF MEMBRANE

A. Waterproofing Reinforcing Membrane:

1. Ply Sheet: Poly FELT 125VP spunbond polyester with high temp resin binder meeting the following minimum specifications:

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Color		Grey
Weight, oz/yd	ASTM-D-3776	1.5 oz/sq yd
Thickness	ASTM-D-1777	9.5 mils
Grab Tensile	ASTM-D-4830	32 lbs. CMD, MD
Elongation	ASTM-D-4830	37 lbs. CMD, MD
Tear Strength	ASTM-D-4830	12 lbs. CMD, MD
Fatigue Life	ASTM-D-8B	>10,000 cycles

2. Hot Polymeric Waterproofing: RAM TOUGH 250 DM system complying with the following minimum specifications:

Color	Vis. Specif.	
Softening Point	ASTM-D-36	
Solids Content	CGSB-37-GP-50	100%
Ration of toughness to peak load	CGSB-37-GP-50	Min 0.040
Temperature crack bridg'g capability	CGSB-37-GP-50	No cracking No adhesion loss No splitting
Toughness, J	CGSB-37-GP-50	Min 5.5
Penetration	CGSB-37-GP-50	Max 110 @ 25C (77 F) Max 200 @ 50C (122 F)
Flow, mm	CGSB-37-GP-50	Max 3 @ 60 C (140 F)
Flash Point	CGSB-37-GP-50	Min 260 C (500 F)
Water resistance	CGSB-37-GP-50	No delamination No blistering No emulsification No deterioration No pinholes
0 C for 4 days		
Adhesion	CGSB-37-GP-50	Min 1
Viscosity	CGSB-37-GP-50	Min 2, Max 15
Water vapor permeability	CGSB-37-GP-50	Max 1.7
Water absorption	CGSB-37-GP-50	Min 0.18
Low temperature flexibility and adhesion	CGSB-37-GP-50	No cracking No delamination No adhesion loss
Heat stability	CGSB-37-GP-50	Aged samples no change in viscosity, Penetration, flow or low temp flexibility

3. Neoprene Flashing Sheet: RAM FLASH 327 HDR complying with the following minimum specifications:

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Installed Widths: Minimum 6 inches total, minimum 4 1/2 inches in any single direction, minimum 12 inches on each side of expansion joints.

Length: Longest possible length to minimize field joints

Thickness: 60 mils +/- .02 mil

Press Cure: 120 min @ 340 F

Tensile strength, ASTM-D-412-80 1800 PSI min

Elongation: ASTM-D-412-80 300% min

Tear: ASTM-D-624-81 Die C 20 PLI min

Tensile strength, min 70 hrs @ 212 F: ASTM-D-573-81 1500 PSI

Elongation min 70 hrs @ 212 F: ASTM-D-573-81 200%

Ozone resistance (168 hrs/100 ppm 104 F 20% EXT) ASTM-D-1149 No cracks @ 7X magnification

Water absorption 168 hrs @ 158 F ASTM-D-471 + 15.0% max

Brittleness @ 30 F ASTM-D-2137 Pass 180 bend, no cracks

Pipe, stack and all premoulded corner base flashings: Neoprene, closed boot and/or premoulded, supplied by membrane manufacturer, and installed in accordance with published flashing details. Neoprene sheet is not acceptable in corners or at pipe and stack flashing.

4. ELASTOMERIC FLASHING SHEET: RAM FLASH M-358 shall comply with the following minimum specifications:

Weight: ASTM-D-751 0.29 lbs., sf

Breaking Strength ASTM-D-751 225 lbf

Tear Strength ASTM-D-751 90 blf

Lo Temp Bend, 1/8" mandrel ASTM-D-2136 Pass -40 degrees

Shore A Hardness ASTM-D-2240 80 +/- 5

Hydrostatic Resistance ASTM-D-751, A 300 PSI

Dimensional Stability ASTM-D-1204 0.1% +/-

24 hrs. @ 130 deg., no change

Puncture FTMS 101C 215 lbs. min.

Resistance (method 2031)

Elongation ASTM-D-412 300%

Vapor Transmission ASTM-D-96 0.049 perms (Procedure B)

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5. WATERPROOF MEMBRANE FOR VERTICAL SURFACES: Ram 400PS, 40 Mil SBS Poly Reinforced Double Sided Peel and Stick Membrane.
6. SURFACE CONDITIONER: shall be Ram Tough surface conditioner/primer conforming to ASTM-D-41-70.
7. MASTIC: shall be Ram Mastic - SBS Rubber Modified Cold Applied Mastic for patching, stripping and flashing where Hot Applied Ram Tough 250 cannot be used.
8. PROTECTION COURSE: shall be "Course 203" asphaltic Ram Tough Protection Board.
9. Sealant: shall be Ram Hypalon sealant.
10. NAILS: as specified by the fastener manufacturer and approved for use for the specific application by the membrane manufacturer.

2.03 MATERIALS FOR INSULATION

- A. Roof insulation shall provide a thermal resistance "R" factor of 5.0 per inch of thickness.
 1. Roof insulation shall be Extruded Polystyrene insulation, 2ft. Width, 4ft. Length with rain channels and a minimum 60 PSI impact resistance.
 2. Filter Fabric shall be a non-woven polymeric fabric as approved by the manufacturer for application of this system, Phillips Ribers Corporation "Rufon*" non-woven polypropylene fabric, or approved equal.
 3. Stone Ballast for roof application shall be clean large white spar meeting ASTM specification #5, minimum of 5 lbs/sq ft for each inch of insulation thickness.

2.04 MATERIALS FOR ROOF DRAINS

- A. Retrofit all existing roof drains on the main roof of the school building with roof drain inserts designed for reroofing projects.
 1. Proliner Drain for reroofing projects as manufactured by Marathon Roofing Products Inc. or manufacturer acceptable to the membrane

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manufacturer. Use type and style of drains suitable to roof system being used and of a size required by each existing roof drain.

PART 3 - EXECUTION

3.01 EXISTING ROOF REMOVAL

- A. As previously discussed in paragraph 1.07, D.2. of this Section, an asbestos removal contractor under separate contract shall be removing all existing roofing down to the concrete roof slabs and down to the masonry of the parapet walls. The following work shall be performed by the Contractor for all areas of roofing after the existing roofing is removed by the asbestos removal contractor:

3.02 EXAMINATION

- A. Verify that Work of other trades which penetrates the roof deck or requires personnel and equipment to traverse the roof deck has been completed or coordinated with the schedule of the roof Work.
- B. Examine surfaces for inadequate anchorage, foreign material, moisture, and unevenness which would prevent the execution, and quality of application, of the hot polymeric fluid applied waterproof roof system as specified.
- C. Do not proceed with application of membrane roofing system until defects are corrected.

3.03 VERIFICATION OF CONDITIONS

- A. Testing Existing Roof Drains and Conductor Pipes

Before commencing with the Work, water test all existing drains and conductor pipes, submit a written report to the MMMHS Representative, indicating which drains or conductors, if any, are not functioning properly.

- 1. If repairs or other corrective Work are required, the MMMHS Representative may, at his option, initiate a change order for such Work.

3.04 PREPARATION

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- A. Remove trash, debris, grease, oil, water, spalled surfaces, moisture and other contaminants from the deck and parapet walls which may affect bond of bitumen to the concrete and masonry surfaces.
- B. Remove all existing lighting supports and conduits below existing coping of parapet walls prior to roof installation and reinstall with compressible gaskets and sealant over waterproof flashing once roof installation is complete.
- C. Remove existing antenna mast from support brackets prior to roof installation and reset on precast concrete paver block resting on filter fabric and insulation. Resecure mast to support brackets as required.
- D. Prepare other surfaces according to respective manufacturer's published instructions.
- E. Provide cleaning materials and methods necessary to render an acceptable surface, including scarifiers for scarifying all surfaces, oil free filtered compressed air or high speed power blowers.
- F. Provide compatible materials to patch all voids, spalled surfaces and joints so finished deck and parapet wall surfaces will be reasonably smooth.
- G. Protect adjacent areas from damage with tarpaulin or other durable materials.
- H. Protect Poly-Felt reinforcement from moisture and the elements prior to installation. No protection from weather is necessary for Ram Tough 250, but temporary protection to installed membrane is required to prevent damage to membrane by mechanical gouging, scraping, spilling of oil or solvents or excessive heat.

3.05 INSTALLATION

- A. **SURFACE CONDITIONER:** Each day, prior to application of membrane, apply surface conditioner as a fine spray, evenly, at a rate of approximately one gallon per 400-600 square feet. Allow to dry completely tack free. Do not allow primed surface to be contaminated with construction debris or dust.
- B. **APPLICATION:** Units of membrane shall be melted in an approved double-jacket oil bath melter under continuous agitation until the material can be drawn free-flowing

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and lump-free at a temperature of approximately 350 F. Membrane shall be applied evenly at a rate to provide a continuous coating not less than 90 mils thick. As soon as possible, while membrane is still warm, install Poly-Felt fabric, in built-up roofing fashion, starting at the drains and low points. Install in shingle fashion with four inch side laps and twelve inch head laps. Insure that all lap joints have interply coat of Ram Tough 250. In no location shall Poly-Felt reinforcement touch Poly-Felt reinforcement. Broom or squeegee in place, insuring complete adhesion. Carry up all vertical wall surfaces as indicated on the Contract Drawings.

- C. Install second application of Ram Tough 250 evenly at a rate to provide a continuous coating not less than 125 mils thick (1/8 inch). All Poly-Felt reinforcement shall be coated each day. Leave no exposed Poly-Felt at end of day's work.

3.06 ROOF DRAIN INSERTS

- A. After roof slab preparation and water testing of existing roof drains as described in 3.03, A.1. of this Section and prior to membrane installation, remove existing roof drain grating and discard, clean drain body and interior portion of leader and subsequent to membrane application install roof drain inserts as indicated in the manufacturer's printed instruction and acceptable to the membrane manufacture.

3.07 FLASHING

- A. Carry hot applied roof membrane and reinforcement up all junctions of horizontal deck and vertical surfaces and changes of plane as indicated on the Contract Drawings. For parapets, curbs, penetrations, drains, roof edges, etc. install Ram-Flash 327 HDR 60 mil neoprene flashing with Flexible Ram Membrane, or in the case of parapet walls Ram-Flash M-358, as shown on the Contract Drawings, extending to the top of flashing and mechanically fastened with 1/8 inch flat bar stock termination bar.

3.08 CRACK TREATMENT

- A. At all cracks and construction joints, apply Flexible RAM Membrane 1/8 inch thick, then center a 6 inch wide strip of Ram-Flash 327 HDR neoprene flashing over the joint or crack and embed into the warm Flexible Membrane. Avoid air pockets. Allow assembly to cool. Flashing should be

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installed before the continuous, unbroken thick film of membrane is applied over the entire roof surface and flashing areas in accordance with 3.05 of this Section.

3.09 EXPANSION JOINTS

- A. Over expansion joints up to 2 inches in width with a designed total movement of 50% or less, Ram Tough 327 HDR neoprene flashing shall be placed over the joint and embedded into a coating of membrane (min 1/8 inch thickness). The sheet shall be looped into the joint 1½ times the joint width at the maximum opening width and extend at least 12 inches onto the deck on each side of the joint. The sheet shall be covered and the loop filled solid and flush with Ram 250 Membrane.

3.10 WATER TEST

- A. Each contiguous area shall be water tested with two inches of standing water for a 24 hour period. Provisions for overflow in event of rain shall be provided. Any area not passing water test shall be repaired and retested until watertight.

3.11 PROTECTION BOARD

- A. After water test is completed, using Ram 250 as adhesive, apply protection boards, lapping the joints slightly to insure complete coverage.

3.12 INSULATION APPLICATION

- A. Lay insulation panels abutted tight with direction of rain channels toward drains as shown on the shop drawings. No more than 1/4 inch space shall exist between any panel. Cover installed insulation as soon as practical with final layer of filter fabric covering and ballast in weights specified to protect insulation from exposure to ultraviolet rays and wind movement.

3.13 FIELD QUALITY CONTROL

- A. Adhesion Test and Thickness Tests shall be monitored by applicator every hour throughout the application process.
- B. Test Cuts:
 - 1. Remove one 12" x 12" unsurfaced cut per 100 squares of deck area.

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2. Follow field audit criteria outlined by Barrett.
 3. Send roof cuts to Barrett Company for laboratory examinations.
 4. Repair sampled areas by filling in the cut-out areas.
- C. Correct deficiencies in deck (determined by deck cut analysis and) as prescribed by Barrett or the MMMHS Representative.

3.14 CLEANING

- A. Remove trash, debris, equipment and parts from jobsite.
- B. Repair damage and remove stains caused by construction work.

3.15 PROTECTION

- A. Contractor shall protect finished deck areas from damage during the entire construction period.

3.16 INSPECTION

- A. After all roofing system work is completed, an inspection shall be made by the roofing system manufacturer's representative. The representative shall certify in writing that the roofing system has been installed according to the Contract Documents.

END OF SECTION

SECTION 07600
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all flashing, trim and sheet metal Work as indicated on the Drawings, as required for the completed Work, and as specified herein. The Work shall include, but shall not be limited to, the following:
 - 1. Roof membrane flashings
 - 2. Shop-formed facias at roof bulkheads
 - 3. Cladding of portions of existing roof bulkheads walls

1.02 RELATED SECTIONS

- A. Rough Carpentry Section 06100
- B. Hot Polymeric Fluid Applied Waterproofing...Section 07510
- C. Joint SealersSection 07900

1.03 REFERENCES

- A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- B. Copper Development Association (CDA).
- C. American Society for Testing and Materials (ASTM).
- D. Federal Specifications (FS).

1.04 SUBMITTALS

- A. Shop Drawings

Show the manner of forming, jointing, and securing the metal flashings and trim. Include expansion joint connections, and the method of forming waterproof connections to adjoining construction.
- B. Product Data

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Catalog sheets, specifications, installation instructions for each item specified except for shop or job formed items, solder, flux, and bituminous coating.

C. Samples

1. Materials for Flashings: Three 6" sq piece, for each type material specified.
2. Anchors: Three, each type required.
3. Flashings: Three, full section each profile, 6" long.
4. Facia: Three, full section, 6" long.

D. Guarantee

1.05 QUALITY ASSURANCE

A. Except as otherwise shown or specified, comply with applicable recommendations, details, and standards of CDA and SMACNA.

B. All metal Work shall ink-stamped at intervals, identifying

Manufacturer, type metal, and gage or thickness.

C. Manufacturer's Recommendations

For factory fabricated items, follow the manufacturer's recommendations and installation instructions unless specifically shown or specified otherwise.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products of this Section in such manner to protect them from damage.

1.07 PROJECT CONDITIONS

A. Do not execute the Work of this Section unless the MMMHS Representative is present, unless otherwise directed.

B. Make the roof and all uncompleted flashings watertight at the end of each work day.

1.08 GUARANTEE

- A. The Contractor shall provide a three (3) year written guarantee, covering the cladding of the existing roof bulkheads for materials and workmanship. Should any defects occur during the stated period, they shall be corrected immediately, and all damage caused by such defects shall be corrected; all corrective Work shall be at the Contractor's expense.
- B. Roof membrane flashing and fascia shall be covered under the Guarantee and Warranty required by Section 07550 - Hot Polymeric Fluid Applied Waterproofing.

PART 2 - PRODUCTS

2.01 MATERIALS FOR FLASHING AND CLADDING FABRICATION

- A. Plain Copper Sheet
Cold rolled copper, ASTM B 370.

2.02 FASTENERS

- A. Nails
"Stronghold" type large flat head roofing nail.
 - 1. For Copper: Hardened copper.
- B. Screws, Bolts, and other Fastening Accessories
 - 1. For Copper: Copper or brass.
- C. Anchors

Provide one of the following types:

- 1. Hammer driven anchors, consisting of a stainless steel drive pin and a corrosion resistant metal expansion shield inserted thru a stainless steel disc with an EPDM sealing washer.
- 2. Self-tapping, corrosion resistant, concrete and masonry screw inserted thru a stainless steel disc with an EPDM sealing washer.

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2.03 MISCELLANEOUS MATERIALS

A. Solder

Composition of block tin/pig lead of proportion recommended by the metal manufacturer, stamped either 50/50 or 60/40 "Warranted".

B. Flux

Paste or acid type as recommended by the metal manufacturer.

C. Bituminous Coating (for separating dissimilar metals):
FS TT-C494.

2.03 FABRICATION

A. Where practicable, form and fabricate sheet metal Work in the factory or shop. Produce bends and profiles accurately to the indicated shapes. Where not indicated or specified, follow the applicable requirements of the reference standards listed in PART 1.

B. Flashing (one-piece)

1. Copper: 16 oz.

C. Facia at Bulkhead

1. Copper: 20 oz.

D. Cladding for Bulkhead Walls

1. Copper: 20 oz.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Coordinate the work of this Section with other Work for the correct sequencing of items which make up the entire system of weatherproofing or waterproofing.

3.02 PREPARATION

A. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.

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- B. Do not install the Work of this Section unless all substrates are clean and dry.

3.03 INSTALLATION

A. Isolation

Separate dissimilar metals from each other with bituminous coating.

B. Tinning and Soldering

1. Use soldering irons (heavy coppers) as Industry Standard. Torch soldering is not acceptable.
2. Clean, flux and tin all surfaces to be soldered.
3. Sweat solder thoroughly into seams, completely filling the seam for the full width.
4. Upon completion of soldering, remove all traces of flux residue, and if required, apply a neutralizing wash followed by a clean water wash.

C. Installing Cladding at Bulkhead Walls

1. Provide standing seam installation to match existing cladding to remain.
2. Interlock new and existing cladding to remain at newly created standing seam joint.

D. Installing Flashing

1. Form and install the flashing to provide a slight gap between the flashing and the membrane to allow moisture to escape. Lap all end joints a minimum of 3". Extend the flashing continuously around corners or provide lock seams. Install waterstop flashing at expansion joints.
2. Flashing for Installation In Reglets:
 - a. Extend the built-in portion of the flashing 2" into the reglet. Form the edge of the built in portion with a 1/4" hook dam.
 - b. Secure the flashing with lead wedges 8" oc. Install backer rod and fill joint completely

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with sealant specified in Section 07550 and
tool to a slightly concave surface.

3. Pre-tin and solder with soldering irons (heavy
coppers) all inside and outside corners.

END OF SECTION

SECTION 07900
JOINT SEALERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all joint sealer Work as indicated on the Drawings, as required for the completed Work, and as specified herein. The Work shall include, but shall not be limited to, the following:
 - 1. Interior hollow metal door frames.
 - 2. Exterior hollow metal door frames [ITEM 1].
 - 3. Exterior frames at aluminum windows, metal louvers, and at other junctures of different materials.

1.02 RELATED SECTIONS

- A. Steel Doors and Frames..... Section 08110
- B. Aluminum Projected and Casement Windows.. Section 08524
- C. Stationary Metal Wall Louvers..... Section 10214

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)

1.04 SUBMITTALS

- A. Product Data
Catalog sheets, specifications, and installation instructions for each product specified including custom color charts.
- B. Samples (one each)
 - 1. Sealants: Three standard tubes.
 - 2. Joint Primer/Sealer/Conditioners: One pint.
 - 3. Backer Rods: 24" long full section.
 - 4. Bond Breaker Tape: 24" long full section.

C. Quality Control Submittals

1. Installer's Qualifications Data: Affidavit required under Quality Assurance Article.
2. Company Field Advisor Data: Name, business address, and telephone number of Company Field Advisor.

1.05 QUALITY ASSURANCE

A. Installer's Qualifications

The persons installing the sealants and their supervisor shall be personally experienced in the installation of sealants and shall have been regularly employed by a company engaged in the installation of sealants for a minimum of five years.

1. Furnish to the MMMHS Representative the names and addresses of five similar projects which the foregoing people have worked on during the past five years.
2. Furnish a letter from the sealant manufacturer, stating that the foregoing people are authorized to install the manufacturer's sealant materials and that the manufacturer's specifications are applicable to the requirements of this Project.

B. Container Labels

Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle joint sealer materials as recommended by the Manufacturer, to protect from damage.

1.07 PROJECT CONDITIONS

A. Environmental Requirements

1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F.

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2. Humidity and Moisture: Do not install the Work of this Section under conditions that are detrimental to the application, curing, and performance of the materials.
3. Ventilation: Provide sufficient ventilation wherever sealants, primers, and other similar materials are installed in enclosed spaces. Follow manufacturer's recommendations.

B. Protection

1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved covering to prevent defacement from droppings.

C. Installation

1. Since the window sealant is an integral component of the replacement window system and its ability to prevent outside noise from entering interior spaces, window sealant shall only be installed by the approved window installer, who shall exercise extreme care in the sealant installation.

PART 2 - PRODUCTS

2.01 SEALANTS

- A. Type 1 Sealant - For general use around windows, door frames, louvers and other junctures.

Two-part polyurethane sealant: Pecora Dynatrol II or approved equal.

- B. Type 2 Sealant - For concealed bedding under window sills.

One-part butyl rubber sealant; Pecora's BC-158, PTI's 707 or Woodmont's Chem-Calk 300.

- C. Sealant Colors

For exposed materials, provide color as selected by the MMMHS Representative from manufacturer's custom colors.

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For concealed materials, provide the natural color which has the best overall performance characteristics.

2.02 MISCELLANEOUS MATERIALS

A. Joint Primer/Sealer/Conditioner

As recommended by the sealant manufacturer for the particular joint surface materials and conditions.

B. Backer Rod

Compressible rod stock of closed cell, expanded, extruded polyethylene.

C. Bond Breaker Tape

Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self-adhesive where applicable.

D. Cleaning Solvents

Oil free solvents as recommended by the sealant manufacturer. Do not use reclaimed solvents.

E. Masking Tape

Removable paper or fiber tape, self-adhesive, non-staining.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

3.02 PREPARATION

- A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the

performance of materials installed under this Section.

2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
3. Do not limit cleaning of joint surfaces to solvent wiping. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.

3.03 JOINT BACKING INSTALLATION

- A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.
- B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

3.04 SEALANT INSTALLATION

- A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.
- B. Install sealants with ratchet hand gun or other approved mechanical gun.
- C. Finishing

Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.

1. Use tool wetting agents as recommended by the sealant manufacturer.

3.05 CLEANING

- A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other

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materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

- B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

END OF SECTION

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SECTION 08110
STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide hollow metal steel doors and frames as indicated on Drawings and specified herein. Roof bulkhead doors are part of ITEM 1.

1.02 RELATED SECTIONS

- A. Metal Fabrications Section 05500
- B. Flashing and Sheet Metal..... Section 07600
- C. Hardware Section 08710
- D. Painting Section 09900

1.03 REFERENCES

- A. Underwriters' Laboratories, Inc. (UL)
- B. American Society for Testing and Materials (ASTM)
- C. National Fire Protection Association (NFPA)
- D. Steel Door Institute (SDI)
- E. Hollow Metal Manufacturers Association (HMMA)

1.04 SUBMITTALS

- A. Product Data
Manufacturer's catalog sheets, specifications, and installation instructions.

B. Shop Drawings

Show details of each frame type, elevation and construction for each door type, conditions at openings, location and construction for each door type, conditions at openings, location and installation requirements for finish hardware (including cutouts and reinforcements), details of connections, and anchorage and accessory items.

1. Include a schedule of doors and frames using the same reference numbers for details and openings as those on the Contract Drawings.

1.05 QUALITY ASSURANCE

A. Fire Rated Assemblies

Wherever fire resistance classification is shown or scheduled for steel doors and frames, provide fire rated units that have been tested as fire door assemblies and comply with National Fire Protection Association (NFPA) Standard No. 80 and these Specifications. Identify each door and frame with metal MEA labels indicating the applicable fire class of the unit. Rivet or weld labels on the hinge edge of door and jamb rabbet of frame.

1. Oversize Assemblies: Whenever fire rated assemblies are larger than size limitations established by NFPA, provide manufacturer's certification that they have been constructed with materials and methods equivalent to requirements for labeled construction.
2. See Door Schedule in the Drawings for fire resistance requirements for respective openings.

B. Regulatory Requirements

NYC Materials Equipment Acceptance (MEA). Provide labels required.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store doors and frames on raised platforms in vertical position with blocking between units to allow air circulation.

1.07 GAGE STANDARDS

- A. Gages specified are based on U.S Standard Gauge for hot rolled and cold rolled steel sheets.
- B. The allowable tolerances for steel sheet thicknesses shall be in accordance with HMMA Standards.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. L.I. Fireproof Door, Inc., Whitestone, NY 11357, or approved equal.

2.02 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip

Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

- B. Cold-Rolled Steel Sheets

Commercial Quality carbon steel complying with ASTM A 366 and ASTM A 568.

- C. Galvanized Steel Sheets

Carbon steel sheets of commercial quality complying with ASTM A 526. Doors and frames shall have A 60 zinc coating for exterior doors and A 20 zinc coating for interior doors, mill phosphatized, complying with ASTM A 525.

- D. Anchors and Supports

Fabricate of gages indicated on the Drawings, and of not less than 16 gage sheet steel, unless otherwise indicated.

- 1. Galvanized Units: Galvanized anchors and supports used with galvanized frames, complying with ASTM A 153, Class B.

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E. Anchorage Devices, Bolts, and other Fasteners

Manufacturer's standard units unless otherwise indicated on the Drawings.

1. Galvanized Units: Galvanized items used with galvanized frames complying with ASTM A 153, Class C or D as applicable.

2.03 FABRICATION

- A. Fabricate hollow metal work accurately and assemble neatly to ensure work smooth and free from dents, tool marks, visible waves, warp, buckles and conspicuous joints.
- B. Align lines straight and true with arises and angles as sharp as practicable. Miter corners in true alignment and join similar abutting profiles accurately.
- C. Assemble all joints to form imperceptible intersections when finished.
- D. Form each member, such as jamb and head, from a single piece of metal, unless otherwise shown or approved.
- E. Fasten all members together to provide rigid construction in assembled work. Weld all connections.
- F. Continuously weld and dress smooth and flush joints on exposed faces.
- G. Clearances

Fabricate doors for their respective frames within the following clearances:

1. Jambs and Head: $3/32$ " to $1/8$ " maximum.
 2. Bottom: $1/4$ ", maximum.
- H. Work showing defects or blemishes will be rejected, and rejected work shall be replaced with satisfactory work.

2.04 DOORS

A. General

1. Design and Thickness: Flush design doors, seamless, hollow construction, 1-3/4" thick.
2. Door Edges: Bevel lock stile edge of single acting hinged doors 1/8" in 2".
3. Provide surface sheet reinforcement for surface sheet, edge, hardware, stops, and other provisions, as indicated on approved Shop Drawings or otherwise required.

B. Interior Doors

1. Fabricate interior doors with 2 outer stretcher-leveled, cold-rolled steel sheets of 16 gage unless indicated otherwise on the Drawings. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces and stile edges. Vertical edges shall be continuously MIG or ARC welded and ground smooth.
2. Provide top and bottom channels and closures.

C. Exterior Doors [ITEM 1]

1. Fabricate exterior doors with 2 outer stretcher-leveled, cold-rolled steel sheets of 16 gage unless indicated otherwise on the Drawings. Construct doors with smooth, flush surfaces without visible joints or seams on exposed faces and stile edges. Vertical edges shall be continuously MIG or ARC welded and ground smooth. Fabricate door as required to receive specified weatherstripping. Insulate interior of door.
2. Provide top and bottom channels and closures.

2.05 FRAMES

A. General

1. Provide steel frames for doors of size and profile as indicated on Drawings.
2. Construction: Full-welded unit construction, with corners mitered and continuously welded full depth

and width of frame, unless otherwise indicated. Knock-down type frames will not be accepted.

a. Fixed Stops: Integral 5/8" stop unless otherwise indicated. Construct jambs and heads from one piece of metal each; rabbeted and flanged as required for the various types of openings, and neatly mitered or interlocked and welded together. Provide channel, angle and bent plate reinforcing as indicated on approved Shop Drawings or otherwise required. Provide reinforcing in the heads of frames where required.

3. Frame Material

a. Interior Frames: 14 gage Cold-rolled steel sheet unless indicated otherwise on Drawings.

4. Provide frames for masonry openings with adjustable Underwriter's type masonry anchors, or other approved type to suit conditions of installation, using not less than four (4) at each jamb.

5. At butts, cut back jamb the thickness of one leaf of butt.

6. Drill and tap reinforcement to template.

7. Provide reinforcement for hardware as indicated on the approved Shop Drawings and as required for proper hardware installation.

2.06 SHOP PAINTING

A. Chemically wash, rinse, and dry exposed and concealed surfaces of fabricated units.

B. Apply one coat of rust-inhibiting primer to exposed surfaces and oven-bake units.

C. Units shall pass the following tests:

1. Salt Spray Test complying with ASTM B 117 for 120 continuous hours.

2. Water fog Test Complying with ASTM D 1735 for 240 continuous hours

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

Examine substrate and conditions, under which the frames are to be installed, for defects which will adversely affect the execution and quality of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install steel doors, frames, and accessories in accordance with the Drawing Details, approved Shop Drawings, and the manufacturers's printed instructions, except as otherwise indicated.

B. Frame Installations

Place frames accurately in position; plumb, align, and leaving surfaces smooth and undamaged.

1. At in-place concrete and in-place masonry construction, place frames and secure in place with anchorage devices. Set anchorage devices opposite each anchor location, in accordance with details on approved Shop Drawings and anchorage device manufacturer's instructions. Leave drilled holes rough, not reamed, and free from dust and debris.

a. Anchor frames as detailed on the Drawings.

2. Place fire rated frames in accordance with NFPA Standard No. 80.

C. Door Installation

1. Install doors accurately in their respective frames within the clearance specified in Part 2.

2. Place fire rated doors with clearances as specified in NFPA standard No. 80.

D. Drill and tap doors and frames to receive surface applied hardware.

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3.03 ADJUSTING

A. Prime Coat Touch-up

Immediately after installation, sand smooth and clean rusted and damaged areas of shop prime coat and apply touch-up of compatible air-drying primer.

B. Final Adjustments

Check and adjust operating finish hardware items prior to final inspection. Leave work in complete and proper operating condition.

3.04 CLEANING

- A. Clean doors, frames, and accessories, leaving free of dirt and other foreign material after completion of installation.

END OF SECTION

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SECTION 08305
ACCESS DOORS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all access doors and frames located in non-masonry walls, ceilings and soffits, complete with accessories, as indicated on the Drawings or required by the ventilation system and as specified herein.

1.02 RELATED SECTIONS

- A. Hardware Section 08710
- B. Gypsum Board Section 09250
- C. Gypsum Board - Int. Ceilings & Soffits . Section 09253
- D. Painting Section 09900
- E. Mechanical/Electrical. Division 15 & 16

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)

1.04 SUBMITTALS

- A. Product Data
Catalog sheets, specifications, and installation instructions.
- B. Shop Drawings
Schedule of locations, details of construction and installation.

1.05 QUALITY ASSURANCE

- A. All access doors shall be of a design to provide concealed frames and hinges and shall be of a color to match adjacent wall/ceiling finishes.

1.06 DELIVERY, STORAGE, AND HANDLING

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- A. Deliver, store, and handle access doors and frames as recommended by the Manufacturer, to protect from damage.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Karp Associates, Inc., Maspeth, NY 11378
- B. Milcor, Inc., Lima, OH 45804

2.02 NON-FIRE RATED ACCESS DOORS

- A. Frames

Minimum 16 gage steel.

- 1. Gypsum Board Application: Integral exposed spackle bead flange not less than 3/4" wide around the perimeter.

- B. Flush Type Door Panel

Minimum 14 gage steel.

- 1. Hinges: Concealed spring type set to open to approximately 175°; sufficient number to support the door size, or continuous type hinge.
- 2. Finish: Factory-applied rust inhibitive baked enamel primer over phosphate treated steel.

- C. Cam Locks (for doors located in ceilings)

Flush, screwdriver operated; sufficient number to hold door panel in flush, smooth plane when closed.

- D. Cam Locks (for doors located in walls)

Flush, screwdriver and key operated; sufficient number to hold door panel in flush, smooth plane when closed.

- 1. One lock on each door panel shall be key operated, pin tumbler type. The remaining locks, if any, shall be screwdriver operated type.

2.03 KEYING FOR NON-FIRE RATED ACCESS DOORS FOR WALLS

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- A. Key all locks and latches alike. Furnish 6 keys total to Director of Buildings and Grounds.

2.06 FABRICATION AND MANUFACTURE

- A. Manufacture access door assemblies as integral units complete with all parts and ready for installation. Fabricate units of continuous welded steel construction unless otherwise indicated or specified. Grind welds smooth and flush with adjacent surfaces. Attachment devices shall be of size and type required to secure access doors to types of supports indicated on the Drawings.
 - 1. Allowable Size Variations: Manufacturer's standard size units which vary slightly from the sizes indicated may be acceptable, subject to the approval of the MMMHS Representative.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install the access doors in accordance with the manufacturer's printed installation instructions, except as shown or specified otherwise.
- B. Coordinate access door installation with installation of supporting construction.
- C. Set units accurately in position and securely attach to support with face panel plumb or level in relation to adjoining finish surface.

3.02 ADJUSTMENT

- A. Adjust hardware and doors for proper operation.

END OF SECTION

SECTION 08341
ACOUSTIC METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide acoustic metal doors and frames as indicated on Drawings and specified herein.

1.02 RELATED SECTIONS

- A. Unit Masonry Section 04200
- B. Steel Doors and Frames..... Section 08100
- C. Finish HardwareSection 08710
- D. Glass and GlazingSection 08800
- E. Plaster Section 09210
- F. PaintingSection 09900
- G. Security SystemSection 16770

1.03 REFERENCES

- A. Underwriters' Laboratories, Inc. (UL)
- B. American Society for Testing and Materials (ASTM)
- C. National Fire Protection Association (NFPA)
- D. Steel Door Institute (SDI)
- E. Hollow Metal Manufacturers Association (HMMA)

1.04 SUBMITTALS

- A. Before delivery of the door, Contractor shall submit for approval of the architect and acoustical consultant, the following:
 - 1. Shop drawings of the door, frame, hardware and seals showing major operating dimensions and cross sections of doors and seals.

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2. Include schedules, listing the qualities of each kind and type of buck, trim and door, size of doors and frames, clearances, undercuts, location and label requirements.
 - a. If sound seals are a propriety item purchased from a weatherstripping company, the sound seal manufacturer and model number shall be identified.
3. Submit manufacturer's product literature for propriety, sound seals and propriety sound insulation and/or sound deadening material.
4. Samples:
 - a. Sound seals-section of all perimeter sound seals used for the specified doors.
 - b. Acoustical Doors-section of typical door, of sufficient size to show edge, top and bottom construction, insulation and/or sound deadening material, hinge reinforcement, face stiffening.
5. Certified test reports for the 1 3/4" thick Acoustical Door and Frame shall indicate that the acoustical performance of the operating door and frame meets the Sound Transmission Class (STC) performance called out in the schedule. Test data shall be produced from an accredited independent acoustical laboratory. Reports should indicate that the test was performed on the doors and frames of the type to be supplied in conformance of the requirements of test method ASTM E90. Test data shall indicate type of hardware and sound seals used on the door. Manufacturer shall indicate whether additional treatment of the door frame, by the insertion of grout or high density glass/mineral fiber in the cavity between frame and wall, shall be necessary to meet acoustical requirements of this specification, if not indicated in the report Test reports more than ten years old are unacceptable.
6. Manufacturer's certification that assembly meets the required STC rating with the finish hardware indicated in the door schedule hardware set.

7. Written guarantee that door is constructed in accordance with the laboratory tested door and free of defects in material and workmanship for a period of one year after installation.
8. Certification of fire rated assemblies: Apply fire rating tables to doors, frames and transom panels as evidence of ratings. Labels to be by Underwriters Laboratories or other nationally recognized agency having a factory inspection service.

1.05 QUALITY ASSURANCE

A. Fire Rated Assemblies

Wherever fire resistance classification is shown or scheduled for steel doors and frames, provide fire rated units that have been tested as fire door assemblies and comply with National Fire Protection Association (NFPA) Standard No. 80 and these Specifications. Identify each door and frame with metal MEA labels indicating the applicable fire class of the unit. Rivet or weld labels on the hinge edge of door and jamb rabbet of frame.

1. Oversize Assemblies: Whenever fire rated assemblies are larger than size limitations established by NFPA, provide manufacturer's certification that they have been constructed with materials and methods equivalent to requirements for labeled construction.
2. See Door Schedule in the Drawings for fire resistance requirements for respective openings.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical metal door and frame assembly with furnished hardware cartoned or crated to provide protection during transit and job storage. Finish hardware may be shipped loose to protect it from damage.
- B. Inspect Acoustical Metal Doors and Frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect, otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at the building site under cover. Place units on minimum 4" high wood blocking. Avoid use

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of non-vented plastic or canvas shelters which could create a humidity chamber. If cardboard wrapped on doors becomes wet, remove carton immediately. Provide space between stacked doors to provide air circulation. Blocking between stacked doors shall be positioned so as not to damage door and shall be large enough so stacked doors do not come into contact with each other.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide acoustical doors and frames by one of the following or an approved equal:
1. Industrial Acoustics Company, Inc., Bronx, NY
 2. Krieger Steel Products Company, Pico Rivera, CA
 3. Overly Manufacturing Company, Greenburg, PA
 4. Pioneer Industries, Division of Core Industries Inc. Carlstadt, NJ
 5. Jamison Door Company, Hagerstown, MD
 6. Ambico Limited, Ottawa, Ontario

2.02 GLAZING

- A. See door schedule and specification section 08800 Glass and Glazing for glass types and descriptions. Glass is provided under this section.

2.03 TYPICAL DOOR CONSTRUCTION

- A. Doors shall be made of commercial quality, level, cold rolled steel conforming to ASTM A336-68 and free of scale, pitting or other surface defects.
- B. All doors shall be 1 3/4" thick custom made, of the types and sizes shown on the approved shop drawings, and shall be fully welded seamless construction with no visible seams or joints on their faces or vertical surfaces.
- C. Doors noted to be galvanized, shall be hot dipped galvanized.
- D. All doors shall be strong, rigid and neat in appearance, free from warpage or buckle. Corner beads shall be true and straight and of minimum radius for the gauge of metal used.
- E. Face sheets shall be stiffened by continuous vertical formed steel sections spanning the full thickness of the interior space between door faces. These stiffeners shall be not less than 22 gauge spaced not more than 6" apart

and accurately attached to face sheets by spot welds not more than 5" o.c. Spaces between stiffeners shall be filled with sound deadening thermal insulation the full height of the door with an inorganic non-combustible batt type material. Honeycomb, polystyrene or other rigid type insulation is not acceptable.

- F. Door faces shall be joined at their vertical edges by a continuous weld extending the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.
- G. Top and bottom edges of all doors shall be closed with a continuous recessed steel channel not less than 16ga. Extending the full width of the door and spot welded to both faces.
- H. Edge profiles shall be provided on both vertical edges of doors-beveled 1/8" in 2".
- I. Hardware reinforcements:
 - 1. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accordance with approved hardware schedule and templates provided by the hardware supplier. Where surface mounted hardware is to be applied, frames shall have reinforced plates.
 - 2. Minimum thickness of hardware reinforcing plates shall be as follows:
 - a. Hinge and pivot reinforcements-7ga.

2.04 VISION PANELS

- A. Vision panels shall be made of the same materials and constructed and finished in the same way as specified for hollow metal doors (except 3/4" thick) including acoustically and/or fire rated doors where rating is required. Panel shall be constructed as part of door assembly to meet fire ratings and/or acoustical ratings as required and match profile as shown on drawings.
- B. If any door, frame, or panel specified by the Architect to be acoustically rated cannot qualify for appropriate labeling because of its design, size, hardware or any other reason, the Architect shall be so advised before fabricating work on that item is started.

2.05 TYPICAL FRAME CONSTRUCTION

- A. Frames shall commercial grade cold rolled steel conforming to ASTM A336. Metal thickness shall be not less than 16 ga. For frames in openings 4'-0" or less in width; not less than 14 ga. For frames in openings over 4'-0".
- B. Frames shall be custom made welded units to sizes and shapes indicated on the drawings and shall have full welded unit-type construction at corners and other joints. Knock-down frames are not acceptable.
- C. All finished work shall be strong and rigid, neat in appearance, square, true and free of defects, warp or buckle. Molded members shall be clean cut, straight and of uniform profile throughout their lengths. Steel frame members shall be pre-straightened, free of wind or twist, frame shall be factory-aligned to a diagonal tolerance of 1/16".
- D. Jamb depths, trim, profile and backbends shall be shown on drawings.
- E. Corner joints shall have all contact edges closed tight, with trim faces mitered and continuously welded. The use of gussets will not be permitted. Welds on corners and exposed surfaces shall be pressed flush and smooth.
- F. Depth of stops shall be 1/2" minimum and 1 1/8" maximum. Width shall be as shown on drawings.
- G. Hardware Reinforcements:
 - 1. Frames shall be mortised, reinforced, drilled and tapped at the factory for fully templated mortise hardware only. In accordance with approved hardware schedule and templates provided by the hardware supplier. Where surface mounted hardware is to be applied, frames shall have reinforcing plates.
 - 2. Minimum thickness of hardware reinforcing plates shall be as follows:
 - a. Hinge and pivot reinforcements-7 ga., 1 1/4"x10" min. size.
 - b. Strike reinforcements-12 ga.
 - c. Flush bolt reinforcements-12 ga.

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- d. Reinforcements for surface mounted hardware-12 ga.
- H. Floor Anchors:
 - 1. Floor anchors shall be securely welded inside each jamb.
 - 2. Minimum thickness of floor anchors shall be 14 ga.
 - 3. Shim to align top of frame to contractor's established datum for each level.
- I. Jamb Anchors:
 - 1. Frames for installation in masonry walls shall be provided with (4) adjustable jamb anchors of the T-strap or stirrup-and strap type. Anchors shall be not less than 16 ga. Or .156" dia. Steel wire. Stirrup straps shall not be less than 2"x10" in size, corrugated and/or perforated.
 - 2. Frames for installation in stud partitions shall be provided with (4) steel anchors of suitable design, not less than 18 ga. Thickness, securely welded inside each jamb.
 - 3. Frames to be anchored to previously placed concrete or masonry shall be provided with min. 3/8" concealed bolts set into expansion shields or inserts at 6" from top and bottom and 24" o.c. Reinforce frames at anchor locations with 16 ga. Sheet steel stiffeners welded to frame at each anchor.
- J. Frames for installation in masonry wall openings more than 4'-0" in width shall have an angle or channel welded into the head. Such stiffeners shall not be less than 12 ga. Steel and not longer than the opening width, and shall not be used as lintels or load bearing members.
- K. Dust cover boxes (or mortar guards) not thinner than 26 ga. Steel shall be provided at all hardware mortises on frames to be set in masonry or plaster partitions.
- L. All frames shall be provided with steel spreader temporarily attached the feet of both jambs to serve as a brace during shipping and handling.

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- M. Provide wireway to receive security devices including but not limited to magnetic contacts. See electrical drawings for quantities and locations of security devices.
- N. Frames shall be site filled with mortar (all three sides) then after the mortar has set, shall be grouted into place in the wall.

2.06 1 3/4" ACOUSTICAL DOORS

- A. Doors shall be 1-3/4" thick flush design of cold rolled steel construction, 16 gauge min. thickness. The core shall be acoustically non-coupling and shall be non-combustible. Vision panels shall comprise two panes of glass with frames and seals that maintain the specified acoustical performance.
- B. Hinges shall of flush design, surface strap hinges are not acceptable.
- C. Where a vision panel is required, that panel shall provide acoustical performance at least as good as the door STC rating.
- D. Prepare acoustical doors to receive security devices and security related hardware. Preparation shall include, but not be limited to, provision of wireway thru door for indicated electronic mortise locksets and preparation for magnetic contacts. See Security System Drawings for quantities and locations of security devices.

2.09 FINISH HARDWARE

- A. Prepare doors and frames to receive mortised and a concealed finish hardware in accordance with hardware manufacturer's recommendations and templates and in compliance with applicable requirements of ANSI A115 series specifications for door and frame preparation for hardware.
- B. Hardware specified herein shall be selected and installed based on the acoustical door manufacturer's recommendations and on the hardware used on the door in the laboratory acoustical test. Reinforce doors and frames to receive both concealed and surface applied hardware. Drilling, tapping and application of surface applied finish hardware shall be done at the factory.
- C. Hardware supplied per section 08700:

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1. Prepare doors and frames to receive hardware in accordance with the finish hardware schedule and templates provided by the hardware supplier, except where such hardware would degrade the acoustical and operating performance of the door. Acoustical door manufacturer shall advise the contractor of any specified hardware being in conflict on the door in the acoustical laboratory test.
 2. Hardware supplier shall furnish door manufacturer approved hardware schedule, hardware templates and samples of physical hardware where necessary to insure correct fitting and installation.
 3. Preparation includes sinkages and cut-outs for mortise and concealed hardware.
 4. Provide reinforcements for both concealed and surface applied hardware. Drill and tap mortise reinforcements at factory using templates. Install reinforcements with concealed connections designed to develop full strength of reinforcements.
- E. Prior to shipment, doors and frames shall be hung, operated and adjusted at the factory to insure proper operating and acoustical integrity.
- F. Locate finish hardware as indicated on final shop drawings or if not indicated, in accordance with "Recommended Locations for Builder's Hardware" published by Door and Hardware Institute.

2.10 FINISH

- A. Doors, frames and applicable hardware shall be factory prime finished with a rust inhibiting primer.
- B. Clean, treat and paint exposed surfaces of steel door and frame units and applicable hardware, including galvanized surfaces.
- C. Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before application of paint.
- D. Apply shop coat of prime paint of even consistence to provide a uniformly finished surface ready to receive finish paint.

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- E. Field finish painting is included in section 09900 of the specifications.

2.11 REJECTION

- A. Doors and frames which are defective, have hardware cut outs of improper size or location, or which prevent proper insulation of doors, hardware or work of other trades, shall be removed and replaced with new product at no cost to the Owner.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Acoustical metal doors and frames shall be installed by Architectural Improvements Contractor under the supervision of the manufacturer's factory trained representatives or personnel.
2. Install all acoustical doors and accessories in accordance with the final shop drawings, manufacturer's recommendations and as herein specified.

B. Placing Frames

1. Comply with provisions with SDI-105 "Recommended Erection Instructions for Steel Frames", unless otherwise indicated.
2. See section 2.05.14 regarding mortar filling and mortar placing of frames.
3. Except for frames located at in-place concrete or masonry and at drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set only after wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
4. In masonry construction, locate three (3) wall anchors per jamb at hinge and strike levels.

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5. At in place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
6. Building in of anchors and grouting of frames is included in section 04200 of the specifications.
7. In metal stud partitions, install at least three (3) wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.
8. Install fire rated frames in accordance with NFPA Std. No. 80.

C. Door Installation

1. Fit acoustical metal doors accurately in frames, within clearances specified in SDI-100 and as herein specified.
2. Adjust all automatic and adjustable perimeter and drop seals to insure a tight fit per manufacturer's recommendations.
3. Place fire rated assemblies with clearances as specified in NFPA Std. No. 80.

D. Glass Installation

1. Glass as required to meet overall acoustical performance of door and frame, shall be installed into openings.
2. Use manufacturer's approved seals and gaskets to insure maintenance of acoustical performance of window.

3.02 ADJUST AND CLEAN

- A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- B. Final Adjustments: Check and readjust operating finish hardware items and acoustical seals, leaving steel doors and frames undamaged and in complete and proper operating condition. Check for any air, light (and sound) gaps at door jambs, head and sill and adjust seals as necessary.
- C. Field Testing Verification for Acoustic Assemblies: The project acoustical consultant will conduct an acoustical survey at the designated door locations where noise transmission is suspected of being below the set criteria. The survey shall consist of a Field Sound Transmission Class (FSTC) test per ASTM E336. If such results indicate non-conformance with the established FSTC requirements, it shall be the responsibility of the manufacturer to correct, at his own expense, such deficiencies by methods that shall be approved by the Architect and Acoustical Consultant prior to incorporation. Acoustical tests shall be repeated and corrective measures devised and incorporated until the set criteria and performance standards are met.

END OF SECTION

SECTION 08524
ALUMINUM PROJECTED AND CASEMENT WINDOWS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide extruded aluminum projected and casement (project-in) windows, complete with between glass blinds and required accessories, as shown on Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Selective Removals & Demolition Section 02070
- B. Removal, Storage and Reinstallation Section 02072
- C. Rough Carpentry Section 06100
- D. Miscellaneous Building Insulation Section 07212
- E. Joint Sealants Section 07900
- F. Furring and Lathing Section 09205
- G. Plaster Section 09210
- H. Window Guards Section 10720

1.03 REFERENCES

- A. American Architectural Manufacturers Association (AAMA) Latest Edition
 - 1. AAMA 101-93-HC-Heavy Commercial Windows
- B. Federal Specifications (FS) Latest Edition
- C. American National Standards Institute (ANSI) Latest Edition
 - 1. ANSI/AAMA 101-93 - Aluminum Window Standards
 - 2. ANSI DH-A3-HP p Performance Criteria
- D. American Society for Testing and Materials (ASTM) Latest Edition
 - 1. ASTM A165 or A164 - Cadmium or zinc plating

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2. ASTM B221 - Aluminum extrusions, tensile strength
 3. ASTM C509 - Molded expanded neoprene gaskets
 4. ASTM D2000 - Molded neoprene gaskets
 5. ASTM D2287 - PVC gaskets
 6. ASTM E90 - Acoustical Testing
 7. ASTM E283 - Air Infiltration
 8. ASTM E331 - Water Resistance
- E. Safety Glazing Certification Council (SGCC) Latest Edition
- F. Aluminum Association (AA) Latest Edition

1.04 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Design Criteria: Replacement window information and details, shown on the Contract Drawings and specified herein, indicate the configuration and minimum requirements for acoustic windows to be used on the project. Windows fully complying with all requirements are acceptable upon review and approval of the Architect and at his sole discretion, in accordance with the Specifications, subject to full compliance with all Contract Document requirements and conditions as set forth in paragraph 2.01 B. of this Section. The successful bidder shall not be entitled, during the construction phase, to any additional remuneration due to the bidder's use of windows which will require altering construction details and methods shown on the Contract Drawings.
- B. Thermal-Break Construction: Fabricate aluminum window units with an integrally concealed low conductance thermal barrier, located between exterior materials and window members exposed on interior, in a manner which eliminates direct metal to metal contact. Provide thermal-break in accordance with 2.02 B of this section and which has been in use on manufacturer's window units for a period of not less than ten (10) years and has been tested to demonstrate resistance to thermal conductance and condensation, and has been tested to show adequate strength and security of glass retention.
- C. Window Size: All existing masonry window openings shall

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be field measured at the project site. Replacement windows shall be custom fabricated for each individual masonry window opening size so that window frames, mullions and trim site lines shall be identical at all windows. Averaging of replacement windows shall not be allowed. Window frame, mullion and trim site lines (width, depth and profiles) shall be in strict accordance with 2.02 of this Section and the Contract Drawings.

1.05 SUBMITTALS

The Contractor shall submit all of the following information for proposed window and window manufacturers for prequalification. The successful bidder shall not be entitled, during the construction phase, to any additional remuneration due the bidders use of windows which will require altering construction details and methods shown on contract drawings.

A. Product Data

Submit manufacturer's specifications, technical product data, recommendations and standard details for aluminum window units and blinds as necessary to show compliance with requirements including but not limited to the following information:

1. Materials
2. Fabrication methods
3. Finishing
4. Hardware
5. Accessories

B. Test Data

Submit certified test Laboratory reports to show compliance with requirements of 1.07 H and 1.07 I herein. Certified Test Laboratory Report must have been performed within (3) three years of the date of this bid.

C. Submit required standards, material tolerances, performance and test reports as specified herein in part 1.07 A thru 1.07 G.

D. Typical Detail Drawings

Submit Drawings for typical details specific to this

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project, including typical plans and exterior elevations showing a typical window opening, typical unit elevations at 3/4" scale, full size detail sections of typical units showing every composite member including adjacent materials of general construction. Show sealant, anchors, hardware, operators and all other components and accessories. Indicate all glazing details and standards.

1. Indicate daylight glazed opening dimensions on Drawings for typical windows.

E. Samples

1. Submit one (1) operable reduced size sample window unit with mini blind of proposed window for the Architect's approval and pick up sample after a determination by the Architect has been made. Corner samples are not acceptable for review.

F. Shop Drawings

Submit Complete Shop Drawings, including location plans and exterior elevations showing all window openings, typical and atypical unit elevations at 3/4" scale, full size detail sections of typical and atypical units showing every composite member including adjacent materials of general construction and window schedule. Show sealant, anchors, hardware, operators and all other components and accessories. Indicate all glazing details and standards.

1. Indicate daylight glazed opening dimensions on Shop Drawings for all types of windows.
2. Tolerance: Daylight glazed openings as actually fabricated shall not vary more than 1/16" plus or minus from dimensions indicated on Shop Drawings.

G. Samples

1. Submit one (1) full size sample of window with mini blinds of selected colors/finishes for approval prior to fabrication of the remaining units. Do not proceed with Work until approval of sample has been approved.
2. Approved window sample may be used on job for actual installation.

H. Finish

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1. Durannar XL - Coat System by PPG Industries for window frames, sashes and components. Color shall be PPG DURANAR XL EXOTIC UC52179 XL BRONZE.
2. Color of painted coat system for the mini blinds shall be Antique White 274.
3. Submit three (3) samples of each color for Architect's approval before proceeding with production; provide actual production sections large enough so that good comparisons can be made to establish allowable color range.
4. Manufacturer shall use these approved color samples for comparison purposes during production finishing.

E. Warranty

1. As specified in Art. 1.09.

1.06 QUALITY ASSURANCE

A. Standards

Except as otherwise indicated, requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship shall be as specified in ANSI/AAMA 101-93 and applicable general recommendations published by AAMA and AA.

- B. Single Source Responsibility: Provide windows, hardware, blinds and accessories from a single manufacturer capable of showing prior production of units similar to those required.
- C. The aluminum windows shall be of the operable type with thermal break. The unit types and approximate sizes shall be as shown on the Drawings. Window shapes, accessories and frame/mullion sizes and profiles as specified and detailed shall establish the type of unit and materials to be used in order to provide the desired functional and aesthetic requirements of this project.
- D. The window manufacturer for this project must have been regularly engaged in the domestic manufacturing of commercial and architectural aluminum projected and casement windows and between glass blinds for at least ten (10) years and who is acceptable to the DDC Representative.

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- E. Erector Qualifications: Not less than seven (7) years successful experience in the installation of commercial and architectural aluminum projected and casement windows and between glass blinds and who is acceptable to the Architect.
- F. Window installer submitted for DDC Representative's approval shall furnish names, addresses and phone numbers of at least eight (8) comparable aluminum window installations which have been in successful operation for a period of at least six (6) years. Installer to submit project foeman's qualifications to the satisfaction of the DDC Representative.
- G. Material Tolerances:
1. Solid Extrusions: Minimum nominal metal thickness of 0.125 inches, +/- 0.007 inches. Minimum nominal metal thickness of 0.050 inches, +/- 0.003 inches.
 2. Hollow Extrusions: Minimum nominal metal thickness of 0.125 inches, +/- 0.009 inches.
 3. Window Size Tolerances: Dimensions within +/- 1/16 inch.
- H. Performance and Testing

Except as otherwise indicated, comply with air infiltration tests, water resistance tests and applicable load tests specified in ANSI/AAMA 101-93 for type and classification of window units required in each case.

1. Testing: Where manufacturer's standard window units comply with requirements and have been tested in accordance with specified tests, provide certification by manufacturer showing compliance with such tests, otherwise, perform required tests through recognized testing laboratory or agency, approved by the DDC Representative and provide certified test results.
2. Testing for this Project will allow that air, water and structural load testing be on the same report. The design pressure test and water level test are not related to one another as is generally the practice with AAMA certified 101-93. Each test is independent to measure the true highest level of each criteria.
3. Sample submitted for tests shall be of

manufacturer's standard construction with ventilator minimum size in compliance with AAMA requirements. Sequence of test is optional between manufacturer and testing laboratory except that in all cases, air infiltration test shall be performed before water resistance test.

4. To evaluate testing and measure product performance, testing shall be conducted on manufacturer's standard product glazed with type of glazing specified herein.
5. Specific Performance Requirements: Windows shall conform to specified ANSI/AAMA standards and the following, whichever more stringent:
 - a. Air Infiltration Test: With operable units in closed and locked position, window shall be subjected to air infiltration test in accordance with ASTM E 283. Air infiltration shall not exceed 0.10 cubic feet per minute per foot of crack length, when tested at a pressure of 6.24 psf.
 - b. Water Resistance Test: Glazed unit shall be mounted in its vertical position continuously supported around perimeter with operable units in fully closed and locked position. Window unit shall be subjected to water resistance test in accordance with ASTM E 331 and E 547. When static pressure of 10.0 pounds per square foot has been stabilized, five gallons of water per square foot of window area shall be applied to exterior face of unit for 15 minutes. No water shall pass interior face of window frame and there shall be no leakage as defined in test method.
 - c. Uniform Load Deflection Test: With window operable units closed and locked, test unit in accordance with ASTM E 330 with static air pressure difference of 95 psf positive pressure and 95 psf negative pressure. There shall be no deflection of any unsupported span in excess of $L/175$.
 - d. Uniform Load Structural Test: Unit shall be tested at 1.5 x design wind pressure, both positive and negative, acting normal to plane of wall in accord with ASTM E330.

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- e. Condensation Resistance Factor: Window shall be tested in accordance with AAMA 1502.7 standards and tests of thermal performance and shall have condensation resistance factor of not less than 62. Data from calculations, test results on units of different sized operable unit arrangements are not acceptable.
- f. Thermal Test: Window shall be tested in accordance with ASTM C 236. Combined area of window, including glass and aluminum, shall have a thermal transmittance of no more than 0.58 BTU/hr/ft²/F° @ 15 mph wind. Data from calculations, test results on units of different sized operable unit arrangements are not acceptable.
- g. Vertical Deflection Test: Deflection at unrestricted corner shall not exceed 0.062 inches when tested per AAMA structural standards.
- h. Operable Unit Torsion Test: Deflection at unrestrained corner shall not exceed 0.1875A inches (where A is the area in square feet of operable unit tested) when tested per AAMA structural standards.
- I. Thermal Barrier Tests: Test three 12 inch long typical urethane filled aluminum window sections with standard painted finish for each type test and average results. Three sections averaged shall not vary in excess of 33% of highest figure. Test in accord with test procedure 83-20519 as established by the Pittsburgh Testing Laboratory/Chicago office. Minimum results at 180 degrees shall be as follows:
 - 1. Shear Test: No loss of bond or failure of urethane material at 3500 lbs.
 - 2. Tension Test: No loss of bond or failure of urethane material at 5000 lbs.
 - 3. Torsion Test: No loss of bond or failure of urethane material at 3500 lbs.

At conclusion of all the above tests, there shall be no glass breakage, permanent damage of fasteners, hardware parts, support arms,

actuating mechanisms, or any other damage causing window to be inoperable. There shall be no permanent deformation of any main frame or operable unit member in excess of 0.2 percent of its span.

I. Acoustical Testing

1. Windows shall conform to or exceed performance criteria of ANSI Standard DH-A3-HP.
2. Sound Transmission Loss Test
 - a. Windows shall be carefully installed so that the field performance approaches the acoustical laboratory rating.
 - b. Prior to shop drawing approval, a complete window assembly (including frame, operable units and glazing) for each window type and configuration shall be submitted to an independent Acoustical Laboratory acceptable to the DDC Representative for testing of actual configuration. When tested in accordance with ASTM E90, the test assemblies shall show sound transmission loss data such that either:
 - 1) The summation of the one-third octave band Sound Transmission Loss values for the 400, 500, 630, 800, 1000, 1250, 1600, 2000, and 2500 Hz one-third octave bands shall equal or exceed 396, or
 - 2) The summation of the octave band Sound Transmission Loss values for the 500, 1000, and 2000 Hz octave bands shall equal or exceed 132.
 - c. Test data from a laboratory test performed in accordance with ASTM E90 by a recognized independent Acoustical Laboratory and obtained within (3) three years of the bid date for the identical window system.

J. Field Testing

1. If the SMS Representative requires, conduct on-site tests for noise reduction, air and water infiltration with the window manufacturer's representative present. The SMS Representative

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will select units to be tested. Tests not meeting specified requirements and units having similar deficiencies shall be corrected at no cost to SMS. Testing shall be performed by an accredited testing agency selected by the SMS Representative and paid for by the Contractor.

2. Air Infiltration Tests: Conduct tests in accordance with the requirements of ASTM E783. Allowable infiltration shall not exceed 1.5 times the amount indicated.
3. Water Resistance Tests: Conduct tests in accordance with the requirements of AAMA 501.3. No water leakage is permitted.
4. Notification by the SMS Representative to the Contractor that the Work does not meet with specified requirements shall be deemed sufficient notice to the Contractor that he is proceeding with any further installation at his own risk until he has corrected all problems which may have caused the substandard performance.
5. The SMS Representative may test any completed room for compliance with acoustical requirements. The General contractor shall cooperate fully with acoustic engineer and provide lift equipment or other staging as may be required for the tests.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Store and handle windows, mullions, hardware and appurtenant items in strict compliance with manufacturer's instructions.
- B. Store units in locked, weatherproof enclosure such as cargo shipping container or construction shanty and protect units during and after installation.

1.09 SPECIAL PROJECT WARRANTY:

- A. Manufacturer's and Contractor Warranties

Submit written warranties from window manufacturer and Contractor for the following in a form acceptable to the Authority:

1. Provide a written warranty, in a form acceptable to the SMS Representative, for repair or replacement

of aluminum window units which fail in materials or workmanship within the specified warranty period. Failures include, but are not necessarily limited to, structural failures including excessive deflection, excessive leakage or air infiltration, faulty operation of operable units and hardware, faulty operation of interior glass frame access panels, faulty operation of between glass blind units, faulty operation of casement operators, and deterioration of metals, glazing, weatherstripping, sealants, paint finishes and other materials beyond normal weathering. This warranty shall be extended to include all glazing. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

2. Warranty period for aluminum windows is ten (10) years after the date of substantial completion.
3. Maintenance Bond: Provide a Manufacturer's maintenance bond for a period of not less than five (5) years for an amount of not less than 10% of the delivered price.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers: Subject to compliance with Contract Document requirements. Provide all windows, hardware, blinds and accessories from a single manufacturer.
- B. Please note that the following manufacturers do not manufacture equal products with equal accessories. The inclusion of these manufacturers indicates that the manufacturers product listed and configured as noted in 2.02 below have shown evidence and test data that they are capable of manufacturing a window product that conforms to all of the performance criteria required by these specifications including acoustical requirements necessary to successfully achieve the soundproofing goals of the project:
 1. Wausau Metals Corporation - P.O. Box 1746 Wausau Wisconsin 54402-1746 Tele: 715-846-3339
 2. Graham Architectural Products - 1551 Mt. Rose Avenue, York Pennsylvania 17403-2909 Tele: 717-849-8100

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- C. Should the Contractor intend to request approval of an aluminum window manufacturer other than that listed above, certified test reports and manufacturer's specifications, technical product data, and standard details for the specific substitute window (submitted information shall include all data required by this Section - Part 1.05 "Submittals" paragraphs A. through E.) indicating full compliance with all requirements of the Contract Documents shall be submitted by the Contractor to the Architect of Record a minimum of fifteen (15) full days, not including weekends or holidays, prior to the bid date. Any request for window substitution made after this time will be denied. Submission of said test data and other materials at this time shall not relieve the Contractor of meeting all the requirements of the Contract Documents, including formal submittal requirements of this Section or obtaining the SMS Representative's approval.
- D. The contractor shall provide the manufacturer's name and product upon which the bid is based in the bid package and certify that he will comply with all requirements of this section for the selected product. This form shall also bear the Manufacturer's Certification of compliance with the requirements of this section. Failure to include an approved manufacturer's window certification in the Bid Package shall result in rejection of the bid as non responsive to contract requirements. A copy of this form is included in this Section.

2.02 PRODUCTS

- A. Wausau 3250 Series Visuline Project-In and Casement Windows with integral between the glass blinds for locations and full hinged inner glazed lite. (See Schedule on Contract Drawings)
1. All units shall be 3 1/4" in depth, operable units with split glazing. Inner and outer Glazing Lites to be 1/4" fully tempered glass.
 2. All performance criteria conforming to the performance specification and indicated on the contract drawings and details which have been based upon this product.
 3. Provide Custom Extruded Trim as indicated on Contract Drawings. Cost of additional dies, if required, shall be included in contract price.
- B. Graham Architectural Products Corp. 6300 Series Project-In and Casement Windows with integral between the glass blinds and full hinged inner glazed lite. With custom features indicated herein. (See Schedule on Contract Drawings)
1. All units shall be 3 1/4" in depth, operable units with split glazing. Inner and outer Glazing Lites to be 1/4" fully tempered glass.
 2. All performance criteria conforming to this specification and indicated on the contract drawings. All accessories to be equal to specification as indicated and required herein.
 3. Provide Custom Extruded Trim as indicated on Contract Drawings. Cost of additional dies, if required, shall be included in contract price.
 4. Contractor shall note difference in window frame installation requirements to meet acoustic test requirements and shall make all adjustments to trim details and sill finishes necessary or required to trim interior face of frame in conformance with the intent of the contract details. All additional general construction costs associated with the frame dimension or construction including all additional labor and materials required shall be considered included in all bid prices listing this window. No additional cost for adjustment to

contract details required by the selection of this manufacturer's product shall be paid by the SMS.

5. Window features and accessories indicated in the specifications such as hinged inner glazing sash are standard equipment for Wausau Visuline series. This or similar maintenance feature is required by the SMS for all manufacturers products. Removable lites increase maintenance cost over that of hinged lites by a minimum factor of 10 and require heavy lifting of large pieces of 1/4" tempered glass located 6 feet or more above the floor by School maintenance staff. Based upon this, Graham shall provide an equally safe and reliable alternative for glazing maintenance to SMS for approval. This may include provision of custodial lifting handles keyed to the removable window sash, custom made tools, special lightweight portable ladders, mechanical lifts or a combination of all of the above. The cost of providing these items shall be deemed included in the Bid Price.
- C. Use of the above window manufacturer's windows does not relieve the contractor from providing all required submittals or meeting all minimum performance criteria required by this specification.
- D. Any product submitted for approval as equal to the above products in accordance with 2.01 D. above for pre bid approval shall include all custom accessories required or necessary to maintain equal or commensurate features to the standard set and included in all parts of this specification. The owner shall determine whether the proposed custom accessories including but not limited to those indicated in 2.02.B.4 and 2.02.B.5 above, if any are required, to compensate for any feature (except noise reduction standard) required by these specifications which cannot be provided by proposed substitution of manufacturer or products.

2.03 MATERIALS

- A. Aluminum Windows and Components
 1. Windows shall be blinded and non-blinded projected (project-in) and casement (project-in) windows.
 2. Window sections shall be 3 1/4 inches in overall depth.

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3. Siteline (width) of horizontal mullion and all frames shall not exceed dimensions indicated on the Drawings.
4. Siteline (width) at vertical mullion shall not exceed dimensions indicated on the Drawings.
5. Upper and lower operable unit areas of window shall be indistinguishable in siteline from each other when viewed from the exterior with the operable units in the closed position.
6. All extruded aluminum members shall be extruded from 6063 T5 prime billet.
7. Principle window members and custom extruded jamb and head trim shall have a minimum wall thickness of 0.125 inches.
8. Operable unit sashes shall be tubular in design.
9. Custom extruded mullion trim shall have a minimum wall thickness of 0.050 inches.
10. Custom extruded sills shall have a minimum wall thickness of 0.125 inches.

B. Thermal Barrier

1. Thermal barrier sections shall incorporate a thermal barrier cavity which provides a minimum separation between aluminum sections of 3/8 inch.
2. The two-part chemically curing polyurethane thermal barrier material shall be poured-in-place into pre-treated cavities. Thermal barrier material which is poured-in-place prior to painting will not be acceptable.
3. Thermal barrier material shall be provided by and poured-in-place at the window manufacturer's plant to assure proper quality control.

C. Hardware/Windows & Blinds

1. General
 - a. All steel components shall be 300 series stainless steel (except as noted herein).
 - b. All aluminum components shall be 6063 T5 (T6)

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or 6105 T6.

- c. Hardware members bridging frame or vent thermal barrier to be nylon or suitable low-conductivity, non-metallic material.

2. Hinges

- a. Provide two stainless steel concealed four-bar friction hinges meeting AAMA 904.1 for all windows except as indicated below or noted on the Drawings. All hinges shall be capable of opening 70 degrees for operable unit of projected (project-in) windows and 90 degrees for operable unit of casement (project-in) windows. Provide semi-concealed surface mounted butt hinges painted the same color and finish as the window frame for all Multi-Purpose Room and Cafeteria casement (project-in) windows in the 1890s building and all Gymnasium casement (project-in) windows in the 1959 building. Provide 2 butt hinges on hinged side up to 3'-11" in height or width and one additional hinge for each additional increment over 3'-11" maximum.

3. Locks for Projected Units

- a. Stainless steel construction slim line cam handle project-in locks for all lower operable units, stainless steel construction concealed flush mount (tamper resistant) cam locks for custodial keys for all upper operable units, strikes and keepers for manual operation to secure operable units in closed position. Provide ten (10) custodial keys for operable unit's concealed cam locks.
- b. Provide a minimum of two locks for operable units exceeding 2'-11" in width.
- c. Locking hardware shall be provided with a stainless steel strike backed up with extruded aluminum leg minimum of 0.125 inch thick.
- d. All interior glazed access door frames shall be secured with concealed locking mechanism manually operated by custodial key. Provide ten (10) keys for glazed access panels.

4. Locks/Operators for Multi-purpose Room, Cafeteria,

and Gymnasium Casement Windows

- a. Provide single point multi-lock mechanism for lower casement (project-in) units.
- b. Window manufacturer to provide "Clearline" Chainflex Operators and accessories for each upper casement (project-in) unit; two per sash for the Cafeteria windows (1890s building) and three per sash for the Multi-Purpose Room windows (1890s building) and Gymnasium windows (1959 building).
- c. All exposed portions of the above locks, operators and cable conduit shall be painted the same color and finish as the window frames and sashes.

5. Limited Opening Mechanism

- a. All lower operable units of projected windows shall be factory equipped with concealed Limited Opening Mechanisms. Limiters shall be factory preset at 10" for all corridor and stairwell windows and 18" for all other windows (measured at top of lower project-in unit, from interior face of operable frame to interior face of fixed frame), with the exception of Multi-Purpose Room and Cafeteria casement windows (1890s building) and Gymnasium casement window (1959 building). Limiters for projection windows shall be capable of being key released to open to the full 70 degrees. Provide ten (10) keys for mechanisms.

6. Blinded Project-In Windows

- a. Both upper and lower units of blinded windows shall be provided with between glass custom metal mini blinds.
- b. Blind slats shall be 1" in width. Blind slats and components shall have a painted finish and color as specified in paragraph 1.06, D.2. of this specification Section. Blind slats shall be held as close as possible to the operable unit's jamb and sill frames to prevent daylight from entering the room.
- c. Blinds shall be held in place to the operable

frame by snap-in clips at the head of blind unit and hold down pins and black plastic hold down brackets at the sillrail end caps of blind unit to prevent lateral movement.

- d. Blind units shall be provided with black extruded plastic vertical control rod cover and black slim-line pinched tilt control knob. Control knob shall be located six (6) inches and four (4) above bottom tip of sash for lower and upper units respectively.

D. Riser Blocks

1. Each operable unit shall be equipped with a nylon riser block at the sill.

E. Sealants/Backer Rods

1. Sealants used between components and moving and perimeter joints shall be Pecora's Dynatrol II, or approved equal, custom color as selected by the Architect and backer rods shall be compressible rod stock of closed cell, expanded, extruded polyethylene.

F. Weatherstrip

1. Closed cell extruded sponge neoprene meeting ASTM C509 with molded corners mounted to exterior frame leg perimeter contacting exterior face of operable unit glass.
2. Ball-type neoprene meeting ASTM C509 at interior perimeter between operable unit and interior frame leg and between access panel and operable unit.

G. Glass and Glazing

1. Provide glass sizes as indicated on the Contract Drawings. Glazing pocket design must be in accord with the FGMA Glazing Manual.
2. Access Panel Glazing: Set glass against pre-shim butyl tape at exterior. Interior glazing bead with dense EPDM neoprene wedge and silicone cap.
3. Structural Glazing of Operable Unit: All operating units shall be glazed with glass set against a silicone rubber gasket with a structural silicone joint on the inboard side. Ventilator to close

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against a closed-cell neoprene gasket meeting ASTM C509 with molded corners.

4. Glazing Types

a. Outer and Inner Lite Glazing

- 1) Fully tempered clear float glass; ASTM C1048, Kind FT, Condition A, Type I, Class 1, tempered by glass manufacturer's standard process (after cutting to final size).
- 2) Thickness: 1/4 inch.

5. Obscure Glass

Provide tempered obscure glazing material of pattern selected by Architect at locations indicated on the Drawings. Obscure surface shall be located on glass face 3.

H. Fasteners

Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components of window units.

1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce interior with aluminum or non-magnetic stainless steel to receive screw or provide standard non-corrosive pressed-in spliced grommet nuts.
2. Do not use exposed fasteners on exterior except where unavoidable for application of hardware. Match finish of adjoining metal.
3. Provide non-magnetic stainless steel Phillips flat-head machine screws for exposed fasteners, where required, or special tamper-proof fasteners.
4. Locate fasteners not to disturb thermal break construction of windows.

- I. Anchors, clips and window accessories: Depending on strength and corrosion-inhibiting requirements, fabricate units of aluminum, non-magnetic stainless steel or hot-dip zinc-coated steel or iron complying with ASTM A 386.

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- J. Window poles shall be provided for all operable window cams more than 6'-0" above finished floor when remote operators are not indicated poles shall not be long enough to achieve a 45 degree angle from window hardware to a point 5'-0" above finished floor.

2.03 FABRICATION

A. General

1. Window units shall be factory fabricated including all sealing and installation of hardware.
2. Window units shall be factory glazed.
3. Units shall have a finish range between adjacent members matching the approved samples.
4. Fasteners which penetrate the perimeter frame shall be completely sealed with an approved sealant.

B. Main Frame Members

1. Miter all corners and weld, then seal weathertight. Joinery methods must not discolor finish or be unsightly as determined by the Architect. All frame sealants must be concealed.

C. Operable Units

1. Miter all corners and mechanically stake over solid aluminum corner block minimum 3/8 inch thick, set and sealed in epoxy leaving hairline joinery, then seal weathertight. Joinery methods must not discolor finish or be unsightly as determined by the Architect. All sealants must be concealed.
2. Sealants applied to portions of the operable sash and frame visible when sash is open shall also be neatly and minimally applied. All excess sealants applied in these areas shall be removed prior to delivery.

D. Access Panels

1. Miter all corners and mechanically stake over solid aluminum corner block minimum 1/4 inch thick, set and sealed in epoxy leaving hairline joinery, then seal weathertight. Joinery methods must not discolor finish or be unsightly as determined by

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the Architect. All sealants must be concealed.

E. Weatherstripping

1. Each operating unit shall be double weatherstripped with fin-type continuous extruded neoprene weatherstripping meeting ASTM C864.
2. Weatherstripping shall be installed in extruded races and shall be continuous at all corners. Weatherstrip splice shall occur at the window head only.

F. Glazing and Procedure

1. Glaze fixed lites against exterior sponge neoprene gasket, install anti-walk blocks as required and apply interior dense neoprene wedge.
2. To glaze operating unit, install exterior sponge neoprene weatherstrip gasket to frame, apply silicone rubber spacer in vent and install glass with proper glass blockage. After closing and locking vent, clean and/or prime aluminum surfaces per sealant manufacturer's recommendations and apply structural silicone joint allowing proper setting time (reglazing must be possible without removal of operating unit).

G. Glass Drainage

1. Provisions shall be made to insure that water will not accumulate and remain in contact with the perimeter areas of sealed glass units.

H. Air Vents

1. Provide minimum of four nylon air vents (two top, two bottom) filtered and vented to exterior or wall cavity air located in space between glass.

I. Finish

1. Organic (General): Finish of all exposed areas of aluminum windows and components shall be in accord with AAMA Voluntary Guide Specification 605.2.
2. Extrusions shall be finished on lineals prior to fabrication. Manufacturer's quality control shall provide close control on acceptable color

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variations between adjacent members as determined by the Architect.

3. Finish to be applied prior to pouring and debridging of thermobreak.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Inspect openings before beginning installation. Verify that rough or masonry opening is correct and the sill plate is level.
- B. Masonry surfaces shall be visibly dry and free of excess mortar, sand and other construction debris.
- C. Metal surfaces shall be dry, clean, free of grease, oil, dirt, rust and corrosion, and welding slag, without sharp edges or offsets at joints.

3.02 REMOVALS AND REPAIRS

- A. Do not remove existing windows until new replacement windows are on Site and ready for installation. Do not leave any openings unprotected at end of work day or during periods of excessive cold weather or precipitation.
- B. Removal of existing windows must be coordinated with the Asbestos Removal Contractor. Protection of the window openings is the responsibility of the General Contractor.
- C. Remove existing windows and accessories as indicated on Drawings and as specified herein.
- D. Remove existing windows and debris from Site.

3.03 INSTALLATION

- A. Installation of window units shall be the responsibility of the window manufacturer, or his authorized representative.
- B. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators and other components of the Work. In no case shall attachment to structure or to components of window system be through or affect thermal barriers of windows.

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- C. Carefully remove existing windows without causing damage to adjacent materials and surfaces. Install new windows as detailed on Drawings, as specified herein, and as recommended by manufacturer.
- D. Frames shall be firmly anchored to structure with steel anchors, as recommended by the manufacturer.
- E. Windows shall be properly anchored, plumb and level.
- F. Provide protection for window finish to prevent damage during the course of construction operations and remove finish protection before final inspection of windows.

3.04 SETTING AND ANCHORING

- A. Anchor windows frames at jambs, head, and sill as detailed on Drawings and as recommended by window manufacturer. Comply with NYC Building Code.
- B. Set units plumb, level and true to line, without warp or rack of frames or ventilator. Provide proper support and anchor securely in place.
- C. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified under paragraph "Dissimilar Materials" in the Appendix to AAMA 101-88.
- D. Set sill members and other members in a bed of sealant and gaskets to provide weathertight construction. Refer to Section 07900 for bed sealant to be installed concurrently with window units.
 - 1. Perimeter sealant to be installed after installation of window units. Since the window sealant is an integral part of the soundproofing capacity of the window unit, sealant shall only be installed by the window installer. Refer to 2.03.E.1 for sealant to be used for window perimeter.

3.05 ADJUST AND CLEAN

- A. Adjust operating ventilators and hardware to provide tight fit at contact points and at weatherstripping, for smooth operation and weathertight closure.
- B. Clean painted aluminum surfaces promptly after installation of windows. Exercise care to avoid damage

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to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt and other substances. Lubricate hardware and other moving parts.

- C. Clean glass of units promptly after installation of windows; comply with requirements of the "Glass and Glazing" Section and Maintenance.
- D. Initiate and maintain protection and other precautions required through the remainder of the construction period, to ensure that, except for normal weathering, window units will be free of damage or deterioration at the time of substantial completion.
- E. The window manufacturer's representative shall instruct the custodial staff in the maintenance and cleaning of the windows and glazing and shall provide four (4) bound maintenance manuals to the Authority's Representative.

END OF SECTION

Window Manufacturer Certification Form

**Representation and Warranty
submitted with the bid of**

(Name of Bidder)

Monsignor McClancy Memorial High School Solicitation

The undersigned represents and warrants the following:

- 1. This document is part of a bid submitted on the captioned MMMHS solicitation, which is related to the manufacturer and installation of windows which will minimize within a classroom the noise generated from a source outside of a classroom;
- 2. The specifications and drawings of the captioned MMMHS solicitation have been reviewed by the undersigned or one under the supervision of the undersigned;
- C. The undersigned operates a business which can and, if the bidder named above is awarded the contract, will manufacture the window described in the captioned MMMHS solicitation; and
- D. The undersigned submits this document because it expects the MMMHS to rely upon its contents in determining the responsiveness of the bid of the bidder whose name appears

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above.

Date: _____, 2000

Signature: _____

Business Name: _____

Business Address: _____

Business Phone: _____

Sworn To Before Me This ____ Day Of _____, 2000

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SECTION 08710
FINISH HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide finish hardware as indicated on Drawings, as specified herein, and as needed for complete hardware requirements. Roof bulkhead door hardware is part of ITEM 1.

1.02 RELATED SECTIONS

- A. Steel Doors and Frames..... Section 08110
- B. Access Doors..... Section 08305

1.03 REFERENCES

- A. Federal Specifications (FS).
- B. American National Standards Institute (ANSI).
- C. National Fire Protection Association (NFPA).
- D. Door and Hardware Institute (DHI).
- E. Underwriters Laboratories (UL).

1.04 SUBMITTALS

- A. Manufacturer's Technical Product Data: Submit for each hardware item type, including cuts, specifications and characteristics, instructions for installation, operation, and maintenance.
- B. Samples: Submit with Hardware Schedule one sample for each type of hardware. Approved samples may be installed in Work. Hardware installed shall correspond in particulars to approved sample of respective type.
- C. Hardware Schedule

NOTE: Provide Schedule for entire Project in one submittal, unless otherwise directed. Submit Hardware Schedule in book form (8-1/2" x 11" pages), indicating the following for each item. No continuous computer printout permitted.

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1. Locations of hardware, with cross-reference to schedules and other indications on Drawings.
2. Name, manufacturer, type, style, size, function, and finish.
3. Information for fastenings.
4. Mounting Locations.
5. Materials and sizes of doors and frames.
6. Explanation of abbreviations and symbols.

D. Templates

At time of submittal of Hardware Schedule, furnish hardware templates to fabricators of other factory-prepared work necessary for installation of hardware.

E. Key Schedule

1. Submit Hardware Key Schedule, prepared by hardware supplier, to the MMMHS Representative within forty-five (45) days after starting date of Contract.
2. Stamp top face of each key with letter and number starting with A1 to Z1 and continuing the series of letters and numbers to the maximum number of keys furnished. Tag each series of keys.
3. Stamp face of each cylinder with the same corresponding letters and numbers.
4. Locks shall be made up on combinations as specified.
5. Furnish schedule of keys in quadruple indicating letter and number of each key and number of doors, and access doors for which the keys are intended. Submit schedule for approval before making keys.

1.05 QUALITY ASSURANCE

A. Hardware Supplier

Reputable, minimum of five (5) year experience, with experienced hardware consultant on staff.

B. Manufacturer

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Obtain each hardware type from a single manufacturer.

C. Minimum Quality Requirements

Hardware items shall be of quality specified herein, and shall meet or exceed requirements of ANSI A156 series standards.

D. Fire-rated Openings

Provide hardware in compliance with NFPA Standard No. 80 and NYC Building Code requirements, tested and listed by UL for types and sizes of doors, and in compliance with requirements of door frame and door labels.

1.06 SHIPPING, STORAGE, AND HANDLING

A. Package and ship hardware to prevent damage. Properly identify and tag each item. Sort, package and mark hardware with set numbers.

B. Inventory hardware immediately upon delivery.

C. Provide secure storage area for hardware until installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Butts

1. Stanley or approved equal.

B. Mortise Locksets

1. Best or approved equal.

C. Cabinet Locks (for access doors)

1. Best or approved equal.

D. Door Closers

1. LCN or approved equal.

E. Weatherstripping

1. Pemco or approved equal.

2.02 MATERIALS AND FABRICATION

A. General

1. Hardware: Heavy duty cast or forged (.080 min.) stainless steel with U.S. 32D finish, except otherwise specified.
2. Door closers: As specified herein.
3. Butts: Stainless steel with U.S. 32D finish.
4. Surfaces of castings shall be true, smooth and free from burrs. Lock mechanism and accessory components in contact with or bear upon other parts shall be dressed to a true, smooth surface.
5. Whenever weight is specified, it shall mean actual weight of casting without screws, washers and accessories.
6. Do not use products with manufacturer's name in an exposed location, except name on rim of lock cylinders.
7. Backset: 2-3/4" for locksets unless indicated otherwise.

B. Screws

1. Secure hardware with suitable screws and bolts of same material and finish as hardware items. Screws for strike and face plates, and hinges shall be flat-headed counter-sunk screws. Screws for other exposed hardware shall be oval-headed. Screws for butts for exterior aluminum doors shall be stainless steel. Screws for closers shall be machine screws. Screws shall be countersunk unless expressly specified otherwise.
2. Hardware for metal frames and doors shall be secured with suitable tap-screws, mill screws and bolts.

2.03 GENERAL HARDWARE REQUIREMENTS

- A. Hardware Schedule is intended to guide Contractor in preparing the Schedule for Work of this Section. It shall not relieve Contractor from the necessity of examining Specifications, Drawings and Details, and providing everything necessary to properly complete hardware

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installation.

- B. Hardware used on steel doors shall be made to templates and packed with machine screws.
- C. Hardware items not described shall be equal in grade, workmanship, and other particulars to similar items of hardware described.

2.04 FINISHES

- A. Hardware finishes shall comply with requirements of U.S. Bureau of Standards for the following:

U.S. - DESCRIPTION

USP - Primed for Painting
US1D - Dull Black
US2C - Zinc Plated, Commercial
US3 - Bright Brass
US4 - Dull Brass
US5 - Dull Brass, Oxidized
US7 - Brass, Nickel oxidized, Bright Relieved
US9 - Bright Bronze
US10 - Dull Bronze
US10A - Antique Bronze, lacquered
US10B - Antique Bronze, oiled
US11 - Dull Bronze, oxidized
US14 - Bright Nickel Plated
US15 - Dull Nickel Plated
US15A - Nickel Oxidized Relieved
US17A - Half Polished Iron, Smooth
US20 - Statuary Bronze, Light
US20A - Statuary Bronze, Dark
US26 - Bright Chromium
US26D - Dull Chromium
US32 - Polished Stainless Steel
US32D - Dull Stainless Steel

In addition, the following finish symbols are used for door closers:

AL - Manufacturer's standard aluminum lacquer

2.05 HARDWARE TYPE REQUIREMENTS:

- A. Locks and Latches

1. Interior (Elec Service/Water Meter Rm) & Exterior doors (Roof Bulkheads):

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- a. Type: mortise lockset.
- b. Case: 6 1/8" high, 4 1/4" deep, 1" wide.
- c. Backset: 2-3/4"
- d. Latchbolt: 3/4" throw, solid brass with satin chrome finish.
- e. Strike: lip strike 4 7/8" x 1 1/4" x 3/32".
- f. Operation: latchbolt by key/lever from outside and level from inside for interior and exterior doors.
- g. Secure locksets to doors with Phillips Head screws.

2. Cylinders:

Cylinders of locks shall be of proper length to fit doors for which they are intended. Cylinders shall be cast bronze with common standard diameter cast bronze rotating plug. The keyway shall be paracentric type of single section with seven pins or multiple (four or more) sections with six pins capable of being keyed alike.

3. Strikes: Strikes for latches shall project sufficiently to properly protect trim. Slots in strike plates shall not be more than 1/4" longer than bolts. Metal between slots for latch and bolt shall not be less than 1/4". Strikes used with hollow metal jambs shall be of box type with closed back.

B. Door Closers

1. Door Closers:

Door closers shall have cast iron or aluminum cases treated to overcome porosity, arms of forged steel, and connecting rods of high carbon steel. Brackets for door closers, where required, shall be of forged steel.

2. Door closers shall be fully hydraulic rack and pinion action with high strength cast iron cylinders and one piece forged steel pistons of approved manufacture, guaranteed to properly operate door, free from mechanical defects for two

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years from date of final acceptance of Work. Closers fail to meet specified requirements shall be replaced or repaired and made to operate properly by Contractor without additional expense to the MMMHS. Closers shall be equipped with clock key valve.

3. Closer described in B.1 shall be provided on all steel doors and frames.
4. Closers on steel doors shall be on interior/push side of doors.

C. Butts and Hinges

1. Extra Heavy Stainless Steel: Ball bearing, self-lubricating butts, with inner edges of leaves beveled, three to each door unless otherwise specified. Non-removable pin butts shall have stainless steel pins, stainless steel set screw in barrel, stainless steel balls and raceways. Butts shall have flat button tips stamped with classification number and trade name or trade mark of manufacturer.

2. Non-Removable Pin Butts:

Non-removable pin stainless steel butts shall be 4 1/2" x 4 1/2", 1.134 gage. Doors 5'-0" or over in height shall have 3 butts to each door.

D. Weatherstripping at Roof Bulkhead Doors [ITEM 1]

1. Cushion ("V" type) .008 gauge hemmed spring bronze weatherstripping.
2. Fasten at 3" on center to all four sides of door frame.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide complete installation of finish hardware items as indicated on Drawings and as specified herein.
- B. Mount hardware as recommended by respective manufacturer.
- C. Mount door hardware items at heights and locations on doors and frames in accordance with "Recommended

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Locations for Builders Hardware for Standard Steel Doors and Frames" by Door and Hardware Institute, except where specifically indicated otherwise.

- D. Set hardware items plumb and level and secure with proper fasteners.

3.02 APPLYING HARDWARE

- A. Hardware specified in this Section shall be fitted, installed and adjusted.
- B. Secure hardware with suitable screws, bolts, or other fasteners, as required. At completion of Project, leave hardware in perfect conditions, free from stains, varnish, scratches and mars.

3.03 CLEANING AND ADJUSTING

- A. Clean hardware items thoroughly and adjust for proper operation.

3.04 KEY OPERATION AND INSPECTION

- A. Upon completion of the Work and after locks have been secured in proper positions, keys belonging thereto shall be fitted and made to work freely in respective locks in the presence of the MMMHS Representative. The required number of keys for each lock, properly marked, shall be delivered to the MMMHS Representative, who will give a receipt therefor.

3.05 EXISTING BUILDING MODIFICATION

- A. Removals
 - 1. Where doors are designated to be removed as part of Contract, locksets, knobs, closers, butts and other hardware shall be removed from the doors and shall be turned over to the Director of Buildings & Grounds.

PART 4 - SCHEDULES

4.01 FINISH HARDWARE SCHEDULE

- A. Provide hardware for each item of Work in compliance with "Hardware Set Numbers" indicated in Hardware Schedule on Drawings, and as listed below:

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<u>Item</u>	<u>Quantity</u>	<u>Mfr. & Cat. No.</u>
<u>SET 1</u>		
<u>Exterior Doors (Entrance) Each Door:</u>		
1. Butts	1-1/2 Pair 6"x5" NRP	McKinney T4B3386
2. Exit Device	1	Precision 1103 x 17 (with rim cylinder)
3. Surface mounted or concealed Door Closer	1	LCN 4040 mounted with Extra Duty Arm 4040-3077EDA or LCN 2016 (concealed)
4. Overhead Stop with Holder	1	Glynn-Johnson 80 Series HD

SET 2

Exterior Doors (Exit) (without Cylinders)

Each Door:

1. Butts	1-1/2 Pair 6"x5" NRP	McKinney T4B3386
2. Exit Device	1	Precision 1102 x 17
3. Surface mounted or concealed Door Closer	1	LCN 4040 mounted with Extra Duty Arm 4040-3077EDA or LCN 2016 (concealed)
4. Overhead Stop with Holder	1	Glynn-Johnson 80 Series HD

SET 3

Classroom

Each Door:

1. Butts	1-1/2 pair 4-1/2"x4-1/2"	McKinney TB2714
2. Lockset	1	Sargent 8237 LW1B
3. Surface Mounted Door Closer	1	LCN 1461 DEL
4. Overhead Stop 1 <u>without</u> Holder		Glynn Johnson 80 Series HD
5. Silencers	3	Glynn Johnson 64

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6. Card Holder 1 Quality 1821

SET 4

Exterior Door - Mechanical Room

Each Door:

1. Butts 1-1/2 pair 6"x5" NRP McKinney T4B3386
2. Lockset 1 Sargent 8237 LW1B
3. Overhead Stop 1 Glynn Johnson
with Holder 80 Series

SET 5

Mechanical Rm. & Electrical Rm.

Each Door:

1. Butts 1-1/2 Pair 4-1/2"x4-1/2" McKinney TB2314
2. Lockset 1 Sargent 8204 LW1B
3. Surface Mounted 1 LCN 4010
Door Closer
4. Overhead Stop 1 Glynn Johnson
with Holder 80 Series HD
5. Silencers 3 Glynn Johnson 64

SET 6

Access Door from Stage to Classroom (Double Doors)

Each Pair of Doors:

1. Butts 3 Pairs 4-1/2" x 4-1/2" McKinney TB2314
2. Pulls 2 Rockwood 130
(one each door)
3. Surface Bolts 2 Ives 143-12
(top and bottom
of inactive door)
4. Silencers 4 Glynn Johnson 64
(2 each at
door head)

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5. Security Lock
(active leaf)

Yale 197 Vertical
Boltlock

6. Overhead Stop 2
with Holder
(One each door)

Glynn Johnson
80 Series HD

SET 7

Access Doors

Each Access Door:

1. Cabinet Lock 1

Best 5E6 Series
US32D

4.02 KEYING

A. General Keying Requirements

1. Incorporate keying for new locks into existing keying system. Coordinate all keying requirements with MMMHS prior to fabrication.

B. Keying Schedule

1. Interior Mechanical Room & Electrical Room doors shall be keyed alike.
2. Exterior acoustical metal entrance doors shall be keyed alike.
3. Exterior egress doors shall be keyed alike.
4. Classroom doors shall be keyed alike.
5. Access doors shall be keyed alike.
6. Furnish five (5) keys of each type of lock.

END OF SECTION

SECTION 08730
THRESHOLDS, WEATHERSTRIPPING AND SEALS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide thresholds, saddles, weatherstripping and seals as shown on Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Selective Removals & Demolition..... Section 02070
- B. Steel Doors and Frames..... Section 08110
- C. Painting..... Section 09900

1.03 REFERENCES

- A. American National Standards Institute (ANSI).
- B. American Society for Testing and Materials (ASTM).
- C. Builders Hardware Manufacturers Association (BHMA).
- D. American Architectural Manufacturers Association (AAMA).

1.04 SUBMITTALS

- A. Product Data
Catalog sheets, specifications, installation and maintenance instructions for each item and type.
- B. Samples
 - 1. 6" long section, each item and type.
 - 2. Fasteners: Each type.
 - 3. Color Samples:
 - a. Painted Aluminum: To match color of door.
 - b. Bronze: Manufacturer's standard colors.

1.05 QUALITY ASSURANCE

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- A. Use resilient or flexible stripping and seals that are easily replaceable and available during anticipated life of building.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products of this Section as recommended by manufacturer to protect from damage.
- B. Inventory products immediately upon delivery.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Zero International, Inc., Bronx, NY.
- B. Accurate Metal Weatherstripping Co., Mt. Vernon, NY.
- C. Pemco, Ventura, CA
- D. Reese Enterprises, Inc., Huntington Beach, CA.
- E. Safe-T-Metal Co., Inc., Garden City Park, NY.
- F. National Guard, Memphis, TN.

2.02 MATERIALS

- A. Metals
 - 1. Extruded Aluminum: Alloy 6063, hardness T5 or T6.
 - 2. Extruded Architectural Bronze: Brass Alloy 385.
- B. Neoprene
 - Minimum chlorine content 12 percent.
 - 1. Solid Neoprene: Mil R6855, Class II, Grade 40.
 - 2. Closed Cell Neoprene: Mil R6130B, Type II, Grade A, B, C.
- C. Polypropylene
 - American Architectural Manufacturer's Association 701.1 Standards.

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D. Fasteners

Builders Hardware Manufacturers Association Standard
1001, unless otherwise specified.

2.03 EXTRUDED THRESHOLDS

A. Types

1. Type 1: Single piece saddle.
2. Type 2: Adjustable width saddle.
 - a. Adjustable Construction: 3 piece interlocking. Width: Minimum 5" and less than 7".
 - b. Adjustable Construction: 5 pieces interlocking. Width: Minimum 7" or greater.
3. Type 3: Rabbeted with stop strip.
 - a. Thermal Barrier: Hollow neoprene bulb.
 - b. Thermal Barrier: Closed cell sponge neoprene.
 - c. Thermal Barrier: Pile insert.

B. Metal

Extruded bronze.

C. Surface Pattern

Abrasive tread.

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D. Fasteners

Bronze Thresholds: Solid brass Phillips flathead wood screws, or flathead machine screws as anchors, appropriate for substrate.

2.04 THRESHOLD FABRICATION

- A. Fabricate thresholds of length required for tight fit against door frames. Cope to provide fitting around obstructions. Leave edges free from burrs.
- B. Factory miter corners and fit with end returns to close exposed ends of thresholds not covered by door frame.
- C. Drill holes 3" from each end of threshold and intermediate holes 12" maximum oc for required fasteners. Prepare holes for countersunk fasteners.

2.05 DOORS BOTTOM PROTECTION

A. Sweep Type

- 1. Mounting: Surface.
- 2. Housing: Extruded aluminum, main walls and flanges, minimum 0.062" thick.
- 3. Finish: Paint to match color of door.
- 4. Seal: Solid neoprene.
- 5. Fasteners: Manufacturer's standard or recommended fasteners in compatible material and matching finish, unless otherwise specified.

2.06 DRIP CAPS

- A. Provide drip caps for exterior doors not protected from precipitation.
- B. Types
 - 1. Sill Protection.
 - 2. Top Protection: Extended rain drip cap.
- C. Metal

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Extruded aluminum.

D. Finish

Paint to match color of door.

E. Fasteners

Manufacturer's standard or recommended fasteners in compatible material and matching finish, unless otherwise specified.

2.07 HEAD AND JAMB WEATHERSTRIPPING AND SEALS

A. Spring Metal Type

1. Mounting: Surface.

2. Metal:

a. Spring bronze, minimum 0.006" thick.

3. Finish: Mill.

4. Fasteners: Manufacturer's standard or recommended fasteners in compatible material and matching finish, unless otherwise specified.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install Work in accordance with manufacturer's printed instructions, except as shown or specified otherwise.

NOTE: Refer to Section 07900 for sealant types.

B. Level and align thresholds with frames and doors. Where required, use non-corrosive shims.

1. Exterior Doors: Set threshold in a solid bed of Type 3 sealant.

2. Secure thresholds to substrate with countersunk fasteners.

C. Mount sweep type door bottom protection/drip caps on exterior side of doors.

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1. Before mounting apply Type 2 sealant on the back side of bearing surface. Secure to door with required fasteners.

D. Weatherstripping and Seals

1. Starting at head, install continuous stripping at each opening without unnecessary interruptions at door corners and hardware.
2. Secure fasteners for stripping and seals so they will not work loose during door operation. Exposed heads of fasteners shall be free of sharp edges.
3. Coordinate meeting seals with hardware before installation.
4. Install units plumb and level at optimum location to maintain a permanent effective seal.

3.02 ADJUSTING AND CLEANING

- A. Adjust stripping and seals, if necessary, to achieve an effective seal for proper operation of doors and hardware.
- B. Clean exposed surfaces by methods recommended by manufacturer.

END OF SECTION

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SECTION 08800
GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide glass glazing Work as indicated on Drawings and as specified herein, including, but not limited to the following:

1. Float Glass (tempered)
2. Wired Glass
3. Laminated Glass
4. Insulating Glass

1.02 WORK PROVIDED IN OTHER SECTIONS

- | | |
|--|---------------|
| A. Aluminum Proj. and Casement Windows | Section 08524 |
| B. Acoustical Metal Doors and Frames .. | Section 08341 |
| C. Steel Doors, Frames, & Hollow
Metal Work | Section 08110 |

1.03 RELATED SECTIONS

- | | |
|--|---------------|
| A. Aluminum Proj. and Casement Windows | Section 08524 |
| B. Acoustical Metal Doors and Frames | Section 08341 |
| C. Steel Doors, Frames, & Hollow
Metal Work | Section 08110 |

1.04 REFERENCES

- A. Flat Glass Marketing Association (FGMA).
- B. Underwriters Laboratories, Inc. (UL).
- C. American National Standards Institute (ANSI).
- D. Insulating Glass Certification Council (IGCC).

1.05 SUBMITTALS

A. Product Data

Manufacturer's specifications and installation instructions for each type of glass specified herein:

1. Spacers.
2. Compressible filler rod.

B. Samples

1. Glass: 12" x 12" pieces for each type of glass specified herein.
 - a. Insulating glass samples need not be hermetically sealed, but include edge construction materials.
2. Setting blocks, full size.

C. Quality Control Submittals

1. Test Reports: Certified test data to sufficiently substantiate glass or glass assembly compliance with requirements specified.
2. Certificates:
 - a. Affidavit required under Quality Assurance Article.
 - b. Wired Glass: Affidavit required under Quality Assurance Article.

1.06 QUALITY ASSURANCE

A. Compatibility of Materials

Components of glazing system shall be manufactured or recommended by one manufacturer to assure compatibility of materials.

- B. Comply with recommendations in "Glazing Manual" and "Glazing Sealing Systems Manual" of Flat Glass Marketing Association except as shown or specified

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otherwise, and specifically recommended otherwise by manufacturers of glass and glazing materials.

C. Safety Glazing Material

Type indicated, meeting requirements of ANSI Z97.1 with label on each piece.

D. Certification

1. Affidavit by material supplier, certifying type and quality of glass furnished.
2. Wired Glass: Affidavit by material supplier, certified as bearing Underwriter's Laboratories (UL) classification marking for fire resistance.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect glass from edge damage during handling, storage, and installation.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

Comply with glazing materials manufacturer's written recommendations regarding environmental conditions under which glazing materials shall be installed.

- B. Glazing channel dimensions shown are intended to provide for necessary minimum bite on glass, minimum edge clearance and adequate glazing material thickness, with reasonable tolerances. Provide correct glass size for each opening, within acceptable tolerance and necessary dimensions.

PART 2 - PRODUCTS

2.01 GLASS

A. Type A Glass

Tempered Float Glass; ASTM C 1048, Kind FT, Condition A, Type I, Class 1, tempered by manufacturer's standard process (after cutting to final size).

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1. Thickness: 1/4"

B. Type B Glass

Clear Wired Glass; ASTM C 1036, Type II, Class 1, Form 1, quality q8.

1. Thickness: 1/4".

2. Wire Mesh: Diamond, welded, approximate 7/8" by 1 1/8" diamonds.

C. Type C Glass

Laminated Glass, three sheets of 1/4" thick double-strength clear sheet glass; ASTM C 1036, Type I, Class 1, quality q3; permanently laminated together with minimum 0.060" thick sheet of clear plasticized polyvinyl butyral produced specifically for laminating glass.

D. Type D Glass

Organically Sealed Insulating Glass Units: ASTM C 1036, applicable Type and Class for glass indicated below, quality 13 for Type I glass; manufacturer's standard edge construction of spacers and sealants permanently bonded to glass surfaces and hermetically sealed to provide a dehydrated air space 2 1/2" thick with -60 degrees F. dew point; fabricated of the following glass.

Insulating glass shall be Certified Class CBA by (IGCC).

1. Exterior Glass: Laminated Glass.

2. Interior Glass: Laminated glass.

2.04 GLAZING MATERIALS

A. For exterior glazing, except do not use in deep channels:

Dow Corning 999-A; GE Silglaze N2500; Rhone-Poulenc's Rhodorsil 3B.

Type 1 Glazing Material: Silicone Rubber Glazing Sealant; silicone rubber one-part elastomeric sealant; FS TT-S-001543, Class A; acid-type for non-porous channel surfaces, and non-acid type where channel surfaces are porous.

B. For exterior glazing

Use in deep channel glazing; paintable.

Products: W.R. Meadows Dualthane and CM-60 two-part; Pecora's GC-5 Synthacalk; Sonneborn's Sonolastic two-part.

Type 2 Glazing Material: Polysulfide Glazing Sealant; polysulfide two-part elastomeric sealant; FS TT-S-00227, Type II,, Class A, compounded by manufacturer specifically for glazing.

C. For Channel glazing and for small lights:

Products: W.R. Meadows Solaply; Pecora's 60+ Unicrylic Acrylic; Tremco's Mono.

Type 3 Glazing Material: Acrylic Glazing Sealant; solvent-based, acrylic terpolymer, thermoplastic sealant; FS TT-S-00230, Type II, Class B, 95 percent of solids acrylic; compounded specifically for glazing.

D. Setting Blocks

Neoprene, 70-90 durometer hardness, proven to be compatible with sealants used.

E. Spacers

Neoprene, 40-50 durometer hardness, proven to be compatible with glazing materials used.

F. Compressible Filler Rod

Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with glazing materials used, flexible and resilient, with 5-10 psi compression strength for 25 percent deflection.

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G. Cleaners, Primers and Sealers

Type recommended by glazing material manufacturer.

2.06 LOCATIONS FOR GLASS INSTALLATIONS, GENERALLY

A. Float Glass (Tempered)

1. At aluminum projection and casement windows.

B. Wired Glass (Polished)

1. In interior glazed metal doors.

C. Insulated Glass and Laminated Glass

1. At transoms above acoustic metal doors

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clean glazing channel, or other framing members to receive glass, immediately before glazing. Remove coatings not firmly bonded to substrate. Remove lacquer from metal surfaces wherever elastomeric sealants are used.
- B. Inspect each piece of glass immediately before installation, and eliminate pieces with damage or face imperfections.
- C. Apply primer or sealer to joint surfaces wherever recommended by sealant manufacturer.

3.02 INSTALLATION

- A. Each installation shall withstand normal temperature changes, wind loading, and impact loading (for operating sash and doors) without failure of any kind including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects.
- B. Install glass in accordance with standards detailed in "Glazing Manual" and "Glazing Sealing Systems Manual" of Flat Glass Marketing Association except as shown

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and specified otherwise, and where specifically recommended otherwise by manufacturers of glass and glazing materials.

- C. Unify appearance of each series of lights by setting each piece to match others as closely as possible. Inspect each piece and set with pattern, draw and bow oriented in same direction as other process.
- D. Install glazing materials in accordance with manufacturer's printed instructions.

3.03 GLAZING

- A. Install setting blocks of proper size at quarter points of sill rabbet. If required to keep in place, set blocks in thin course of heel-bead compound.
- B. Provide spacers inside and out, of proper size and spacing, for glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.
- C. Voids and Filler Rods

Prevent exudation of sealant or compound by forming voids or installing filler rods in channel at heel of jambs and head (do not leave voids in sill channels) except as otherwise indicated, depending on light sizes, thickness and type of glass, and complying with manufacturer's recommendations.
- D. Do not cut, seam, nip, or abrade glass which is tempered, heat strengthened, or coated.
- E. Force glazing materials into channel to eliminate voids and to ensure complete "wetting" or bond of glazing material to glass and channel surfaces.
- F. Tool exposed surfaces of glazing sealants and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

3.04 CURE, PROTECTION AND CLEANING

- A. Cure glazing materials in accordance with manufacturer's printed instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability.
- B. Mark glazed openings immediately upon installation of glass by attaching crossed streamers to framing. Do not apply markers of any type to surfaces of glass.
- C. Replace glass which is broken, or otherwise damaged, from the time Work is started at Site until the date of physical completion.
- D. Maintain glass in reasonably clean condition until date of physical completion.

Clean and trim excess glazing material from glass and stops or frames promptly after installation.

- E. When directed, or just before the Project is turned over to the Authority, remove dirt and other foreign material and wash and polish glass included in the Work on both sides.

END OF SECTION

SECTION 09100
NON-LOAD BEARING STEEL STUDS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide materials, labor, equipment and services necessary to install metal studs, runners and fasteners to receive screw-attached gypsum wallboard in non-load bearing interior construction assemblies.

1.02 RELATED SECTIONS

- A. Access Doors Section 08305
- B. Gypsum Drywall Section 09250
- C. Mechanical/Electrical..... Division 15 & 16

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest editions.
 - C 645 Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.
 - C 646 Steel Drill Screws for the Application of Gypsum Sheet Material to Light Gage Steel Studs.
 - C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard. Backing Board, or Water-Resistant Backing Board.

- B. United States Gypsum Co.

Gypsum Construction Handbook

1.04 SUBMITTALS

- A. Product Data

Submit manufacturers' specifications for the products specified; metal studs and fasteners.

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B. Shop Drawings

Submit for approval showing Work fully dimensioned.

C. Samples

1. Submit three sample of stud and runner in minimum 12" lengths for approval before any Work is commenced.

2. Submit Fasteners: 3 each type.

D. Material Certificates

Submit certificates from the manufacturers of the specified materials stating compliance with the applicable requirements set forth for all materials specified in this Section.

1.05 QUALITY ASSURANCE

A. Qualifications

Installer is to be a firm with not less than five years of successful experience in the installation of specified materials.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the N.Y.C. Building Code and all applicable regulations of other governmental authorities.

2. New York City Board of Standards and Appeals (BSA),
or

3. New York City Materials Equipment Acceptance (MEA)

C. Single Source Responsibility

Obtain all steel studs and accessories from a single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.

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- B. Store all materials inside under cover in a manner to keep them dry, protected from weather, surface contamination, corrosion and damage from construction traffic and other causes.
- C. Handle studs and runners in a manner to prevent from being bent or mangled.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Provide C-Shape system from one of the following manufacturers:
 - 1. Gold Bond Building Products Division; National Gypsum Co.
 - 2. Milcor Division; Inryco Inc.
 - 3. United States Gypsum Co.
- B. Provide fastening system from the following manufacturer:
 - 1. Hilti Corp. or approved equal.

2.02 MATERIALS

A. Steel Studs

In compliance with ASTM C 645, provide galvanized steel, C-shaped members as specified and indicated on the Drawings.

B. Runners

In compliance with ASTM C 645, provide galvanized steel runners to match applicable assembly specified and as indicated on Drawings.

C. Fasteners

Provide fasteners of type, size, style, grade and class required for secure installation of framing and runners. Galvanize all fasteners and accessories.

- 1. Fasteners as indicated on the Drawings.

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2. Self-Drilling Fasteners: No. 12-14 x 3/4 inch, hex washer head, self drilling fastener with pilot point.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine all Work prepared by others to receive Work of this Section and report any defects affecting installation to the Representative for correction. Commencement of Work will be construed as complete acceptance of preparatory Work by others.

3.02 INSTALLATION

A. General

Comply with ASTM C 754 and manufacturers specified installation instructions for all non-load bearing steel stud installations.

1. Extend all partitions minimum six inches above the installed ceiling height.

B. Steel Stud Installation

1. Align runners accurately at floor and top of wall. Secure runners as recommended by the framing manufacturer for the upper and lower construction involved, except, do not exceed 24" on center spacing for power driven fasteners. Provide fasteners approximately 2" from corners and ends of runners.

3. Position studs vertically and engage both floor and upper runners. Space studs 16" on center unless otherwise indicated on the Drawings. Fasten studs to runners flanges with screws.

a. Use full length studs between runners.

b. Provide additional studs to support inside corners at partition intersections.

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3.03 ADJUSTING

A. Tolerances

Do not exceed 1/8" in 8 feet variation from plumb or level in any exposed line or surface, except at joints between planes or abutting edges or ends. Shim as required to comply with specified tolerances.

END OF SECTION

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SECTION 09205
FURRING AND LATHING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish and erect all metal furring and lathing including accessories and trim, as required by Drawings. Lathing is intended to receive plaster. Furring is intended to receive any finish Work other than heavy masonry, concrete, etc.

1.02 RELATED SECTIONS

- A. Support System for Suspended Ceilings.....Section 05170
- B. Access Doors.....Section 08305
- C. Non-Load Bearing Framing Systems.....Section 09100
- D. Plaster.....Section 09210
- E. Mechanical/ElectricalDivision 15 & 16

1.03 REFERENCES

- A. American Society of Testing and Materials (ASTM), latest editions.
 - C 37 Standard Specification for Gypsum Lath.
 - C 841 Installation of Interior Lathing and Furring.

1.04 DEFINITIONS

- A. Gages
 - 1. Sheet Steel: U S Standard
 - 2. Steel Wire: U S Steel Wire Gage
- B. Galvanizing
 - Hot-dip process, unless otherwise indicated.

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1.05 SUBMITTALS

A. Product Data

Submit manufacturers specifications and installation instructions for the following products: Lath, furring channels and accessories.

B. Samples

1. Submit three (3) samples of the following for approval prior to delivery to job site;
 - a. Lathing - coated and uncoated - 12 inches square.
 - b. Wire - 8 inches long min.
 - c. Furring Channels - 8 inches long min.
 - d. Corner Beads - 8 inches long min.
 - e. Casing Beads - 8 inches long min.

1.06 QUALITY ASSURANCE

A. Qualifications

Installer is to be a firm with not less than (5) years of successful experience in the installation of specified materials.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the NYC Building Code and all applicable regulations of other governmental authorities.
2. N.Y.C. Materials Equipment Acceptance (MEA) approval.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery

Deliver materials in original packages, containers or bundles with identification of product and manufacturer's names clearly visible.

B. Storage

Store materials inside, under cover and keep them dry and protected from contamination, aging, corrosion and damage.

C. Handling

1. Protect metal corner beads and trim from being bent or damaged.
2. All furring and lathing showing signs of rust will be rejected. All rejected Work is to be removed from the premises and replaced with new.

1.08 PROJECT CONDITIONS

A. Coordination of Work.

1. Coordinate layout and installation of furring and lathing with installation of Support System for Suspended Ceilings and Soffits specified in Section 05170 of this Specification in conformance with N.Y.C. Building Code Reference Standard 5-16 and all other regulatory agency requirements.
2. All Work by other trades, above, supported by or penetrating walls, ceilings and soffits including electrical, heating and ventilation and plumbing and drainage Work is to be coordinated with the lath and plaster installation.

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PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, provide products of one of the specified manufacturers
1. Gold Bond Building Products Division; National Gypsum Co.
 2. Milicor Division; Inryco Inc.
 3. United States Gypsum Co.

2.02 MATERIALS

A. Furring Channels

3/4" deep x 7/16" wide flanges, 16 gage, cold-rolled channels, 300 lbs. per 1000 ft. painted, 316 lbs. per 1000 ft. galvanized. $S(\text{in}^3) = 0.02$; $I(\text{in}^4) = 0.0075$.

B. Metal Lath

1. Diamond Mesh Metal Lath: Galvanized steel expanded diamond mesh. Weight not less than 3.4 lbs. per sq. yd. Where self-furring lath is specified mesh shall have indentations or dimples that will hold lath not less than 3/8" from backing. Indentations spaced not more than 2" o.c. each way.

C. Metal Corner Beads

Type as indicated below of zinc coated (galvanized) steel, #22 gage minimum:

1. Small nose with expanded flanges, not less than 2 1/2" wide, each side.

D. Casing Beads

Metal bead, expanded flange type fabricated of not less than 24 gage galvanized steel, 3" wide minimum.

1. Square edge, or quarter round edge at perimeter of openings.
2. Modified or semi-square edge where plaster abuts dissimilar material.

- E. Wire for Furring Channels and Ties
 - 1. 18-gage, U.S.S. 18-8, Dead soft stainless steel wire.
 - 2. 18-gage soft temper cold drawn monel metal wire, suitable for twisting.
 - 3. Use .0475" diameter for tying lath and not less than .062" diameter for all other tying.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions
 - 1. Structural support of mechanical equipment and ductwork, electrical lighting and equipment and plumbing and drainage piping in the suspended ceilings and walls will be furnished and installed in the Section of this Specification relating to the specific installation.
 - 2. Openings in wall or ceilings required by the Work of other trades will have to be coordinated with the Contractor in order that he may properly place anchors, hangers and carrying bars, if necessary, to avoid such ducts, pipes conducts, etc. Any changes required to be made in the locations of anchors, hangers and carrying bars by reason of the Contractor's failure to observe this requirement shall be made by the Contractor without additional cost to the MMMHS.
 - 3. Where the above Work or any other Work of the various trades makes necessary a departure from the standard form of furring and lathing as specified or shown, obtain MMMHS Representative's approval before installing such Work and execute such Work in the manner determined or approved by the MMMHS Representative without additional cost to the MMMHS.

3.02 INSTALLATION

- A. General

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Install Work of this Section in accordance with the provisions of ASTM C 841, except as otherwise indicated.

B. Openings

Frame openings with extra furring members of same size and weight as runner bars unless otherwise indicated.

1. Suspended Ceilings: Frame openings for registers, grilles, access doors, recessed electric fixtures and other items with rigid frames of furring channels or angles, bolted to runner bars.

C. Furring

Erect furring to form a true plane and securely fasten in place. Space furring channels not to exceed 12 inches on center. Set furring at right angles to runner bars, and with webs at right angles to surface of plaster. Except as otherwise indicated, secure furring to runner bars or supporting structure with tie wires, clips, bolts or screws as applicable. Reinforce system at corners with extra furring members.

1. Splicing Furring Materials: Overlap spliced materials minimum 8", then join materials by wire tying, screwing or bolting together.
2. Wire-tying Furring Channels to Runner Bars: Tie with eight strands of wire at each intersection of furring channel with runner bar, two strands to each corner of the intersection crossing diagonally on top of runner bar and twisted at top of runner bar.
3. Clipping Furring Channels to Runner Bars: Clinch clips over top of runner bars.

D. Lathing

Apply lath to form true surfaces, free from sags and buckles, and secure to furring or directly to supporting structure as indicated. Apply lath with the long dimension of sheets at right angles to the direction of bearing.

1. Metal Lath:
 - a. Laps: Lap sides of sheets not less than 1/4 inch, nesting ribs if any. Lap ends of sheets

not less than one inch, and locate end laps over bearings.

- b. Reinforcement for Internal Corners: Reinforce internal angles of lathed surfaces and intersections of lathed surfaces with masonry (to be plastered) with continuous corner reinforcing except at junctions of load bearing and non-load bearing elements.
- c. Fastening: Secure metal lath to each furring channel with lacing wire, on not exceeding 6 inch centers. Fasten side laps together with lacing wire midway between bearing, and fasten terminating side edge. Secure reinforcement to other lathing with lacing wire, and to masonry with galvanized nails, on not exceeding 6 inch centers. Twist ends of wire ties together, cut off $\frac{1}{2}$ inch from twist, and bend ends back against the lath.

E. Suspended Ceilings

- 1. Form suspended ceilings with hangers, runner bars, and furring channels, as specified in Section 05170, (in compliance with N.Y.C. Building Code RS-5-16).
- 2. Attach hangers to supporting construction, spaced within span limit of runner bars and within 6" of ends of runner bars.
- 3. Space runner bars within span limit of furring channels and within 6" of parallel walls. Leave a clearance of not less than one inch between ends of runner bars and abutting masonry and concrete construction. Bolt or saddle-tie runner bars to hangers.
- 4. Space furring channels 12" on center, and secure to runner bars with tie wire or clips.
- 5. Do not permit any part of suspension grillage to be in contact with walls or partitions.

F. Furred Ceilings

Form furred ceilings with furring channels and diamond mesh metal lath unless otherwise indicated. Space furring 12" on center, and secure to supporting

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construction with clips, expansion bolts, or by other approved equal method.

G. Furring Channel Walls

1. Secure 3/4 inch furring channels set vertically on 12 inch centers, to floor and ceiling plates. If pieces of bars shorter than height of partition are used, splice pieces by lapping not less than 8 inches with flanges interlocked and securely wired together. Use at least one full length between spliced channels.
2. Cover furring channels with diamond mesh metal lath.

H. Miscellaneous Furring and Lathing

1. On areas to be plastered, lath over metal in masonry surfaces, reinforce joints between dissimilar materials and install other furring and lathing as required to complete the plastering. Install reinforcement where indicated.
2. Use diamond mesh or rib mesh metal lath. The span between supports shall not exceed 12" for diamond mesh metal lath; install furring as required to provide such support. Lap lath 6" beyond each side of items being covered.

I. Accessories

1. General: Set accessories in designed location, flush with finished plaster line, true to line and level or plumb. Align joints with concealed splices and tie plates. Use shims where necessary. Securely fasten in place without dependence upon the plastering. Beads and screeds shall be in one piece where height or length of straight run does not exceed 10 feet.
2. Corner Beads: Install continuous corner beads at all external corners of plaster, except where corners are rounded or covered by trim. Space fasteners not more than 12" on center on both sides of bead.
3. Casing Beads: Unless otherwise indicated, install continuous casing beads to terminate plaster at head and jambs of doors and windows, around the perimeter of suspended ceilings, at each side of

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expansion joints and at internal corner junctions
of load bearing and non-load bearing elements.
Space fasteners not more than 9" on center.

3.03 FURRING APPLICATION

- A. Furnish and install hung or furred ceilings in all locations indicated on Drawings.
- B. Furnish and erect all hangers, running bars, furring channels, stiffeners, and other furring members required to support the lathing for furred and hung ceilings together with all clips, knees, clamps, bolts, etc. required to secure the various members together and to the structural Work. Drill all holes required for this Work.
- C. Include all furring angles, braces and clips required by Drawings at windows, and all other furring indicated on Drawings.
- D. All furring shall be done with vertical members plumb, horizontal members level and all true and even, so that the proper thickness shall be provided for the lathing and plastering. Where required, furring shall conform to shapes of arches, cornices, pilasters, ceiling beams, etc.

3.04 LATHING APPLICATION

- A. Furnish approved metal lathing as required for all furred and hung ceilings, enclosures for sheet-metal ducts, window heads, sills and jambs, and at all other places where required, to properly provide for the plastering, and secure same to the furring at the location indicated on Drawings and as hereinafter specified.
- B. Lath sheets shall be at right angles to the furring bars. Lath shall be securely tied to each furring bar at intervals of 6", with wire specified.
- C. All wire used by the lathing sub-contractor at the job shall be of one type. Wherever wire is required for tying splices or channels to running bars, it shall be the same wire as is used for tying lath to channels. The only other acceptable means of fastening is by means of approved clips or bolts.

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3.05 CORNER BEADS AND PLASTER STOPS - APPLICATION

A. Corner Beads

1. For the full height of all vertical salient angles in plastered walls.
2. For the full length of all horizontal salient angles in plastered surfaces which occurs 8'-0" or less above finished floor.
3. For the full length of all horizontal salient angles in plastered surfaces which may occur above the 8'-0" level as follows:

B. Casing Beads

At all locations where plaster terminates or abuts dissimilar materials except where covered by trim.

END OF SECTION

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SECTION 09210
PLASTER

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide materials, labor, equipment and services necessary to complete all plastering required.

1.02 RELATED SECTIONS

- A. Aluminum Projected and Casement Windows.....Section 08524
- B. Furring and Lathing.....Section 09205
- C. Painting.....Section 09900

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest editions.
 - C 28 Gypsum Plasters
 - C 35 Sand
 - C 206 Finishing Hydrated Lime
 - C 841 Installation of Interior Lathing and Furring
 - C 842 Application of Interior Gypsum Plaster
- B. American National Specifications Institute (ANSI), latest edition.
 - A 42.1 Portland Cement Lime Plastering Exterior and Interior

1.04 SUBMITTALS

A. Product Data

Provide manufacturers' specifications and application instructions for each type of material specified, including the following:

1. Plaster
2. Plaster Accessories

B. Samples

Submit samples of the following materials, prior to installation, in clearly labeled containers, as required by the MMMHS Representative:

1. Gypsum Plaster
2. Hydrated Lime
3. Sand

C. Quality Control Submittals

1. Certificates: Provide material certificates from Manufacturers, Material supplier, and Contractor certifying that each material complies with, or exceeds the specified requirements.

1.05 QUALITY ASSURANCE

A. Qualifications

Company specializing in plaster installation having more than five years experience with the application of specified materials and experience on at least three projects of similar scope to project specified.

B. Regulatory Requirements

1. Building Code: Work of this Section to conform to all requirements of the New York City Building Code and all applicable regulations of other governmental authorities.

C. Single Source Responsibility

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Obtain materials from a single source for each type of material required to assure consistency in quality of performance and appearance.

D. Plaster Mock-up Samples.

1. Before commencing plaster work, submit the following mock-up samples to the MMMHS Representative for approval:
 - a. 12"x12" metal lath with a three-coat system of plaster (scratch, brown, finish), stepped to show construction and thickness of each coat. Provide sample for each type of plaster to be used on project.

E. Field Samples.

1. At the commencing of plaster work, Contractor is to provide a completed plastering of replacement window area, including an inside and outside corner and an area of plaster ceiling designated by the MMMHS Representative.
2. Do not proceed until the plastering work on the sample areas has been approved in writing by the MMMHS Representative.
3. All subsequent plastering work to conform in workmanship and appearance to that of the sample replacement window areas.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver manufactured materials in original sealed container, with manufacturer's label intact and legible.
- B. Store all cement, gypsum and lime off ground, under cover and in a dry area.
- C. Protect contiguous Work from soiling, spattering, moisture, deterioration and other harmful effects which might result from plastering.

1.07 PROJECT CONDITIONS

- A. Environmental Requirements

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1. Do not use frozen materials in plaster mixes.
2. Do not apply plaster to surfaces that are frozen or contain frost.
3. Do not apply plaster when ambient temperature is less than 50°F.
4. Maintain required temperatures for a minimum of 24 hours prior to application, during application and until plaster has cured.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Gypsum Plaster

Subject to compliance with requirements, provide products from the following manufacturer or approved equal, conforming to ASTM C 28:

1. United State Gypsum Co.; Architectural Products Division, Chicago, IL or approved equal
 - a. Gypsum Neat Plaster / Basecoat Plaster:
"Red-Top Gypsum Plaster".
 - b. Gypsum Gauging Plaster:
"Champion Gauging Plaster"
"Star White Gauging Plaster"

B. Finishing Hydrated Lime

Subject to compliance with requirements, provide products from the following manufacturers conforming to ASTM C 206, Type S or Type N.

1. United States Gypsum Co. or approved equal
 - a. "Ivory Finish Lime" - Type S
 - b. "Red Top Finish Lime" - Type N

2.02 MATERIALS

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A. Aggregates for Base Coat Plaster; ASTM C 35. Type as listed below:

1. Sand aggregate, conforming to ASTM C 897

B. Water

Potable, free of substances capable of affecting plaster set or of damaging plaster, lath or accessories.

2.03 MIXES

A. Gypsum Plaster Base Coat Compositions

Comply with ASTM C 842 and manufacturer's directions for gypsum plaster base coat proportions which correspond to application methods and plaster bases indicated below:

1. Three-Coat Work Over Metal Lath:

a. Scratch Coat: 1 part Gypsum neat plaster with 2 parts sand.

b. Brown Coat: 1 part Gypsum neat plaster with 3 parts sand.

c. Finish Coat: as in B below.

B. Gypsum Troweled Finish Coat

Comply with ASTM C 842 and manufacturer's directions and proportion materials in parts by dry weight for finish coat as follows:

1. Gypsum Gauging Plaster: 1 part plaster to 2 parts lime.

a. Mechanically mix aggregate materials for plaster to comply with referenced application standard and with recommendations of plaster manufacturer.

2.04 MECHANICAL MIXING

A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable reference standard and with recommendations of plaster manufacturers.

PART 3 - EXECUTION

3.01 EXAMINATION OF SURFACES

- A. Examine surfaces to receive Work of this Section, preparatory Work performed by other trades, and conditions at the building. Report any defects or unsatisfactory conditions for correction to the MMMHS Representative.
- B. Starting of Work will be construed as acceptance of all surfaces and conditions as satisfactory.
- C. Corners, beads, lathing, etc., shall be in place, straight and plumb, before beginning plastering, and if any of the Work is found to be imperfect notify the MMMHS Representative to rectify it.
- D. Do not start plastering until all exterior openings have been properly closed.
- E. Do not apply finish plastering unless the permanent glazed windows have been installed.
- F. Mixing of scratch and brown coats of plaster inside of any part of the building is prohibited. Mixing finish white coat of plaster is permitted inside of the building in locations approved by the MMMHS Representative.
- G. The use of a machine made lime mortar mixed at the building or an approved gypsum plaster for all surfaces required to be plastered, except surfaces as are specified to have other finishes, shall be an option.

3.02 PREPARATION

- A. Protection
 - 1. Provide sheet metal protection for radiators and convectors in rooms to be plastered.
 - 2. Protect the Work of other trades from soiling or spattering using cover cloths or other approved means of protection. Should soiling or spattering occur, it can be removed by cleaning with wet sponges or brushes before the plaster or mortar sets, in a manner to avoid scratching, staining or other damage.

3.03 PLASTER APPLICATION, GENERAL

- A. Apply gypsum plaster materials, composition, mixes and finishes indicated to comply with ASTM C 842.
- B. Allow each coat of gypsum mortar to dry out in accordance with the manufacturer's directions prior to application of the following coat. After coat has dried out, thoroughly dampen surface prior to application of the following coat.
- C. Bring first coat of plaster to a plane by screeding horizontally or other approved method. Float to an even, straight and true surface. Trowel finish coat to a compact, hard, very smooth, polished surface. Soft, porous or unpolished surfaces and surfaces that show brush marks will not be accepted and such rejected white finish plastering will have to be removed down to the brown coat and properly re-plastered.
- D. No imperfect angles or corners will be allowed under any circumstances and any imperfect Work will call for re-plastering of all portions condemned.
- E. Do all patching required to complete the general construction Work of this Contract, leaving the Work clean and perfect in every particular at completion of the building.
- F. Finished surfaces to be plumb and level. Intersections of walls and ceilings and all intersections of walls and other surfaces to be finished square. Do not deviate more than 1/8" in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straight edge placed at any location on surface.
- G. Sand smooth-troweled finishes lightly to remove travel marks and arises.

3.04 PATCHING AND PROTECTING

- A. Repair, point up and patch plaster surfaces after work of other trades is in place and at such times as directed by the MMMHS Representative.
- B. Point up around fixtures, outlet boxes, switches, plates, fittings, piping, conduit, frames and other items abutting or extending through the plaster.

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- C. Just before painting is started, thoroughly examine all plaster surfaces. Cut out and repair all imperfect portions, cracks and other defects and leave all plaster in a sound, unblemished, clean and satisfactory condition.
- D. Protect finished plaster surfaces against damages, soiling and defacement.
- E. Protect plaster work against freezing and premature drying.

3.05 CLEANING

- A. Remove temporary protection and enclosure of other Work. Promptly remove plaster from door frames, windows, and other surfaces which have been stained, marred or otherwise damaged during plastering. When plastering is completed, remove unused materials, containers and equipment and clean floors of plaster debris.
- B. Provide final protection and maintain conditions in a manner suitable to the MMMHS Representative which ensures plaster work being without damage or deterioration at time of issuance of the Certificate of Final Completion.

END OF SECTION

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SECTION 09250
GYPSUM BOARD

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all gypsum board installations as indicated on the Drawings.

1.02 RELATED SECTIONS

- A. Support System for Suspended Ceilings.....Section 05170
- B. Non-load Bearing Steel Studs.....Section 09100
- C. Furring and Lathing.....Section 07212
- D. PaintingSection 09900

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest editions.
 - A 525 General Requirements for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process.
 - C 36 Gypsum Wallboard
 - C 473 Physical Testing of Gypsum board Products, Gypsum Lath, Gypsum Partition Tile or Block and Pre-Cast Reinforced Gypsum Slabs
 - C 475 Joint Treatment Materials for Gypsum Wallboard Construction
 - C 665 Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
 - C 840 Application and Finishing of Gypsum Board.
 - C 1002 Steel Drill Screws for the Application of Gypsum Board.
- B. Gypsum Association

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GA-216 Recommended Specifications for the Application
and Finishing of Gypsum Board

GA-505 Gypsum Board Products - Glossary of
Terminology

C. United States Gypsum Co.,

Gypsum Construction Handbook

1.04 SUBMITTALS

A. Product Data

Submit manufacturers' specifications for the following products: gypsum board, joint compound and insulation.

B. Samples

Submit samples of the following materials, prior to installation:

1. Gypsum Board: One, 12 inches square, each type specified.
2. Fasteners: Three , each type.
3. Corner, J and L beads: Three, 12 inch lengths, each type specified.

C. Materials Certificates

Submit certificates from the manufacturers of the specified materials stating compliance with the applicable requirements set forth for all materials specified in this Section.

D. Shop Drawings

Submit for approval showing partitions fully dimensioned.

1.05 QUALITY ASSURANCE

A. Qualifications

Installer is to be a firm with not less than (5) years of experience in the installation of specified materials.

B. Regulatory Requirements

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1. Building Code: Work of this sections shall conform to all requirements of N.Y.C. Building Code.
2. New York City Board of Standards and Appeals (BSA) approval, or
3. New York City Materials Equipment Acceptance (MEA)
4. Industry Standard: Comply with applicable requirements of GA-216 "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated, including the recommendations of the manufacturer.

C. Single Source Responsibility

Gypsum board materials shall be obtained from one of the acceptable manufacturers. Materials from more than (1) manufacturer may not be used in a system or assembly.

D. Field Samples

The MMMHS Representative will review of the first completed gypsum board installation for inspection of taping and spackling work. This installation, when approved by the MMMHS Representative, will become the benchmark for workmanship for the rest of the installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.
- B. Store all materials inside, under cover, in a manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal beads and trim from being bent or damaged.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. General

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Comply with requirements of all referenced gypsum board application standards and manufacturers recommendations for environmental conditions before, during and after gypsum board application.

B. Cold Weather Protection

When ambient outdoor temperatures are below 55°F, maintain continuous uniform building temperatures of not less than 55°F for a minimum of 48 hours prior to, during and following application of gypsum board and joint treatment materials and until joint and finishing compounds have dried.

C. Ventilation

Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry hot weather to prevent too rapid drying.

D. Drying Time

Provide a minimum drying time of 24 hours between coats with additional drying time in poorly ventilated areas.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with requirements, provide products of one of the specified manufacturers conforming to ASTM C 36, C 442 and C 630:

A. Gypsum Board and Related Products

1. Georgia - Pacific Corp.
2. Gold Bond Building Products Div., National Gypsum Co.
3. United States Gypsum Co. or approved equal

B. Metal Support Materials

1. W.P. Hickman Co.
2. Milcor Division; Inryco Inc.
3. United States Gypsum Co. or approved equal

2.02 MATERIALS

A. Gypsum Board

1. General: Comply with ASTM C 36 and Fed. Spec SS-L-30, type III, class 1, style 3, taper-edged and of the grade and form specified below, in 48" widths and in such lengths as will result in the minimum number of joints.
2. Regular: Grade R, form A, 5/8" thick for single ply applications.

B. Metal Accessories

1. General: Comply with ASTM C 1047; standard accessories as recommended by manufacturers, formed of galvanized steel, beaded for concealment of flanges in joint compound. Provide corner beads, J-type and L-type edge trim beads.
2. All beads and trim shall be spackle type.

C. Joint Treatment Materials

1. Jointing System-Typical: Comply with ASTM C 475; type recommended by the manufacturer for the application shown.
 - a. Jointing system shall include reinforcing tape (plain or perforated) and compound designed as a system to be used together. Compound may be used for finishing if so recommended by the manufacturer. Jointing compound shall be asbestos free.

D. Miscellaneous Materials

1. General: Provide auxiliary materials for gypsum board work of the type and grade recommended by the gypsum board manufacturer
2. Gypsum Board Screws: Comply with ASTM C 1002.
 - a. For fastening the gypsum board in place, use flathead screws, shouldered, specially designed for use with power-driven tools, of length indicated but not less than 1" long, with self-tapping threads and self-drilling

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points. Screws shall be steel with rust inhibited coating.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Inspection

1. Prior to installation of the Work of this Section, carefully inspect the installed Work of all other trades and verify that all such Work is complete to the point where this installation may properly commence.
2. Installation is to comply with all pertinent codes regulations, and manufacturer's recommendations as approved by the MMMHS Representative.

B. Discrepancies

1. Immediately notify the MMMHS Representative.
2. Do not install gypsum board until all unsatisfactory conditions have been corrected.

C. Construction Tolerances.

Do not exceed 1/8 inch in 10 feet variation from plumb or level in any exposed line or surface except at joints between boards. Do not exceed 1/16 inch variation between planes or abutting edges or ends. Shim as required to comply with specified tolerances.

3.02 INSTALLATION

A. General

Comply with ASTM C 840 and manufacturers specified installation instructions for all gypsum board application and finishing.

B. Walls

1. Install the gypsum board to studs at right angles to the framing members. Make end joints, where required, over framing members. Position boards so that like edges abut, with tapered edges against tapered edges and mill-cut or field-cut ends

against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs.

C. Fasteners

Drive the specified screws with clutch-controlled power screwdrivers, spacing the screws (1¹/₄") at 12" o.c. at ceilings and screws (1") at 16" o.c. at walls.

3.03 JOINT TREATMENT

A. General

1. Inspect all areas to be joint treated, ascertaining that the gypsum board fits snugly against supporting framework.
2. Apply the joint treatment and finishing compound by machine or hand tool.

B. Embedding Compound

1. Apply to gypsum board joints in a thin uniform layer. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
2. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged. When thoroughly dry, sandpaper to eliminate ridges and high points.

C. Finishing

1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to all joints and fastener heads. Feather the finishing compound to not less than 12" wide. When thoroughly dry, sandpaper to obtain uniformly smooth surfaces, taking all necessary care to not scuff the paper surface of the gypsum board.

3.04 CORNER TREATMENT

A. Internal Corners

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Treat as specified for joints, except that the reinforcing tape shall be folded lengthwise through the middle and fitted neatly into corner.

B. External Corners

1. Install a corner bead fitting neatly over the corner and secured with the same type fasteners used for applying the gypsum board, spacing the fasteners approximately 6" o.c. and driving through the gypsum board into the framing and furring member.
2. After the cornerpiece has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.

3.05 OTHER METAL TRIM

A. General

The Drawings do not purport to show all locations and all requirements for metal trim in connection with the Work of this Section. Carefully study the Drawings and the installation; provide in place all metal trim normally recommended by the manufacturer of the gypsum board used.

B. Installation

Install the spackle type metal trim in strict accordance with the manufacturer's recommended methods of installation, providing not less embedment and finishing than specified above for corner treatment.

3.06 CLEAN UP

- A. In addition to the requirements of these Specifications, use all necessary care during execution of this portion of the Work to prevent scattering of gypsum board scraps and dust and to prevent tracking of joint and finishing compound onto floor surfaces. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scraps, debris and surplus material of this Section.

END OF SECTION

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SECTION 09253
GYPSUM BOARD - INTERIOR CEILINGS AND SOFFITS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide materials, labor, and equipment to properly install gypsum board ceilings and soffits.

1.02 RELATED SECTIONS

- A. Non Load Bearing Steel Studs Section 09100
- B. Gypsum Board Section 09250
- C. Painting Section 09900
- D. Mechanical/Electrical..... Division 15 & 16

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest editions.
 - A 641 Zinc-Coated (Galvanized) Carbon Steel Wire.
 - C 36 Gypsum Wallboard
 - C 475 Joint Treatment Materials for Gypsum Wallboard Construction.
 - C 645 Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.
 - C 1002 Steel Drill Screws for the Application of Gypsum Board.
- B. Gypsum Association
 - GA-216 Recommended Specifications for the Application and Finishing of Gypsum Board.
 - GA-505 Gypsum Board Products - Glossary of Terminology.
- D. United States Gypsum Co.

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1.04 SUBMITTALS

A. Product Data

Submit manufacturers' specifications for the following products: Gypsum board, joint compound, metal furring channels, metal studs and runners.

B. Samples

Submit samples of the following materials, prior to installation, as required by the MMMHS Representative :

1. Gypsum board: One, 12 inch square, each type.
2. Furring channels: Three, 12 inch length, each type.
3. Metal studs: Three, 12 inch length, each type.
4. Submit fasteners: Three, each type.
5. Corner, J and L beads: Three, 12 inch lengths, each type specified.

C. Material Certificates

Submit certificates from the manufacturers of the specified materials stating compliance with the applicable requirements set forth for all materials specified in this Section.

D. Shop Drawings

Submit Reflected Ceiling Plans, prepared for installation purposes, at 1/4" inch = 1 foot scale. Drawings are to be coordinated with all related mechanical, electrical, and other Work above, penetrating or connected to ceiling or soffit. Show method of anchorage to building structure and framing for supported items.

1.05 QUALITY ASSURANCE

A. Qualifications

Installer is to be a firm with not less than five years

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of successful experience in the installation of specified materials.

B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the N.Y.C. Building Code and all applicable regulations of other governmental authorities.
2. New York City Board of Standards and Appeals (BSA) approvals or,
3. New York City Materials Equipment Acceptance (MEA) approvals
4. Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

C. Single Source Responsibility

Obtain gypsum board from a single manufacturer. Obtain all furring channels, metal studs, runners and ancillary materials from a single manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages or bundles bearing brand name and identification of manufacturer.
- B. Store all materials inside, under cover in a manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal furring channels from being bent or damaged.

1.07 ENVIRONMENTAL REQUIREMENTS

A. General

Comply with requirements of all referenced gypsum board application standards and manufacturers recommendations for environmental conditions before, during and after gypsum board application.

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B. Cold Weather Protection

When ambient outdoor temperatures are below 55°F. maintain continuous uniform building temperature of not less than 55°F for a minimum of 48 hours prior to, during, and following application of gypsum board and joint treatment materials, until joint and finishing compounds have dried.

C. Ventilation

Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

D. Drying Time

Provide a minimum drying time of 24 hours between coats with additional drying time in poorly ventilated areas.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Furring Members

In compliance with ASTM C 645, provide galvanized cold rolled steel, thickness of base metal as indicated on Drawings, 7/8" depth, screw type hat shaped channels.

B. Furring Anchorages

In compliance with ASTM A 641, manufacturers standard wire-type clips, bolts, nails or screws as recommended by furring manufacturer.

C. Metal Studs

In compliance with ASTM C 645, provide galvanized steel, C-shaped members as indicated on Drawings.

D. Runners

In compliance with ASTM C 645, provide galvanized steel runners to match applicable assembly specified, thickness of base metal as shown on Drawings.

E. Fasteners

Provide fasteners of type, size, style, grade and class required for secure installation of framing and runners. Galvanize all fasteners and accessories.

1. Fasteners as shown on Drawings.
2. Self-Drilling Fasteners: No. 12-14 x 3/4 inch, hex washer head, self drilling fastener with pilot point.

F. Gypsum Board

In compliance with ASTM C 26; of types, edge configuration and thickness indicated below, in 48" widths by maximum length available to minimize end to end butt joints.

1. Type
 - a. Regular, unless otherwise shown on Contract Documents.
2. Edge: Taper-edged
3. Thickness: 5/8" as specified on Drawings.

G. Metal Accessories

1. General

Comply with ASTM C 1047; standard accessories as recommended by manufacturer, formed of galvanized steel, beaded for concealment of flanges in joint compound. Provide corner beads and L-type edge trim beads.
2. All beads and trim shall be spackle type.

H. Joint Treatment Material

1. General

Comply with ASTM C 475; type recommended by the manufacturer for the applications shown.
2. Jointing System

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- a. Jointing system shall include reinforcing tape and compound designed as a system to be used together and shall be only used as recommended by manufacturer of gypsum wallboard.

I. Miscellaneous Materials

1. General: Provide auxiliary materials for gypsum board work of the type and grade recommended by the manufacturer of the gypsum board.
2. Gypsum Board Screws: Comply with ASTM C 1002.
 - a. For fastening the gypsum board in place, use flathead screws, shouldered, specially designed for use with power-driven tools, of length indicated but not less than 1" long, with self-tapping threads and self-drilling points. Screws shall be steel with rust inhibited coating.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Coordination of Work

Coordinate Work of this Section with the following installations:

1. Heating, Ventilation and Electrical Work required to be installed as part of Sections 15 and 16 of this Specification.

B. Verification of Conditions

1. Start of Work constitutes acceptance of existing conditions, therefore, contractor is advised to bring any discrepancies to the attention of the MMMHS Representative prior to start of Work.

3.02 INSTALLATION

- A. Metal Furring and Metal Studs for Ceilings and Soffits
1. Install metal furring channels and metal studs to existing structure at right angles. Secure members in accordance with the Drawings and manufacturer's printed installation instructions.
 2. Space furring and metal studs at 12 inches o.c. or as shown on Drawings.
 3. Install auxiliary framing at openings for light fixtures, ductwork grilles, access doors as required. Where necessary, install additional cross-reinforcing to restore lateral stability.
 4. Attach perimeter wall trim wherever gypsum board meets vertical surfaces as shown on Drawings. Mechanically join support members to each other and butt-cut to fit into perimeter trim piece.
- B. Gypsum Board Installation for Ceilings and Soffits
1. Comply with gypsum board application and finishing standards outlined in ASTM C 840, and GA 216.
 2. Install gypsum board to furring channels and metal studs at right angles to the members; make end joints over the framing members. Fasten gypsum wallboard ceilings and soffits with screws.
 3. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1 foot in alternate courses of board.
 4. Install ceiling boards in the direction and manner which shall minimize the number of end-butt joints.
 5. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.
 6. Locate either edge or end joints over supports or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, with tapered edges

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against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends.

7. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

C. Trim Installation

1. General: Use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports.
2. Install metal corner beads at external corners of drywall work.
3. Install spackle type metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound. Install L-type trim where work is tightly abutted to other work.

D. Finishing

1. Apply compound treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere, as required to prepare Work for finishing.
 - a. Apply joint tape at joints between gypsum boards using bedding joint compound.
 - b. Apply topping joint compound in three coats (not including prefill of openings in base), and sand between last two coats and after last coat.
2. Refer to Division 9 Sections on painting, and coating for finishes to be applied to drywall work.

3.03 PROTECTION

- A. Provide protection and maintain conditions until final acceptance so that Work will remain without damage or deterioration at time of issuance of Certificate of Final Completion.

END OF SECTION

SECTION 09310

CERAMIC TILE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all ceramic tile work indicated on the Drawings and as specified herein, including, but not limited to: glazed ceramic tile, ceramic mosaic tile, all trim units, grout, setting materials and marble saddles.

1.02 RELATED SECTIONS

- A. Cast-in-Place Concrete Section 03300
- B. Unit Masonry Section 04200
- C. Sheet Membrane Waterproofing Section 07110
- D. Joint Sealers Section 07900

1.03 REFERENCES

- A. Tile Manufacturing Standard

Comply with requirements of ANSI A137.1 "American National Standard Specifications for Ceramic Tile".
- B. Tile Installation Standard

Comply with the requirements of the Tile Council of America's Handbook for Ceramic Tile Installation, 32nd Edition-1994.

1.04 SUBMITTALS

- A. Product Data

Submit manufacturers' specifications and installation instructions for the following:
 - 1. Each type of tile and trim units specified.
 - 2. Setting materials specified .
 - 3. Grouting materials specified.

B. Shop Drawings

Submit Drawings indicating tile patterns and locations and width of control and expansion joints in tile surfaces.

C. Samples

1. Initial Selection: Submit manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type of tile indicated. Include grout manufacturers standard range of colors for each grout type required.

2. Verification Samples:

a. Samples of each type of tile, color and pattern specified, 12" x 12" sample with tile mounted on plywood or hardboard panels and grouted.

b. Trim units: 2, each type, color and shape specified.

D. Quality Control Submittals

1. Master Grade Certificate

a. Before setting any tiles, furnish to the Authority (for each shipment and type of tile) a certificate of grade, properly filled in on a Master Grade Certificate of the form recommended by the Department of Commerce.

b. Certificate shall be signed by the manufacturer of the tiles and by the subcontractor for the Work, stating the grade, kind and full quantities of tiles; and give identification marks for all packages of tiles furnished under this Contract.

c. Brand packages with corresponding identification marks.

1.05 QUALITY ASSURANCE

A. Manufacturer

1. Furnish tile of the same manufacturer and from the same origin for each tile type and color.
2. Furnish setting and grouting materials of the same manufacturer and from the same origin for each tile type and method of installation, unless otherwise specified.

B. Qualifications

Installer is to be a firm who has a minimum of five years experience with the installation of specified materials.

1.06 DELIVERY , STORAGE, AND HANDLING

A. Delivery and Storage

1. Deliver all materials of this Section to the job site in their original unopened containers with grade seals unbroken and labels intact and legible.
2. Store all materials under cover in a manner to prevent damage and contamination by water, freezing, foreign matter or other causes. Store only the specified materials at the job site in location designated by the Authority's Representative.

B. Protection

Use all means necessary to protect ceramic tile materials before, during, and after installation and to protect the installed Work and materials of all other trades.

C. Replacements

In the event of damage, immediately make all repairs and replacements necessary to the approval of the Project Architect and at no additional cost to the Authority.

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1.07 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect Work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent injury to persons or damage to tile work from carbon dioxide or carbon monoxide buildup.
- C. Maintain temperatures at not less than 50°F. (10°C) in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

1.08 MAINTENANCE MATERIALS

A. General

Deliver stock of maintenance materials to Authority's Representative (to be transferred to the custodian). Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.

- 1. Tile: Furnish not less than one box for each 25 boxes or fraction thereof, for each type, color, pattern and size installed.
- 2. Wall Base: Furnish not less than 40 linear feet of each type, color, and size installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. General

- 1. Furnish tile by the same manufacturer and from the same origin for each tile type.

B. Ceramic Tile

- 1. American-Olean Tile Co., Lansdale, Pennsylvania 19446.

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2. Dal-Tile Corporation, Dallas, Texas 75217.
3. U.S. Ceramic Tile Co., E. Sparta, Ohio 44626.

D. Mortars, Adhesives and Grout

1. American Olean Tile Co., Lansdale, Pennsylvania 19446.
2. Boiardi Products Corp., Little Falls, New Jersey 07424.
3. Bostik, Middleton, Massachusetts 01949.
4. Dal-Tile Corporation, Dallas, Texas 75217.
5. Dap Inc., Dayton, Ohio 45401.
6. Laticrete International, Inc., Bethany, Connecticut 06524-3498.
7. Summitville Tiles, Inc., Summitville, Ohio 43962.
8. Tec an H.B. Fuller Co., Palatine, Illinois 60067.

2.02 MATERIALS

A. Tile Products

1. Unglazed Ceramic Mosaic Tile complying with Section 5.1 ANSI A137.1; Standard Grade.
 - a. Standard sizes: 1" x 1" x 1/4" , 1" x 2" x 1/4", 2" x 2" x 1/4" .
 - b. Colors: shall be selected by Project Architect from clear and/or textured porcelain tile. Floor and base tile of same colors.
 - c. Factory mounted.
 - d. Edges: Smooth, all purpose edge.
 - e. Average absorption: not to exceed 1/2 of 1%.

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2. Glazed ceramic tile complying with Section 6.1 ANSI A137.1; Standard Grade.
 - a. Standard size: 4 1/4" x 4 1/4" x 5/16" - unless otherwise specified.
 - b. Colors: shall be selected by Project Architect.
 - c. Edges: square, cushion edged.
3. Trim units including cap, bullnose, cove, external & internal corners to match characteristics of adjoining flat tile in size and color.
 - a. Cove Base: 6" x 6" with 3/4 inch to 1 inch maximum radius sanitary cove.
 - b. Shapes: Provide manufacturers standard special shapes to suit installation. Provide bullnosed units at external corners and wainscot. Provide square corners at internal corners.
4. Inscriptions: There shall be one 4 1/4 by 8 1/2 inch glazed wall tile in locations where indicated, bearing the inscription "Wash your hands before leaving this room" as shown on the Standard Details. The lettering of this inscription shall be beneath the final glazing of the tile. This applies to pupils' toilets only.

B. Setting Materials

1. Portland Cement Mortar: Complying with ANSI A108.1
 - a. Portland Cement - ASTM C-150 Type 1
 - b. Sand - ASTM C-144
 - c. Hydrated Lime - ASTM C-206 or ASTM C-207 Type S
 - d. Water - Clean and potable.

- e. Follow recommendations outlined in TCA Handbook for Ceramic Tile Installation for mortar mix proportions.
2. Latex Portland Cement Mortar: Thin-setting bed - complying with ANSI A118.4.
 - a. Prepackaged dry mortar mix incorporating dry polymer additive in the form of a re-emulsifiable powder to which only water is added at job site, or latex additive, serving as a replacement for part or all of gauging water, added at job site to dry mortar mix. Comply with mixing directions of latex additive manufacturer and mortar manufacturer.
 - b. Follow recommendations outlined in TCA Handbook for Ceramic Tile Installation.

C. Grouting Materials

1. Commercial Portland Cement Grout: compound of Portland cement and additives, factory blended to decrease shrinkage and increase moisture resistance, and complying with ANSI A118.6.
2. Commercial Sanded Portland Cement Grout: provide acid resistant grout complying with ANSI A118.6.
 - a. Dap Durabond AR-20 Grout.
 - b. Boiardi Elastiment AR Grout.

Mix latex additive to above grouts for thin set method of floor tile installation. Comply with manufacturer's specifications for mixing.

3. Latex Portland Cement Grout: compound of Portland Cement grout with latex additive, complying with ANSI A118.6.
4. Epoxy Grout: Two component mix consisting of specially graded silica aggregate (#7 on M.O.H. Scale of Hardness), color fast pigments, a special blend of activating hardeners and liquid epoxy resin. Mixture to be free of water and organic

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solvents and formulated for high temperature and chemical resistance, water cleanable before setting and complying with ANSI A118.3 and TCA Formula AARII-HT.

- a. American Olean AO-6000 Epoxy Mortar and Grout.
 - b. Summitville S-400 Setting and Grouting Epoxy.
5. Colors: Unless otherwise indicated, wall type grout shall be white and floor type grout shall be grey.

D. Miscellaneous Materials

1. Tile Cleaner: Product acceptable to tile and grout manufacturers and as recommended by Ceramic Tile Institute.

2.03 MIXES

- A. Mix mortars, grouts and additives to comply with referenced standards and manufacturers recommendations. Accurately proportion materials for mixing to produce mortars and grouts of uniform quality with optimum performance characteristics.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Surfaces to receive tile shall be clean, firm and smooth.
- B. Inspect all surfaces prepared by others before starting tile work and report all unsatisfactory conditions to the Authority. Verify that wall surfaces are level, plumb and square and that floor fill slopes to drains 1/8" per foot. Starting tile work shall be considered acceptance of Work of others and existing substrate.
- C. Before proceeding with any tile work, verify:
 1. Prior to application of thick set tile flooring systems, that sheet membrane waterproofing has been installed over prepared substrate and tested

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for leakage as part of Work of Section 07110 -
Sheet Membrane Waterproofing.

2. That plumbing contractor has installed all sleeves, drains, flashings and piping and that all piping systems have been run and tested for leakage.

3.02 PREPARATION

- A. Prepare floors, walls and base substrates for tile installation in accordance with Tile Council of America's and product manufacturer's recommendations and requirements for wall and floor systems specified.

3.03 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard

Comply with applicable parts of ANSI 108 series of tile installation standards included under American National Standard Specifications for Installation of Ceramic Tile.

- B. TCA Installation Guidelines

Comply with Tile Council of America installation methods specified.

- C. All wall tile shall be laid up with vertical joints not over 1/16" thick or in alignment with existing joint lines, continuous and unbroken in perfect alignment. For tile mounted in sheets, make joints between tile sheets same width as joints within sheets so extent of each sheet is not apparent in finish Work.

- D. Tile shall be set to the required levels and planes with true lines and angles. Layout tile work and center tile fields in both directions in each space and on each wall area unless otherwise indicated on Drawings. Adjust to minimize tile cutting.

- E. Cut edges of tile shall be carefully ground and jointed. Do all cutting and drilling required for setting and as may be required by other contractors in a neat manner without marring the surface. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.

- F. The tile setter shall cut holes in the base tile of toilet rooms where bronze tubing extends through the partitions into the adjoining pipe spaces.
- G. Set rings for floor type water closets, as specified in Division 15 of this Specification.

3.04 FLOOR TILE INSTALLATION METHODS

A. Ceramic Mosaic Tile

Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout types:

- 1. Thick set method, reinforced, on interior concrete subfloors: mortar bed of 1 1/4" to 2" thick, comply with TCA F121-94.
 - a. Commercial Portland Cement Mortar Bed: ANSI A108.1
 - b. Grout: Commercial Sanded Portland Cement type grout - acid resistant.
 - c. Waterproof membrane: Provided as part of Work of Section 07110 - SHEET MEMBRANE WATERPROOFING.
 - d. Expansion joints mandatory. Provide in accordance with TCA Method EJ171-94.
 - e. Mortar bed to be uniform depth within range specified above. Slope to be in fill installed as part of work of Section 03300 - CAST IN PLACE CONCRETE.
- 2. Thin set method, interior concrete subfloors: mortar bed of 3/32" to 1/8", comply with TCA F122-94.
 - a. Latex Portland Cement Mortar Bed: ANSI A118.4
 - b. Grout: Commercial Sanded Portland Cement type grout - acid resistant with latex additive.
 - c. Waterproof membrane: Cold applied liquid rubber provided as part of Work of this

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Section. Prepare slab and install membrane as per membrane manufacturer's recommendations and specifications.

- d. Expansion joints: follow waterproof membrane manufacturer's directions and recommendations.

3.05 WALL TILE INSTALLATION METHODS

A. General

Install wall tile and base to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface wall conditions and grout types.

1. Thick set method, interior plaster, cement, and masonry: mortar bed of 3/4" to 1 1/2" thick comply with TCA W221-94.

- a. Commercial Portland Cement Mortar Bed: ANSI A108.1
- b. Scratch Coat: Portland cement mortar proportioned as per TCA W221.
- c. Bond Coat: Portland cement paste on workable mortar bed.
- d. Grout: Commercial Portland Cement.
- e. Metal Lath: Galvanized expanded metal.
- f. 4 mil polyethylene membrane.
- g. Expansion joints mandatory. Provide in accordance with TCA Method EJ171-94.

2. Thick set method, interior plaster, cement, and masonry: mortar bed of 3/8" to 3/4" thick comply with TCA W222-94.

- a. Commercial Portland Cement Mortar Bed: ANSI A108.1
- b. Bond Coat: Portland cement paste on workable mortar bed.

- c. Metal Lath: Galvanized expanded metal.
- d. Grout: Commercial Portland Cement.
- e. 4 mil polyethylene membrane.
- f. Expansion joints mandatory. Provide in accordance with TCA Method EJ171-94.

3.06 GROUT APPLICATION

- A. Where possible, tile should not be grouted sooner than 48 hours after setting, to permit complete evaporation of solvents in the adhesive.
- B. Clean all joints of dust, dirt, and excessive adhesive. Adhesive may be removed with a sharp knife or solvent.
- C. When grouting wall tile thoroughly soak all joints with clean water. This is important as grout will not cure properly unless thoroughly soaked.
- D. Mix grout with clean water to a consistency of thick cream. Completely fill all joints and allow to set for a few minutes. Remove the surplus grout and finish flush and true. As soon as the grout has reached its initial set, thoroughly wash with a sponge and clean water. Polish with clean, dry cloths.

3.07 CLEANING

- A. Upon completion of all ceramic tile installation and grouting, thoroughly clean the exposed surfaces of all ceramic tiles so they are free of foreign matter including grout.
- B. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

3.08 PROTECTION

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- A. As soon as the tile work in each space has been grouted and cleaned, it shall be covered with either reinforced kraft paper (sisal kraft) or other heavy covering. Floor covering shall be kept and maintained until completion of the Work of all trades or as otherwise directed by the Authority, when it shall be removed without damage to tile or adjoining Work.

END OF SECTION

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SECTION 09510
ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide acoustical ceiling Work as indicated on Drawings and as specified herein, including the following:
 - 1. Acoustical Mineral Fiber Tile and Panel Ceilings.
 - a. Concealed spline installation
 - b. Lay-in panel installation - (exposed-grid)
 - c. Direct (adhesive) installation
 - 2. Acoustical Wood Fiber Panel Ceilings.
 - Lay-in panel installation - (exposed-grid)
 - 3. Aluminum Metal Pan Ceilings.
 - Concealed spline installation metal snap-in panels.

1.02 RELATED SECTIONS

- A. Support System for Suspended Ceilings.....Section 05170
- B. Access Doors.....Section 08305
- C. Gypsum Drywall - Interior Ceilings and Soffits.....Section 09253
- D. Divisions 15 and 16 Sections for related Mechanical and Electrical Work installed in ceilings.

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest edition.
 - C 423 Test Method for Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method.
 - C 635 Metal Suspension System for Acoustical Tile and Lay-In Panel Ceilings.

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C 636 Installation of Metal Ceiling Suspension
Systems for Acoustical Tile and Lay-In Panels.

Certifications

Furnish manufacturers certification from an independent testing laboratory acceptable to authorities having E 84 Surface Burning Characteristics of Building Materials.

E 119 Method for Fire Tests of Building Construction and Materials.

E 1264 Standard Classification for Acoustical Ceiling Products.

D 1779 Specification for Adhesion for Acoustical Materials

E 413 Determination of Sound Transmission Class

B. AMA -1-II Ceiling Sound Transmission Test By Two-Room Method

C. Underwriters Laboratories Inc. (UL)

Fire Resistance Directory.

D. Acoustical and Insulation Materials Association, "Job Conditions".

1.04 DEFINITIONS

A. Direct Suspension System

Directly fastened to floor or roof construction above, installed as part of the Work of Section 05170.

B. Indirect Suspension System

Installed as part of the Work of this Section, as specified by ceiling system manufacturer to be attached to direct suspension system.

1.05 SUBMITTALS

A. Product Data

Submit manufacturer's product specifications and installation instructions for acoustical ceiling materials, indicating compliance with applicable regulations.

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B. Shop Drawings

Submit shop drawing details of reflected ceiling plans indicating mechanical, electrical and other Work above, penetrating or connected to acoustical ceiling. Indicate framing and support details for Work supported by the suspension system.

1. Scale: 1/4"=1'-0" required on Reflected Ceiling Plans.

C. Samples

1. Submit samples of the following materials, prior to installation;
 - a. Acoustical panels: 12"x12" samples of each type, pattern and color.
 - b. Metal Pan Ceiling units: Full size sample of each type and finish.
 - c. Exposed runners and moldings: 12" long samples of each color and system type required.
 - d. Concealed suspension members: 1 set of each assembly specified.
 - e. Adhesive: 1 pint of adhesive used for direct attachment of acoustical panels to substrate.
2. Forward each approved sample type to Mechanical Installer for purpose of matching diffusers.

D. Certificates

Submit certificates from manufacturer of acoustical ceiling units and suspension systems attesting that their products comply with specified requirements.

1.06 QUALITY ASSURANCE

A. Qualifications

Installer is to be a firm with not less than five years of successful experience in the installation of specified materials.

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B. Regulatory Requirements

1. Building Code: Work of this Section shall conform to all requirements of the N.Y.C. Building Code and all applicable regulations of other governmental authorities.
2. New York City Board of Standards and Appeals (BSA) approvals.
3. New York City Materials Equipment Acceptance (MEA) approvals.
4. Acoustical and Insulating Materials Association

C. Certifications

Furnish manufacturers certification from an independent testing laboratory acceptable to authorities having jurisdiction, that acoustical tile units comply with fire test performance characteristics, including FS-S-SS-S118B.

D. Fire Performance Characteristics

Provide acoustical ceiling components that are identical to those tested for the following fire performance characteristics, according to ASTM test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate marking of applicable testing and inspecting agency.

Surface Burning Characteristics: Tested per ASTM E84

1. Flame Spread: 25 or less.
2. Smoke Developed: 25 or less.

E. Fire Resistance Ratings

As shown by reference to design designation in UL "Fire Resistance Directory" for floor, roof, or beam assemblies in which acoustical ceilings function as a fire protected membrane; tested per ASTM E 119. Provide protection materials for lighting fixtures and air ducts to comply with requirements of rated assembly shown on Drawings.

F. Coordination of Work

Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through ceilings, including light fixtures, HVAC equipment, fire-suppression systems and partitions. Resolve all discrepancies and conflicts prior to start of Work.

G. Pre-installation Conference

Prior to start of Work, installer of acoustical system and representatives of trades involved are to have a conference at the job site, in the presence of the Authority representative, to discuss coordination of ceiling system installation and resolve all discrepancies.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery

Deliver all acoustical units in manufacturer's original, unopened packages fully identified with type, finish, performance data and compliance labeling.

B. Storage

1. Store materials where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
2. Open ends of tile containers 24 hours prior to installation to stabilize moisture content and temperature.

C. Handling

Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.08 PROJECT CONDITIONS

A. Space Enclosure

Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is completed, and until air temperature and humidity will be maintained at values near those indicated for final occupancy.

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1.09 GUARANTEE

- A. Work showing any of the following defects within the one year guarantee period specified in the Contract shall be corrected as directed by the Authority.
1. Loose tiles or tiles improperly secured
 2. Tiles showing discoloration or cracking.

1.10 EXTRA MATERIALS

- A. Deliver extra materials to the Authority's Representative (to be transferred to the custodian). Furnish extra materials, described below, matching products installed, packaged with protective covering for storage and identified with appropriate labels.
1. Acoustical Ceiling Units: Furnish _____ square feet of full size units.
 2. Metal Pan Ceiling Units: Furnish _____ square feet of full size units.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acoustical Tile
1. Mineral Composition Tile
 - a. Armstrong World Industries - "Travertone"
 - b. The Celotex Corp. - "Celotone"
 - c. USG Acoustical Products Co. - "Acoustone"
- B. Acoustical Panels
1. Mineral Composition Panels (24" x 24" x 5/8" and 24" x 48" x 5/8")
 - a. Armstrong World Industries - "Minaboard"
 - b. The Celotex Corp. - "Hytone"
 - c. USG Acoustical Products Co. - "Auratone"

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2. Wood Fiber Composition Panels: Tectum, Inc., Newark, Ohio - "Tectum Acousti-Tough"
3. Aluminum Metal Pan Ceiling Units
 - a. Steel Ceilings, Coshocton, Ohio.
 - b. Chicago Metallic Corp., Baltimore, MD 21227
- C. Indirect Metal Suspension Systems
 1. Chicago Metallic Corporation
 2. Donn Corporation; Division of United States Gypsum Interiors, Inc.
 3. W.A.V.E. (Worthington Armstrong Venture Enterprises)

2.02 MATERIALS - ACOUSTICAL TILES AND PANELS

A. Mineral Fiber Tile and Panels

Provide Form 1 units per ASTM E1264; of designation, style, finish, color, STC range, edge detail and size as indicated below:

1. Direct (Adhesive) Installation on Gypsum Drywall, Plaster, or Concrete (Cast in Place):

Style:	Fissured
Size:	12" x 12" x 3/4"
Edge Profile:	Beveled
Weight:	1.33 lbs./sq. ft.
NRC:	.65 - .75
CSTC Range:	30-34
Color:	White
Finish:	Vinyl Latex Paint

2. Suspended (Concealed Spline) Installation

Style:	Fissured
Size:	12" x 12" x 3/4"
Edge Profile:	Square - K4C4
Weight:	1.33 lbs./sq. ft.
NRC:	.65 - .75
CSTC Range:	30-34
Color:	White
Finish:	Vinyl Latex Paint

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3. Suspended (Exposed grid, lay-in) Installation

Style: Non-Directional Fissured
Size: 24" x 24" x 5/8", 24" x
48" x 5/8", or as
specified.
Edge Profile: Square, or as specified.
Weight: 0.63 lbs./sq. ft.
NRC: Min. .50 - .60
STC Range: Min. 30-34
Color: White
Finish: Vinyl Latex Paint
Relative Humidity Resistance to 90% R. H./90° F.

B. Wood Fiber Composition Panels

Provide units to meet ASTM E1264 and to meet specifications outlined below:

1. Suspended (Exposed-Grid) Installation

Style: Tectum "Acousti-tough"
Size: 24" x 24" x 1" up to
8' lengths or as specified.
Edge Profile: Square
Weight: 1.63 lbs./sq. ft.
NRC: .45.
Color: White
Finish: Factory painted white

C. Aluminum Metal Pan Ceiling Units

In compliance with ASTM C 423, provide units as described below:

1. Suspended (Concealed Spline) Installation

Style: Unperforated, metal-pan,
lock-in type w/snap bar.
Size: 12" x 12" units, 12" x
24" or as specified.
Edge Profile: Square, flush panel
NRC: .81 minimum
Color: Aluminum or Baked white
enamel.
Finish: Lacquered Mill Finish for
aluminum color material
Thickness: Aluminum Alloy 3003-H14,
.032" thickness.

- D. Provide UL fire-rated ceiling systems as indicated on the Drawings, using tile or panels as specified, and with ratings as stipulated.

2.03 MATERIALS - METAL SUSPENSION SYSTEMS - INDIRECT HUNG

A. Concealed Spline Suspension System

Manufacturer's standard system; with face width, design and finish as selected by the Architect.

1. Structural Classification: Heavy-Duty System - ASTM C 635.
2. Selected System: Non-Fire Rated, Single Web, Indirect Hung, "Concealed Z System" as manufactured by Chicago Metallic Corporation, or accepted equal, including but not limited to the following:
 - a. Main Runners: Conform to ASTM C 635 - heavy duty classification; install to direct suspension system.
 - b. Main runners, cross tees, spacer bars, variable placement tees, grid adapters, splines and access components shall be of cold rolled steel with a protective coating.
 - c. Wall angle moldings and channel moldings shall be of cold rolled steel with a protective coating and a standard (white) factory applied paint finish, unless otherwise indicated, scheduled or selected by Architect.
 - d. Accessories: Couplings, clips, splines and miscellaneous accessories required for complete installation.
 - e. Access: MFG standard downward access system with units in any location removable by inserting a special hooktool between tiles into slot at end of cross member and disengaging cross member from main member.

B. Concealed Mechanical Suspension System (Indirect Hung) for Metal Pan Units

Manufacturer's standard system complete with all required utility angles, snap bars and slip molds, formed of not less than 20 gage galvanized steel, or tee suspension runners. Include the required framing and support for

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light fixtures and other items occurring in or on the ceiling with maximum deflection not to exceed 1/360 of the span. Include the following items:

1. Secondary (Indirect Hung) suspension system.
2. Metal wall moldings.
3. Provide accessible tile system, w/pull down knobs.

C. Exposed Grid Suspension System

Manufacturer's standard system, with face width, design and finish as selected by the Project Architect.

1. Structural Classification: Heavy-duty system in accordance with ASTM C 635.
2. Face width: 15/16" face or as otherwise specified.
3. Main runners: Install to direct suspension system. Conform to ASTM C 635 for heavy-duty classification.
4. Hold-Down Clips for Non-Fire-Rated Ceilings: For interior ceilings composed of lay-in panels, provide hold-down clips spaced 2'-0" o.c. on all cross tees.
5. Impact Clips: Where specified for use in high impact areas, such as corridors and gymnasiums, provide manufacturer's standard impact clip or "keep clip" system designed to absorb impact forces against lay-in panels. Provide a minimum of 2 clips per panel.

2.04 MISCELLANEOUS MATERIALS

A. Tile Adhesive

Comply with ASTM D 1779 or FS-MMM-A-00150, factory made product recommended by manufacturer, bearing UL label for Class 0-25 flame spread.

B. Primer

In accordance with manufacturer of acoustical tile adhesive, substrate shall be primed with one of the following products prior to application of adhesive to remove any residual which would prevent proper attachment of tile:

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1. Chemical Wash
 2. Sizing
 3. Adhesive base or primer
- C. Edge Moldings and Trim Pieces
- Provide manufacturer's standard molding for edges and penetrations of ceiling units which fit with type of edge detail and suspension system indicated.
- D. Tile Fasteners
- Cadmium plated, type recommended by tile manufacturer, but for not less than ¼" penetration of substrate.
- E. Acoustical Sealant
- Resilient, non-staining, non-shrinking, non-skinning, non-drying, non-sag sealant intended for interior sealing of concealed construction joints:
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BA-98; Pecora Corp.
 - b. Tremco Acoustical Sealant; Tremco.
- F. Drop Clips
- 18 gage galvanized steel with key hole slot.
- G. Wedges
- Furnish and install wedges fabricated of 26 gage galvanized steel, size and dimensions indicated on Drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the building before beginning Work to determine that it is properly enclosed and the structure is in proper condition to receive acoustical materials and suspension system. Area shall be broom cleaned and uninterrupted for free movement of rolling scaffold. Do not proceed until satisfactory conditions prevail.

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- B. Verify that direct suspension system has been installed properly, that main runners are spaced evenly and have been leveled to a tolerance of 1/8" in 12' measured both lengthwise on each runner and transversely between parallel runners so that indirect suspension system installation may proceed accurately.
- C. Start of Work constitutes acceptance of existing conditions, therefore, contractor is advised to bring any discrepancies to the attention of the Authority prior to start of Work.

3.02 PREPARATION

A. Coordination

Provide and coordinate the locations of inserts, clips, or other supports for support of acoustical ceilings.

- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders and comply with approved shop drawings of reflected ceiling plans.

C. Adhesive Tile Installations

1. Before installing adhesively-applied tile on wet-placed substrate such as cast in place concrete or plaster, test and verify that moisture level is below tile manufacturer's recommended limits.
2. Surface Preparation: Remove dirt, dust, oil, grease, and other foreign matter that may impair proper bonding of the tile adhesive. Clean and prepare substrate in accordance with the adhesive manufacturer's instructions and as specified.
 - a. Existing Painted Surfaces: Remove loose, peeling, and blistered coatings. Sand glossy surfaces to a dull finish.
 - b. Concrete Surfaces: Remove laitance, fins, and other defects that may impair bonding of the tile adhesive or may prevent alignment of tiles in a uniform plane.

3.03 INSTALLATION - GENERAL

- A. Install materials in accordance with manufacturer's printed instructions and in compliance with ASTM C 636,

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governing regulations, fire resistance rating requirements, as indicated and

1. Coordinate requirements for Work of other trades to be built into ceiling system. Provide supplementary framing as required.
- B. Arrange directionally-patterned units (if any) in manner shown by reflected ceiling plans, or as approved by the Project Architect. Install in patterns indicated, (balanced borders all sided) symmetrical or centered about center line or corridors, panels, fixtures, beam haunches, rooms, spaces.
- C. Cut as required for installation of electric fixtures, air diffusers, grilles, access doors, provided under other contracts. (Verify sizes and locations with other trades).
- D. On completion, the acoustic ceilings shall present a uniform plane surface, free from blemishes and imperfections.
- E. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
 1. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 2. Screw-attach moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
- F. Install acoustical panels in coordination with suspension system with suspension members concealed by support of tile units. Scribe and cut panels to fit accurately at borders and penetrations.

3.04 DIRECT (ADHESIVE) TILE INSTALLATION

- A. Apply primer as specified herein to all concrete surfaces prior to cementing tiles in place.
- B. Remove loose dust from backs of tiles by brushing and then priming them with thin coat of adhesive.

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- C. Cement acoustic tile directly to concrete ceiling slab, between beam haunches and to plaster or gypsum board ceiling with (4) spots of adhesive to each square foot of tile. Each spot of adhesive shall produce a surface of not less than (2) inches in diameter after tile has been pressed in place.
- D. Fit adjoining tiles to form neat and uniform hairline joints that are straight and parallel to the room axis in both directions. Install directionally patterned or textured tiles in a checkerboard pattern unless otherwise indicated.
- E. Scribe and cut tile to fit accurately at ceiling edges and penetrations. Install molding at ceiling perimeter, openings, cut-outs and where otherwise indicated.

3.05 ALUMINUM METAL PAN CEILING INSTALLATION

- A. Provide complete installation in accordance with ceiling manufacturer's recommendations.
- B. Running or snap bars spaced as determined and supported by hanger assembly from anchorage devices spaced 4'-0" o.c. maximum secured to structure.
- C. Provide additional running or snap bar arrangements at mechanical installations, support with hangers secured to structure. Space hangers as required by running or snap bar installation.
- D. Provide two (2) aluminum pulls at each pan when required for loudspeakers, valves, dampers, access doors, etc.
- E. After installation, clean metal pans of all soil marks in a manner and with materials recommended by the manufacturer.
- F. Furnish and install a minimum of four (4) hangers at all light fixture locations in accordance with manufacturer's standards.
- G. Install the frames supplied by Electrical, Heating and Ventilation and Plumbing installers for their respective diffusers, grilles, access doors or electrical lighting fixtures.

3.06 WOOD FIBER PANEL INSTALLATION

- A. Installation shall be in accordance with manufacturers latest printed specifications and instructions.

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- B. Wood fiber panels shall be installed with an exposed-tee suspension system classified "Heavy-duty" complying with ASTM C 635 - Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- C. Suspension system shall be sufficiently rigid to support ceiling mounted lighting fixtures; provide for necessary cut-outs or supports for mechanical ventilation.
- D. Where impact ceiling system is required to be installed, such as in gymnasiums or play areas, provide manufacturer's standard "keep clips" minimum 2 per panel, following all requirements listed below.

3.07 IMPACTION CEILING SYSTEM INSTALLATION

- A. Must absorb 30 g's of energy.
- B. Must accept a force such as a basketball striking the ceiling plane with sufficient velocity to cause the panel to accelerate at a rate of 20" per second. The panel must also be capable of accepting the decelerating force required to rebound it back into proper position on the grid, then shall not break, crack, or fall out as a result of this or equivalent abuse.
- C. All acoustical material must be accessible and removable for access into the plenum at any location.
- D. Impaction Deceleration Clip or "keep clip" shall be formed of spring steel to absorb impact, snapping panels back in place.
- E. The exposed suspension components shall ensure proper operation and rebound of the Impaction Deceleration Clip. The suspension components shall be Underwriters Laboratories labeled for two hour fire resistance rating.
- F. Installation shall be in full accordance with manufacturer's instruction booklet in addition, recommendations outlined in ASTM Specification C 636, and the current Bulletin of the Acoustical and Insulation Materials Association, consistent with U.L. requirements shall govern installation.
- G. Impaction Deceleration Clip shall be positioned and installed according to the manufacturer's instructions. These clips must provide access to the plenum at any location.

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3.08 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage.
- B. Remove and replace Work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- C. Remove and replace Work that is damaged or soiled by other trades as directed by Authority's Representative.

END OF SECTION

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LIST OF SUBMITTALS

<u>SUBMITTAL</u>	<u>DATE SUBMITTED</u>	<u>DATE APPROVED</u>
Product Data:	_____	_____
1. Manufacturer's specifications and installation instructions.		
Shop Drawings:	_____	_____
1. Reflected ceiling plans and details.		
Samples:	_____	_____
1. Acoustical panels: 12"x12" samples of each type, pattern and color.		
2. Metal Pan Ceiling units: Full size sample of each type and finish.		
3. Exposed runners and moldings: 12" long samples of each color and system type required.		
4. Concealed suspension members: 1 set of each assembly specified.		
5. Adhesive: 1 pint of adhesive used for direct attachment of acoustical panels to substrate.		
6. Forward each approved sample type to Mechanical Installer for purpose of matching diffusers.		
Manufacturer's Certificate:	_____	_____
1. Certificate from manufacturer attesting that their products comply with specified requirements.		

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Quality Assurance: _____

1. Certificate attesting that installer has minimum five years of successful experience in the installation of specified materials.
2. MEA and/or BSA approval numbers.
3. Manufacturers certification from an independent testing laboratory that acoustical tile units comply with fire test performance characteristics.

Project Closeout: _____

1. Guarantee.
2. Extra materials:

Acoustical Ceiling Units:
Furnish _____ square
feet of full size units.

Metal Pan Ceiling Units:
Furnish _____ square
feet of full size units.

* * *

SECTION 09650
RESILIENT FLOORING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all vinyl composition tile, solid vinyl sheet flooring, non-slip vinyl sheet flooring, vinyl base, rubber stair treads, risers, and stringers; and interior detectable warning surfaces.

1.02 RELATED SECTIONS

- A. Cast-in-Place Concrete Section 03300
- B. Unit Masonry Section 04200
- C. Rough Carpentry Section 06100

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM), latest editions.
 - E 84 Test Method for Surface Burning Characteristics of Building Materials.
 - E 648 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
 - E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - F 710 Standard Practice for Preparing Concrete Floors To Receive Resilient Flooring
 - F 1303 Standard Specification for Sheet Vinyl Floor Covering with Backing
 - F 1066 Vinyl Composition Floor Tile, Comp.1
 - F 1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

B. Federal Specifications (FS)

SS-W040 Wall Base: Rubber and Vinyl Plastic.

SS-T-312 Tile, Floor: Asphalt, Rubber, Vinyl, Vinyl Composition.

C. National Fire Protection Association (NFPA)

Standard 253 Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.04 SUBMITTALS

A. Product Data

Manufacturers' specifications, installation instructions, surface preparation requirements and maintenance manuals for each material specified.

B. Samples

1. For Initial Selection: Submit actual sections of resilient flooring materials, showing full range of colors and patterns available, for each type of resilient flooring required.
2. For Verification, prior to installation, submit the following:
 - a. Resilient tile: Full size, each type, size and color specified.
 - b. Adhesives: One pint, each type, labeled to indicate location of use and type of surface to receive product.
 - c. Floor Finish: One pint.
 - d. Color samples: One sample of each color match along with a sample of the existing tile.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Manufacturer: Provide resilient flooring products of a single manufacturer.
2. Installer: A firm with not less than 5 years of successful experience in the installation of specified materials.

B. Certifications

1. Furnish manufacturer's certification from an independent testing laboratory acceptable to authorities having jurisdiction that resilient flooring complies with fire test performance requirements.
2. Furnish certification from flooring installer that the substrate surfaces have been examined and are acceptable for installation of the Work of this Section.

C. Fire Test Performance

Provide resilient flooring, treads and risers which comply with the following performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.

1. Critical Radiant Flux (CRF): Not less than 0.45 watts per sq. cm. as per ASTM E 648.
2. Flame Spread: Not more than 75 as per ASTM E84.
3. Smoke Density: Not more than 450 as per ASTM E 662.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery

Deliver material in good condition to the site in manufacturer's original unopened containers with label information clearly marked thereon.

B. Storage

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Store materials (resilient flooring, base and adhesives) in location protected from the weather and having a minimum temperature of 68°F for at least 24 hours prior to start of laying of flooring.

1.07 PROJECT CONDITIONS

A. Environmental Requirements

Continuously heat spaces to receive flooring to a temperature of 68°F for at least 48 hours prior to flooring installation, and for 48 hours after installation. Maintain a minimum temperature of 55 deg. thereafter. Do not install products until they are at the same temperature as the spaces in which they are installed.

B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter has been cured and is sufficiently dry to achieve bond with adhesive as determined by manufacturer's recommended bond and moisture test. The Contractor shall allow sufficient time for the slab to dry out before installation of resilient flooring is started.

1.08 MAINTENANCE

A. Extra Materials

1. Furnish additional floor covering materials for replacement and maintenance to the Authority's Representative (to be transferred to the custodian), including manufacturer maintenance information.
2. Furnish materials of each size, color pattern, and type of material included in the Work. All materials must be new, clean, undamaged and in original containers.
3. Furnish materials at the rate of one (1) carton for each 1000-1500 sq. ft of material installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Vinyl Composition Tile

1. Amtico Flooring Division, Domco, Florence AL
2. Armstrong World Industries, Inc.: "Imperial Texture/Excelon Supreme".
3. Azrock Floor Products Div., Domco, Florence AL: "Cortina/Premier".
4. Kentile, Inc., Chicago, IL
5. Tarkett, Inc.: "Expressions/Signal"

B. Moisture Test Kits:

1. Vinyl Plastics, Inc. Sheboygan, WI 53082
2. Sealflex Industries Costa Mesa, CA
3. Floor Seal Technology, Inc. San Jose, CA 95112

2.02 MATERIALS

A. Vinyl Composition Tile (VCT)

Provide VCT product, of domestic manufacture, in compliance with Fed. Spec SS-T-312, Type IV, Composition I, and ASTM F 1066, Comp. 1 Class 2 through pattern, asbestos free, complying with the following requirements:

1. Size: 12" x 12" x 1/8" gage
2. Color: Match existing adjacent tile.

2.03 ACCESSORIES

A. Adhesives

1. Type as recommended by manufacturer for particular resilient flooring and base.

2. Adhesive suitable for adhesion to plaster, concrete, masonry, metal or wood, waterproof after drying to resist action of water.

B. Concrete Slab Primer

Tile adhesive manufacturer's recommended primer for preparation of porous or dusty concrete, non-staining type.

C. Leveling and Patching Compound

Portland cement based latex cement type underlayment: Armstrong S-194 Latex Underlayment or Ardex K-15, as recommended by flooring manufacturer.

D. Floor Polish

Fed. Spec. P-F-430, heavy traffic water emulsion floor wax, as recommended by flooring manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Concrete Subfloor

1. Installer shall inspect subfloor surfaces to determine that they are satisfactory. A satisfactory subfloor surface is one that is clean, dry, flat, smooth, level and free from cracks, holes, ridges, coatings preventing adhesion, and other defects impairing performance or appearance. Notify the Authority of conditions, which will adversely affect flooring installation. Do not proceed with installation until conditions have been corrected.
2. Perform bond and moisture tests on concrete subfloors to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing, sealing, hardening or any other compounds.
 - a. Bond Tests shall be in accordance with Manufacturer's Installation Manual.

- b. Moisture vapor transmission shall not exceed 5 pounds per 1,000 square feet in 24 hours. Tests shall be in accordance with ASTM F 1869.

B. Wood Subfloor

1. Verify that wood subflooring complies with the requirements specified in Section 06100 - Rough Carpentry.
 2. Verify that underlayment surface is free of irregularities and substances that may interfere with adhesive bond, show through surface or stain flooring.
- C. Do not allow resilient flooring Work to proceed until subfloor surfaces are satisfactory.

3.02 SURFACE PREPARATION

- A. Unless otherwise specified, follow the materials manufacturers' written instructions.
- B. Remove dirt, grease, oil, paint, varnish, wax, sealers, curing or hardening compounds and contaminants which may impair the full bonding of the materials to the substrate. Avoid organic solvents. Remove residual adhesives as recommended by the flooring manufacturer.
- C. Concrete Subfloor
 1. Remove trowel marks or other projections by grinding or sanding.
 2. Level uneven surfaces with smooth troweling of mastic underlayment. Follow underlayment manufacturer's application and curing instructions.
 3. In spaces where existing resilient flooring has been removed, install a self-leveling coat of Ardex K-15 Underlayment with an average depth of a minimum of 1/8". Install in accordance with the manufacturers recommendations.

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4. Provide a substrate surface with not more than 1/8 inch in 10'-0" variation from level or plane of required slope.
5. Treat porous and dusty concrete with primer after vacuum cleaning the surface. Apply primer at the rate recommended by the primer manufacturer.
6. Broom or vacuum clean subfloor prior to installation of flooring.

3.03 INSTALLATION - GENERAL

- A. Install resilient flooring materials in compliance with manufacturer's latest printed instructions.
- B. Scribe cut and fit resilient flooring to permanent fixtures, pipe trench covers, built-in cabinets, pipes, outlets columns, walls and partitions.
- C. Tightly cement resilient flooring to subbase without open cracks, voids, raising and puckering at joints, tele-graphing of adhesive spreader marks or other surface imperfections.
- D. Hand roll flooring at perimeter of each covered area to assure adhesion.
- E. Spaces and areas where flooring is being installed shall be closed to traffic and other trades until flooring has set.
- F. Protect finished installation at all times. Contractor will be held responsible for all damage to flooring until Final Acceptance.

3.04 INSTALLATION OF TILE FLOORS

- A. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis.
- B. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged

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if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped, or deformed tiles are not acceptable.

1. Lay tile in patterns indicated and as directed by the Project Architect.
 2. Lay adjacent tile with direction of texture opposite adjoining tiles.
- C. Adhere tile flooring to substrates using full spread of adhesive to edge of covered area, applied as directed by tile manufacturer.
- D. Cut tiles using equipment and methods recommended by respective tile manufacturer. Provide smooth cut edges tightly fit to adjacent work.

3.10 CLEANING

- A. Remove any excess adhesive and other surface soiling from face of installed materials with cleaning agents recommended by the manufacturer of the material being cleaned.
- B. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well set in adhesive.

3.11 PROTECTION

- A. Protect resilient flooring against damage by covering with kraft building paper or in accordance with manufacturers recommendations until final completion

END OF SECTION

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SECTION 09900
PAINTING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all painting work and related Work as indicated on the Drawings and specified herein.
- B. Painting of HVAC and electrical items is part of Work of this Section. See Sections and Divisions listed in Art. 1.02.
- C. When removing existing paint from surfaces, assume that all paint contains lead. Take necessary precautions to protect workers. Provide measures to separate paint removal work areas from occupied areas.

1.02 RELATED SECTIONS AND WORK

- A. Metal Fabrications.....Section 05500
- B. Steel Doors and Frames.....Section 08110
- C. PlasterSection 09900
- D. Gypsum Board Section 09250
- E. Gyp Bd - Interior Ceilings and Soffits... Section 09253
- F. Mechanical/Electrical..... Division 15 & 16

1.03 REFERENCES

- A. Federal Specifications (FS)
- B. American Society of Testing and Materials (ASTM)
- C. N.Y.S. Department of Environmental Conservation
- D. U.S. Department of Labor
- E. Occupational Safety and Health Administration (OSHA)
- F. Department of Defense (DOD)

1.04 DEFINITIONS

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- A. The term "Painting" as used in this Section, means the application of all coatings such as paint, primer, etc. as listed in the Painting Schedules of this Section.
- B. The term "Painting" also includes preparation of surfaces for such applications, and the clean-up as hereinafter specified.
- C. The term "Walls" means all surfaces from floor, or top of base to ceiling or hung ceiling.
 - 1. Include pilasters, breaks, jambs, reveals, returns.
- D. The term "Ceilings" means the general overhead horizontal surfaces.
 - 1. Include soffits.
 - 5. Include side faces of hung or furred ceiling.
- E. Touching-up bare spots specified for previously primed or painted surfaces is in addition to the coats specified for the paint system.

1.05 SUBMITTALS

A. Product Data

Provide manufacturers' product literature for all materials specified and material manufacturer's printed directions and recommendations for environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application, and storage, as applicable for each of the materials specified.

B. Samples

1. Initial Selection

Submit manufacturer's custom color charts for each type of finish for approval by the MMMHS Representative. Verify colors specified with manufacturers' color charts for availability and notify the MMMHS Representative if any discrepancies should occur.

2. Verification prior to installation

- a. When required by MMMHS Representative, submit two samples of each color and material on 12" x 12" hard-board.

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3. All samples shall be labeled; and include the following information:
 - a. Manufacturer's name
 - b. Type of paint
 - c. Manufacturer's stock number
 - d. Color: name and number
 - e. Instructions for inducing, where applicable
 - f. Federal Specification number, as specified
 - g. Federal regulations for amount of lead in paint.
 - h. VOC content

1.06 QUALITY ASSURANCE

A. General

1. All painting materials shall arrive at the job ready-mixed.
2. Remove all rejected materials from the premises immediately.
3. All thinning and tinting materials shall be as recommended by the manufacturer. Generally, all paints shall not require additional thinning.
4. Verify that the specified shop prime paint for each applicable item in this Project is compatible with the total coating system, prior to finish painting.
5. Materials selected for each system type shall be products of a single manufacturer.

B. Qualifications

Work of this Section shall be performed by personnel with a minimum of three years experience in performing this type of Work.

C. Regulatory Requirements

1. N.Y.C. Building Code, latest edition

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2. N.Y.S. Department of Environmental Conservation - Part 205 on "Architectural Surface Coatings" - for (VOC) Volatile Organic Compounds.
3. U.S. Department of Labor, Occupational Safety and Health Administration, Construction Industry Standards (29 CFR 1926/1910) Revised 10/1/79, Washington, D.C.

D. Certifications

Federal Specifications: When materials are specified to comply with Federal Specifications, products will be accepted which meet or exceed the performance requirements of such Federal Specifications and comply with all regulations currently in effect.

1. Indicate that material complies with Federal Specifications by including the Federal Specifications number on the container label or on the product literature, or submit a statement with the Product Data stating that material meets or exceeds the performance requirements of the Federal Specifications.

E. Field Samples

1. Provide samples of each color and finish, under natural lighting conditions, in a location where each finish is to be applied.
2. MMMHS Representative will request review of first completed room, space or item of each color scheme required by the MMMHS Representative for color, texture and workmanship.
3. First acceptable space or item will be used as project standard for each color scheme, or finish.
4. Primer coat is to be inspected and approved in all locations before any subsequent finish coats are applied.
5. In existing building locations; repair of existing base surface is to be approved prior to commencement of painting.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery

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Deliver materials to the site in original, unopened containers bearing manufacturers name and label containing the following information:

1. Product name or title of material
2. Manufacturer's stock number and date of manufacture
3. Manufacturer's name
4. Federal Specification number, if applicable.
5. Federal regulations for amount of lead in paint (less the 0.06% lead in non-volatile ingredients)
6. Contents by volume for major pigment and vehicle constitutions
7. Thinning instructions
8. Application instructions
9. Color name and number

B. Storage

1. MMMHS Representative will designate space on premises for storage of materials. Contractor shall restrict storage in this area to paint materials and related equipment, and provide the following:
 - a. Provide one (1) approved chemical dry fire extinguisher equal to 20 lb. CO₂ rating in all assigned rooms or locations where painting materials are stored. Fire extinguisher shall bear the label of the National Board of Fire Underwriters and tag of most recent inspection.
 - b. Provide three (3) standard size red fire pails with clean sand in above locations. At the completion of project, fire extinguishers and pails shall become property of Contractor.
2. Maintain storage area in clean condition, store materials not in use in tightly covered containers. Remove oily rags, waste and empty containers from site each night.
3. Provide MMMHS's Representative with one key for

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each space if spaces are to be kept locked when not in use.

1.08 PROJECT CONDITIONS

A. Environmental Requirements

1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
2. Do not apply finish in areas where dust is being generated or will be generated while the material is drying.
3. Provide paint and coating products to comply with applicable environmental regulations, VOC requirements and local authorities.
4. In all areas and spaces being painted, the Contractor shall ensure that there is adequate ventilation to ensure proper paint drying, along with minimizing paint odors.

1.09 GUARANTEES

A. Adherence of workmanship and materials to Specifications requirements shall be maintained for the one year Contract guarantee period. These requirements shall include the following:

1. There shall be no evidence of blistering, peeling, crazing, alligatoring, streaking, staining, or chalking.
2. Dirt shall be removed without blemishing the finish by washing with mild soap and water.
3. Colors of surfaces shall remain free from serious fading; the variation, if any, shall be uniform.

B. Correct all defects, appearing within the guarantee period, by removal of the defective work and replacement as directed.

C. All corrective measures shall be the Contractor's responsibility, and shall be made at no extra cost to the MMMHS.

1.10 MAINTENANCE

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A. Extra materials

At completion of Work, furnish to the MMMHS's Representative five (5) gallons of each type and color of paint used in the Work (to be transferred to the custodian). Furnish Paint in manufacturer's original sealed containers marked with color names and/or numbers specified herein.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following manufacturers:

1. Benjamin Moore and Co.
2. The Sherwin-Williams Co.
3. Glidden Coatings and Resins.

2.02 MATERIALS

- A. Provide products which meet all N.Y.S. Part 205-VOC requirements for applications outlined herein.
- B. Provide products which meet all Federal regulations for amount of lead in paint (less than 0.06% lead in non-volatile ingredients).
- C. Provide best quality grade of various types of coatings as regularly manufactured by the paint materials manufacturers. Materials not displaying manufacturers' identification as a standard, best-grade product will not be acceptable.
- D. Use only thinners approved by paint manufacturers for applications intended and use only within recommended limits.

2.03 REFERENCE STANDARDS

A. Paint materials shall meet or exceed the requirements of the following standards:

Federal Specifications

1. Primers, Sealers, Undercoats

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- a. Metal Primer (Zinc Dust, Zinc Oxide) for Galvanized surfaces: FS TT-P-641G
 - b. Metal Primer Aluminum or Steel surfaces: FS TT-P-57B
 - c. Primer Sealer, Latex Base: FS TT-P-650C
 - d. Odorless Alkyd Enamel Interior Undercoat: FS TT-E-545D
 - e. Alkyd Primer (Corrosion Inhibiting) FS TT-P664C Lead and Chromate Free, VOC Complying
2. Finish Paints
- a. Interior Latex, Flat: FS TT-P-29J, Type I
 - b. Latex Interior Semi-Gloss Enamel: FS TT-P-1511A, Type I
 - c. Alkyd Oderless Interior, Flat FS TT-P-1511A, Type I
 - d. Alkyd Odorless Semi-Gloss Enamel: FS TT-E-509C for white and tints; FS TT-E-529 Class A for deep colors.
3. Miscellaneous Materials:
- a. Mineral Spirits (Petroleum Paint Thinner): FS TT-T-291
 - b. Color Pigments: Pure, non-fading, finely ground pigments, at least 99 percent passing a 325 mesh sieve. Color pigments that are to be used on plaster shall be lime proof - FS-TT-P-381.
 - c. Surface Sealer: Pigmented Oil for Plaster & Wallboard - FS-TT-S-179.
- B. Miscellaneous Standards and Requirements
1. Turpentine: ASTM D13.
 2. Cleaning Solvents: Low toxicity; flash point in excess of 100°F.
 3. Spackling Compound: ASTM C475.

2.04 COLORS

A. Selection

1. Custom paint colors, surface treatments and finishes as selected by MMMHS Representative.
2. Color Schedule will be issued to the Contractor after award of the Contract.
 - a. Prior to start of Work, Contractor shall furnish custom color chips for surfaces to be painted.
 - b. Final acceptance of colors will be from actual job applications.

2.05 PAINTING SCHEDULE

A. Surfaces Not to be Painted

1. Polished or bright metals: Aluminum, bronze, brass, chrome, nickel, stainless steel, copper.
2. Exterior: Brick, Stone, Masonry, Concrete, Cement
3. Glass
4. Ceramic Materials
5. Clear Finished Woodwork.
6. Resilient Flooring Materials; Wood Floors.
7. Terrazzo; Marble; Bluestone
8. Acoustical Tile
9. Chalk Boards; Cork Boards; Bulletin Boards; Plastic Laminate
10. Mechanical Equipment, Steel Shelving, and Cabinets, which are factory finished.
11. General Construction Items with factory applied final finish.
12. Factory Finished Lighting Fixtures.
13. Pipe and Duct Spaces
14. Concealed Ducts, Pipes and Conduit.

B. Interior Finish Schedule - Standard

Finish coat in locations outlined below will be standard. First or Prime coats shall vary with substrates and are outlined in Article 2.07 - Interior Paint Systems.

<u>Location</u>	<u>Type</u>
1. Class Rooms, Kindergartens, Guidance Rooms, Offices, Coat Closets, Library, Computer Room, Auditorium.....	Flat (or to match adjacent existing paint surface)
2. Corridors, Teacher's Lunch Room, Stair Wells, Supply Rooms, Storage Rooms, Mech/Elec Rooms.....	Semi Gloss (or to match adjacent existing paint surface)

2.06 EXTERIOR PAINT SYSTEMS

A. Zinc Coated Metal

Galvanized steel lintels

1st Coat - Zinc dust-zinc oxide primer	--	2.0 Mils DFT
2nd Coat - High gloss alkyd enamel	--	2.0 Mils DFT
3rd Coat - High gloss alkyd enamel	--	2.0 Mils DFT

2.07 INTERIOR PAINT SYSTEMS - NEW SURFACES

Note: All interior finish paint coats: Odorless type if manufactured.

A. Gypsum Drywall Systems

1. Flat Finish:

1st Coat - Latex Primer Sealer	--	1.1 Mils DFT
2nd and 3rd Coats Alkyd Flat Paint	--	2.0 Mils DFT each coat

2. Semi-Gloss Finish:

1st Coat - Latex Primer Sealer	--	1.1 Mils DFT
2nd Coat - Alkyd Semi-Gloss		

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	Enamel	--	1.8 Mils DFT
	3rd Coat - Alkyd Semi-Gloss Enamel	--	1.8 Mils DFT
3.	Gloss Finish:		
	1st Coat-Latex Primer Sealer	--	1.1 Mils DFT
	2nd & 3rd Coats-Alkyd Gloss Enamel	--	1.6 Mils DFT each coat
B.	Plaster		
1.	Flat Finish:		
	1st Coat - Alkyd Primer	--	2.0 Mils DFT
	2nd and 3rd Coats Alkyd Flat Paint	--	2.0 Mils DFT each coat
2.	Semi-Gloss Finish:		
	1st Coat - Alkyd Primer	--	2.0 Mils DFT
	2nd Coat - Alkyd Semi-Gloss Enamel	--	1.8 Mils DFT
	3rd Coat - Alkyd Semi-Gloss Enamel	--	1.8 Mils DFT
3.	Gloss Finish:		
	1st Coat - Alkyd Primer	--	2.0 Mils DFT
	2nd & 3rd Coats-Alkyd Gloss Enamel	--	1.6 Mils DFT each coat
C.	Ferrous Metal		
1.	Flat Finish:		
	1st Coat - Touch-up with Tnemec 10-99		
	2nd Coat - Alkyd Flat Paint	--	2.0 Mils DFT
	3rd Coat - Alkyd Flat Paint	--	2.0 Mils DFT
2.	Semi-Gloss Finish:		
	1st Coat - Touch-up with Tnemec 10-99		
	2nd Coat - Enamel Undercoat	--	1.7 Mils DFT

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3rd Coat - Alkyd Semi-Gloss
Enamel -- 1.7 Mils DFT

3. Gloss Finish:

1st Coat - Touch-up with Tnemec 10-99

2nd Coat - Enamel Undercoat -- 1.7 Mils DFT

3rd Coat - Alkyd Gloss
Enamel -- 1.5 Mils DFT

First coat not required on shop primed items.

D. Zinc-Coated Metal

1. Flat Finish:

1st Coat-Zinc dust-zinc oxide primer--2.5 Mils DFT

2nd Coat - Alkyd Flat Paint -- 2.0 Mils DFT

3rd Coat - Alkyd Flat Paint -- 2.0 Mils DFT

2. Semi-Gloss Finish:

1st Coat-Zinc dust-zinc oxide primer--2.5 Mils DFT

2nd Coat - Enamel Undercoater - 1.7 Mills DFT

3rd Coat - Alkyd semi-gloss enamel --1.7 Mills DFT

3. Gloss Finish:

1st Coat-Zinc dust-zinc oxide primer--2.5 Mils DFT

2nd Coat - Enamel Undercoater - 1.7 Mills DFT

3rd Coat - Alkyd semi-gloss enamel --1.5 Mills DFT

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

1. The application of painter's finish to any surface shall be taken to indicate that the Contractor considers such surfaces suitable for a first-class finish.

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2. Do not apply painter's finish in any locations until the Work of other Contractors which might damage the new finish, are completed.
3. Notify the MMMHS Representative in writing regarding Work by others which does not provide a suitable surface for the new finish.
4. In case of dispute regarding the suitability of any surface, the MMMHS Representative's decision shall be final and conclusive upon all concerned.
5. Contractor check the compatibility of previously painted surface with the new coating by applying a test panel 4 wide x wall height. Allow to dry thoroughly; verify proper adhesion before proceeding with painting Work.

3.02 PREPARATION AND APPLICATION - EXISTING BUILDING

A. Protection

In each area to be painted, cover and protect furniture, equipment and floors from damage with clean cloths, heavy building paper or clean plastic covering secured in place. All protection is to be carefully removed, cleaned or discarded after painting is complete.

B. Removal of Existing Work

1. Remove and paint behind pictures, signs, shades, drapes, furniture, cabinets, lockers and similar items which are not secured to walls.
2. Unless otherwise specified, radiators, convectors, univents need not be removed providing all visible surfaces of these items and visible surfaces behind them are properly painted.
3. Carefully mark removed work for identification and replace in the original location unless otherwise directed.

C. Surface Preparation

1. Remove all loose paint with scraper and putty knife.
2. Remove dust by washing with water, using damp sponge or cloth.

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3. If necessary, after washing, spot prime grease and water stains; magic markers, crayon, lipstick marks, etc; with a quick-drying alcohol base primer sealer.
4. Apply an alkyd-based underbody for better adhesion of semi-gloss finish coats. Tint underbody to match color of finish coat.
5. Existing paint that was not removed with scraper and which appears to be sound shall receive spackling compound around perimeter high spots and feathered out so that surface is smooth. Repair gouges created by the scraping process and other imperfections in the existing surface with spackling compound to provide a smooth, even finished surface.
6. Apply alkyd-based underbody on all spackled areas.
7. Apply one finish coat, or as many as may be necessary to obtain the proper finish, of alkyd flat, alkyd semi-gloss, or alkyd gloss paint on all surfaces as indicated in Interior Paint Schedule.

Note: Manufacturers who do not manufacture VOC compliant flat paint and semi-gloss paint may substitute VOC compliant egg-shell finish paint in lieu of flat and satin finish paint in lieu of semi-gloss, respectively.

8. Finish coats shall be "First Line" or "Top Quality" paints as listed in the following:
 - a. Benjamin Moore & Co.: Alkyd Sani-Flat (flat); Alkyd Dulamel (Semi-Gloss).
 - b. Sherwin Williams Co.: Pro-Mar Alkyd Flat (flat) B32 WZ 1101 Series, Pro-Mar Alkyd Semi-Gloss B34 WZ 1100 Series.
 - c. Glidden Paints: Ultra Hide Alkyd flat; Spread Lustre Semi-Gloss.
 - d. For surfaces requiring gloss paint finish as indicated in Painting Schedule, provide finish coats of "top quality" alkyd gloss enamel as manufactured by manufacturers listed in a., b., c., d., above.

3.03 PREPARATION - NEW WORK

A. Protection

Cover or otherwise protect finished Work of other trades and surfaces not to be painted concurrently or not to be painted.

B. Surface Preparation

1. Perform preparation and cleaning procedures in accordance with the paint manufacturer's instructions and as specified.

a. Previously Painted Surfaces: Remove loose, peeling and blistered coatings by scraping, sanding or chipping. Sand bare spots and abraded areas of previously painted and shop primed surfaces. Where paint is missing or removed, sand surrounding edges of sound paint film so edges of existing paint do not show through the finished system.

b. Sand existing glossy coatings to a uniform dull surface.

c. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to other cleaning procedures. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

d. Touch-up bare spots on previously painted surfaces with primer.

2. Ferrous Metals

a. Remove dirt and grease with cleaning solvents which will not affect shop prime coat. Wipe off with clean cloths.

b. Remove rust, mill scale and defective paint down to bare metal, using scraper, sandpaper, or wire brush. Grind if necessary to remove shoulders at edge of sound paint to prevent flaws from photographing finish coats.

3. Plaster

a. Scrape and sand plaster nibs smooth. Spackle, smooth, and seal cracks, holes and other

defects to provide an even, smooth surface.

- b. Do not apply sealer or paint coatings until the moisture content is less than 8 percent as determined with an Electronic Moisture Meter. Furnish Moisture Meter and make it available for use by the Authority's Representative upon request.
 - c. Cement Plaster: Coat surfaces to be patched with an approved bonding agent. Patch with an approved mortar patching mix and finish to match texture of adjacent surfaces.
4. Gypsum Board: Fill cracks and other blemishes with spackling or patching compound and sand smooth.

C. Materials Preparation

- 1. Mix and prepare painting materials in accordance with the manufacturer's directions.
- 2. Stir materials before and during application to produce and maintain a mixture of uniform density. Do not stir any film which may form on the surface of materials into the material; remove the film and strain the material before using.
- 3. Thinning: Use only thinners recommended by the paint manufacturer and use only within the recommended or specified limits.

D. Moisture Meter Test

- 1. Do not apply initial coating until moisture content of surface is within limitations recommended by paint manufacturer.
- 2. Reading shall be approximately 8% on meter.
- 3. Test surfaces with moisture meter at various areas e.g.: Top, bottom and middle of wall, especially where piping occurs and at exterior walls, in the presence of the MMMHS Representative.
- 4. Moisture content shall be approved by the MMMHS Representative before any Work is started.

3.04 APPLICATION

A. General

1. No Work shall be performed where plaster is being applied or is in the process of drying.
2. No Work shall be performed in spaces which are not broom clean and free of dust and waste.
3. Apply paint materials to produce smooth finished surfaces, free of brush or roller marks, drops, runs, or sags.
4. Paint materials shall be kept at a proper and uniform consistency.
5. Thin only when necessary to achieve best results.
6. Thinners shall be turpentine, mineral spirits or material recommended by manufacturer of paint, and in quantity as recommended.
7. Excessive use of thinner as indicated by variation in absorption, lack of "hide", thickness of dry film, mottled or streaky coat, shall be cause for rejection. Correct as directed.
8. Apply all coats with brush or roller (spraying will not be permitted) varying slightly the color of succeeding coats.
9. Brush out or roll on first or prime coat; work well into surface.
10. Each coat shall be inspected, approved and dry before proceeding with additional coats.
11. Allow at least 48 hrs. for enamels and exterior oil paint to dry.
12. Painting is not required on walls or ceilings in concealed and inaccessible areas.
13. Moving parts of operating units will not require finish painting unless otherwise required.
14. Do not paint over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plate.

3.05 CLEANING

A. General

Contractor shall clean-up behind each paint crew such that painting and clean-up will be a continuous uninterrupted operation. The practice of one general clean-up after completion of all painting will be strictly prohibited. This clean-up will include, but not be limited to the following:

1. Remove spots or defacement resulting from Work of this Section.
2. Retouch all damaged surfaces to leave Work in perfect finished condition.
3. If spots or defacement cannot be satisfactorily removed and retouched, re-finish the surfaces as directed.
4. Free all operating units of painted materials and leave them clean and in proper working order.
5. Remove from premises all surplus paint materials, debris and any other rubbish resulting from the Work.
6. Leave storage space clean and in condition required for equivalent spaces in project.

3.06 PROTECTION

- A. Provide "Wet Paint" signs to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their Work after completion of painting operations.
- B. At the completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces as directed by the MMMHS Representative.

END OF SECTION

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SECTION 10214
STATIONARY METAL WALL LOUVERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide stationary metal wall louvers as indicated on Drawings and as specified herein.

1.02 RELATED SECTIONS

- A. Metal Fabrications..... Section 05500
- B. Joint Sealers Section 07900
- C. Mechanical.....Division 15000

1.03 REFERENCES

- A. Air Movement and Control Association (AMA)
- B. National Association of Architectural Metal Manufacturers (NAAMM)

1.04 SUBMITTALS

- A. Shop Drawings
Show fabrication details and connections to adjacent Work.
- B. Product Data
Catalog cuts, specifications, and installation instructions for louver type specified.

1.05 QUALITY ASSURANCE

- A. Louvers shall be rated by AMCA (Air Movement and Control Assoc.).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products of this Section as recommended by manufacturer to protect from damage.

PART 2 - PRODUCTS

2.01 ALUMINUM LOUVERS

A. Type

Stationary extruded louvers, 4" deep unless indicated otherwise, with extrusions not less than 1/8" thick, of 6063T5 aluminum alloy.

B. Fabrication

Form frames with mitered or coped members and welded or joints. Form ends of blades flat against frame jamb and weld to frame at each end to ensure watertight joints. Reinforce units with concealed plates, angles, tees or other shapes to form rigid unit. Fabricate louvers with horizontal and vertical mullions where louver openings exceed 60" in any direction. Allow for expansion and contraction.

C. Finishes

Comply with Metal Finishes Manual of National Assoc. of Architectural Metal Manufacturers, except as otherwise indicated.

1. Finish louver and frame with factory paint finish as follows:

- a. Durannar XL - Coat System by PPG Industries or approved equal. Color shall be UC52188 XL Dark Green Metallic.

D. Sills

Same material and finish as louvers.

2.02 LOUVER SCREENS

A. General

Fabricate removable screen frames of same metal and finish as louvers. Locate screens on inside face of louvers, unless otherwise indicated. Secure screens to louver frames with machine screws at each corner and spaced 12" oc along frame perimeter.

B. Bird Screens

Black anodized 0.064 aluminum wire, 1/2" mesh.

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2.03 FASTENERS AND ANCHORS

- A. Bolts, Nuts, Lags, Washers, Screws and Anchors

Same material as items being installed unless otherwise indicated. Types, gages and lengths to suit unit installation conditions. Stainless steel for exterior locations or for items anchored to exterior walls.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install Work of this Section in accordance with manufacturer's printed instructions, except as shown otherwise on Drawings.
- B. Install units plumb, level and in proper alignment with adjacent construction.
- C. Form tight joints with exposed connections accurately fit together.
- D. Provide concealed anchorages wherever possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to form weathertight connection.
- E. Clean louvers after installation. Remove dirt, dust, and grime.

END OF SECTION

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**SOUNDPROOFING OF
MONSIGNOR McCLANCY
MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Mechanical, Electrical & Plumbing Specification
Book 3 of 3**

Mech/Elec Engineer:
Lakhani & Jordan Engineers
50 East 42nd Street
New York, NY 10017

Asbestos Engineer:
ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Acoustic Engineer:
Peter George Associates
P.O. Box 688
Millbrook, NY 12545



**SOUNDPROOFING OF
MONSIGNOR McCLANCY
MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Mechanical, Electrical & Plumbing Specification
Book 3 of 3**

Issue For Bid January 10, 2005

Owner:

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
In the Borough of Queens
In the City of New York

Architect:

John Ciardullo Associates
41 West 57th Street
New York, New York 10019

Mech/Elec Engineer:

Lakhani & Jordan Engineers
50 East 42nd Street
New York, NY 10017

Asbestos Engineer:

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Acoustic Engineer:

Peter George Associates
P.O. Box 688
Millbrook, NY 12545

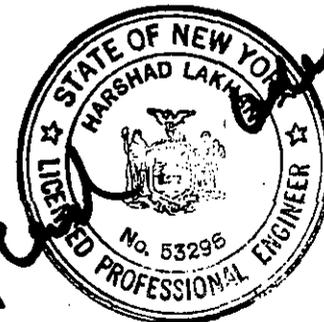


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SECTION 15 - PLUMBING

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SECTION 15100
GENERAL PROVISIONS FOR PLUMBING WORK

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the Work wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 SCOPE OF WORK

- A. Except as otherwise specified under "Related Work Not Included", the work of this Contract consists of furnishing all labor, materials, equipment and appliances necessary and required to completely do all Plumbing Work as indicated on the Drawings or described or referred to in the Specifications, including, but not limited to the following:
 - 1. Interior alteration work, removals, relocations, etc. to the existing plumbing systems in all renovated areas as indicated on the Drawings.
 - 2. Partial interior storm water drainage systems with leaders, roof and area drains, and piping system conveying storm water drainage to site storm drainage system.
 - 3. Partial interior sanitary, soil, waste and vent piping systems, including all required connections to all plumbing accessories and equipment, house sewer, and connections to the existing interior piping.
 - 4. Partial interior domestic cold water system including connections to existing interior piping system, and connection to all equipment requiring cold water.
 - 5. Natural gas piping system with all connections to equipment requiring gas.
 - 6. Excavation and backfill for all work herein specified.

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7. Hose bibbs.
8. Sleeves, hangers and supports.
9. Insulation for piping and equipment.
10. Apply for, obtain and pay for all permits, certificates, inspections and approvals required in connection with all Plumbing Work.
11. Shop drawings, samples and instructional manuals, tests and adjustments.
12. All interlocking control wiring and conduit.
13. Color coding and stenciling of all piping systems.
14. Cutting and rough patching.
15. Cap flashing and prime painting.
16. Tests for all systems provided under this Section of the Specifications.
17. Where due to Union regulations or trade agreements, if any of the work shown on the Drawings or specified herein is not considered Plumber's Work, this Contractor shall sub-contract the work in question, but this Contractor shall be held responsible for the complete installation.
18. It is not the intention of these Specifications to describe, nor the Contract Drawings to show in detail, all the various pieces of apparatus and appurtenances and their connections. This Contractor shall, as part of the Contract, furnish and install all incidentals, such as piping, fittings, valves, etc., required to complete the installation of the equipment. This Contractor shall refer to Architectural Drawings and Plumbing Drawings for exact location of fixtures including type and quantities. This Contractor shall be responsible for providing and connecting all fixtures and equipment.
19. All work described in these Specifications and not shown on the Drawings, or vice versa, shall be installed in a manner similar to the work shown or described.

1.03 RELATED WORK NOT INCLUDED

- A. The following principal items of work shall be provided under other Sections:
1. Finish painting.
 2. Base flashing for roof drains, and piping passing through roofs.
 3. Drainage piping from HVAC equipment to and spilling over floor drain, mop sink, sump or roof, except as noted.
 4. Finish patching.

1.04 LIST OF SHOP DRAWINGS

- A. Submit shop drawings prior to installation covering the following items:
1. Plumbing fixtures, equipment, plumbing fixture trimmings, shut-off valves, faucets, supports, accessories and traps.
 2. Valve tags, color coding and valve charts.
 3. Vacuum breaker, backflow preventors and shock absorbers.
 4. Insulation for piping and equipment.
 5. All drains including floor, funnel, roof and area drains.
 6. Hose bibbs.
 7. Sleeves, escutcheons, hangers and inserts.
 8. Motors, starters and wiring diagrams and equipment.
 9. All types of piping, fittings, valves, etc.
 10. Detailed plumbing piping layout, coordinated with all other trades.
 11. Detailed coordinated sleeves and insert drawings for approval by Structural Engineer. In addition,

the Contractor shall indicate all piping sleeved through beams.

- B. The above listed items are to be considered major equipment and do not limit the Contractor's responsibility from submitting shop drawings for all equipment and accessories which are to be provided under this Section of the Contract.

1.05 VISITING THE PREMISES

- A. This Contractor, before submitting his bid on the work, shall visit the site and familiarize himself with all visible existing conditions. As a result of having visited the premises, this Contractor shall be responsible for the installation of the work as it relates to such visible existing conditions.
- B. The submission of a bid will be considered an acknowledgment on the part of the bidder of his visitation to the site.

1.06 QUALITY ASSURANCE

- A. Manufacturer's Instructions: In addition to the requirements of these Specifications, comply with the manufacturer's instructions and recommendations for all phases of the work.
- B. Standards and Codes
 - New York City Building Code.
 - National Fire Codes (N.F.P.A.)
 - Local Gas Utility Rules and Regulations.
 - Local Municipal Rules and Regulations.
 - Local Fire Department Requirements.
 - Local Water Company Rules and Regulations.
 - Other State and Local Authorities having Jurisdiction.
 - F.M. Regulations.
- C. All work and material not specifically described, but required for a complete and proper installation of the work of this Section, shall be provided by the Contractor and shall be new, first quality of their respective kinds, and subject to approval of the Architect.
- D. All water supply connections to plumbing fixtures and other equipment to be installed under this Division shall be in accordance with the rules relative to submerged

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inlets and protective methods to be applied to prevent contamination of water as required by Local and State Regulations.

1.07 ALTERATION WORK

- A. All equipment, piping, plumbing fixtures, etc. to be removed shall be disposed of, turned over to the Owner or salvaged as directed by the Owner. They shall not be removed from the premises without the Owner's approval.
- B. All piping to be removed shall be properly plugged or capped so that upon completion of all new work, all abandoned piping shall be concealed in finished areas.
- C. No dead ends shall be left on any piping upon completion of job.
- D. Existing exposed piping not to be reused and not specifically noted or shown on Drawings to be abandoned shall be completely removed.
- E. The existing system shall be left in perfect working order upon completion of all new work.
- F. Locations and sizes of existing piping are approximate. Exact sizes and locations of all existing piping shall be verified at the site.
- G. No removed existing piping, etc. shall be reused.
- H. All existing exposed, unnecessary piping related to work being done shall be completely removed.
- I. This Contractor shall not interrupt any of the services of the existing facility, nor interfere with the services in any way without the express permission of the Owner. Such interruptions and interferences shall be made as brief as possible and only at the time stated by the Owner.
- J. Under no circumstances shall this Contractor or his workmen be permitted to use any part of the facility as a shop, except parts designated by the Hospital for such purposes.
- K. Reroute or remove all existing piping where necessary to avoid new equipment, structural or masonry work as required by the proposed alteration.

1.08 CONCRETE WORK

- A. All concrete provided under the work of this Section shall be in accordance with that specified under another Division or Sections of these Specifications.

1.09 REPLACEMENT OF SURFACING

- A. Where required by operations under this Section, the Contractor shall remove and replace all street pavements, curbs, sidewalks, walkways, grassed areas and landscaped areas which are to remain, in a manner equal to their original condition when new, including sub-bases.
- B. In those cases where final surfaces cannot be placed immediately, a temporary surfacing of two inches of bituminous concrete shall be placed and maintained. This shall be removed before placement of final surfacing.

1.10 COOPERATION WITH OTHERS

- A. The Plumbing Contractor shall cooperate with other trades whose work is to be correlated with his work in order to avoid field interference, improper elevations, or inaccessibility to equipment. Any extra expense occasioned by lack of cooperation by this Contractor shall be borne by him.

END OF SECTION 15100

SECTION 15110
PIPE, TUBE AND FITTINGS FOR PLUMBING WORK

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the Work wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing and Fire Protection Work shall apply.

1.02 SCOPE OF WORK

- A. The work of this Contract includes the providing of all labor, materials, accessories, services and tests necessary to install, complete and make ready for operation by the Owner, all work as shown on the Drawings and as specified herein.

1.03 SPECIFIC REQUIREMENTS

- A. Pipe and fittings shall conform to the latest USASI, ASTM, ANSI and/or F.S. Standards, and/or Cast Iron Soil Pipe Institute Standards No. 301 and 310.
- B. All pipes, fittings, traps, materials and/or other devices used in the plumbing system shall have cast, stamped, or indelibly marked on it the maker's name or mark, weight, and quality of the product when such marking is required by the approved standard.

PART 2 - PRODUCTS**2.01 INTERIOR PIPING MATERIAL**

- A. Underground interior soil, waste, vent and storm piping shall be service weight cast iron soil pipe, and bell and spigot fittings, with oakum packing and caulked molten lead in one continuous pour. Fittings for cast iron soil pipe below grade shall be service weight cast iron bell and spigot, and shall be as manufactured by Tyler or Charlotte Foundry Company, or approved equal.

- B. Interior above ground soil and waste piping in stacks and 4" and over soil and waste piping in chases shall be service weight cast iron soil pipe and bell and spigot fittings, with oakum packing and caulked molten lead in one continuous pour.
- C. Interior, above ground, soil and waste piping, 3" and smaller in chases, storm vent and leader piping shall be no-hub, standard weight, cast iron soil pipe and fittings or galvanized steel screw pipe with galvanized cast iron recessed drainage fittings with galvanized malleable beaded fittings for vent piping.
- D. Interior above-ground domestic water piping shall be seamless drawn or extruded hard temper Type "L" copper tubing, ASTM B-88, with solder joint fittings. Fittings shall be copper. Joints shall be made with a solder alloy (95/5) consisting of tin-antimony and shall conform to ASTM Specification B-32.
- E. Natural gas piping shall meet local Gas Company guidelines or shall be as follows:
 - 1. Black steel, Schedule 40.
 - 2. Steel pipe shall be Schedule 40 steel pipe with maker's name rolled in the metal. Pipe three inches in diameter and larger shall be seamless.
 - 3. Interior gas steel piping three inches and larger shall be welded. For pipe 2½" and smaller, use 150 pound malleable iron screwed fittings.
 - 4. All shoulder nipples shall be made of extra heavy pipe, no close nipples shall be accepted.

2.02 STERILIZATION

- A. The entire domestic water piping system shall be thoroughly sterilized with chlorine before acceptance for domestic operation.
- B. The amount of chlorine applied shall be such as to provide a dosage of not less than 50 parts per million. The chlorinating material shall be either liquid chlorine or sodium hypochlorite solution and shall be introduced into the system and drawn to all points of the system. All lines shall be thoroughly flushed before introduction of the chlorinating material. After a contact period of

not less than eight (8) hours, the system shall be flushed with clean water until the residual content is not greater than 0.2 parts per million. All valves in the lines being sterilized shall be opened and closed several times during the contact period.

- C. Sterilization and tests for purity of water in the entire piping system shall be performed by the Contractor through an approved independent testing laboratory and a certificate shall be furnished to the Architect certifying the quality of purity.

PART 3 - EXECUTION

3.01 INSTALLATION NOTES FOR INTERIOR PIPING SYSTEMS

- A. It is the intent that each part of the plumbing systems shall be complete in all details and all lines provided with all control valves as indicated on Drawings, or as may be required for the proper control of the pipe lines under this Section so that any fixture, line or piece of apparatus may be cut out for repair without interference or interruption of the service to the rest of the building.
- B. The size of storm, soil, waste, water, and vent piping shall be as determined by the local rules and regulations for plumbing and drainage, except where specifically noted to be larger by the Specifications or plans; and all fixed rules of installation as set forth in the Rules and Regulations shall be followed as part of the Specifications.
- C. The Contractor shall examine carefully the architectural plans and details and familiarize himself with all conditions relative to the installation of piping, particularly where same is concealed behind furring or in hung ceilings.
- D. In no case shall the Contractor permit his pipes to be exposed beyond finished plaster lines unless specifically shown on Drawings. He shall consult with the other trades in the building and install his piping in such a way as to least interfere with the installation of other trades.
- E. Water piping shall be installed to drain, and branches shall not be trapped, but shall have continuous pitch. Where necessary to raise or lower mains, the same shall

be provided with a drip and shall be properly valved and capped.

- F. Piping shall be installed, whether indicated or not, so as to rise and/or drop to clear any and all conduits larger than 1", lighting fixtures, ductwork and heating mains, to maintain the desired clear heights. The Contractor shall consult with the other trades and facilitate the erection of the equipment and piping.
- G. Run piping straight and as direct as possible. In general, form right angles with or parallel to walls or other piping. Risers shall be erected plumb and true.
- H. After cutting, all pipes shall be reamed out to full bore and before erection the inside of all pipes shall be thoroughly cleaned.
- I. No piping or work shall be concealed or insulated until all required tests have been satisfactorily completed and work has been approved by the Architect and all other authorities having jurisdiction.
- J. Branch connections of the drainage systems shall be made with "Wye" and long "Tee-Wye" fittings, short $\frac{1}{4}$ " bends, common offsets and double hubs will not be permitted. Short "Tee-Wye" fittings are to be used in vertical piping only.
- K. Cleanouts shall be provided at foot of all stacks, all changes of directions, at the ends of branch runs where shown, every 50'-0" and as required by Code, and shall be furnished as described under cleanouts.
- L. The house drains must be run at a minimum grade of $\frac{1}{8}$ " per foot downward in the direction of flow. Wherever possible, a $\frac{1}{4}$ " per foot pitch shall be maintained. Branch connections to stacks from fixtures shall pitch $\frac{1}{4}$ " per foot where possible. Attention is again called to the necessity of maintaining the ceiling heights established.
- M. Connection to roof drains shall be installed in conjunction with the roofing called for under another Division or Section of these Specifications and at such times as designated by this Contractor, so that the building is adequately protected during construction from damage by storm water. All piping shall be adequately

and properly supported, and all joints shall be made up as hereinafter specified.

- N. Furnish and install complete systems of ventilating pipes from the various plumbing fixtures and other equipment to which drainage connections are made. Ventilating pipes shall be connected within 2'-0" of the discharge of each trap and shall be individually piped to point above the ultimate overflow level of the fixture before connecting with any other vent pipe (in general, this will be approximately 3'-6" above the finished floor). Branches shall be arranged to pitch back to fixtures.
- O. The individual vent pipes shall be collected together in branch vent lines and connected to vent stacks. Wherever possible, vent stack offsets shall be made with 45 degree fittings. The heels of vent stacks shall be connected to adjacent soil stacks for purpose of draining condensation where possible. The waste of one fixture shall be connected to the base of each vent stack for the purpose of washing out any scales or dirt which may accumulate, or the soil stack shall be used to wash out the heel of the vent.
- P. The tops of all soil and waste stacks shall be extended as additional ventilating pipes. The tops of all ventilating stacks shall run independently through the roof. Pipes smaller than 4" size shall be increased to 4" by means of approved increasers before passing through the roof slab.
- Q. All piping installed in finished areas shall be completely concealed within hung ceilings, furrings, soffits, pipe spaces, etc.
- R. Where complete concealment is impossible because of obstructions such as beams, ducts, lights, piping, etc., the Contractor shall not install any work before first consulting with the Architect and his instructions (written or revised Drawings) shall be followed.

END OF SECTION 15110

SECTION 15120
VALVES FOR PLUMBING WORK

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the Work wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing Work shall apply.

1.02 SCOPE OF WORK

- A. The Work of this Contract includes providing all labor, materials, accessories, services and tests necessary to install complete and make ready for operation by the Owner, all work as shown on Drawings and as specified hereinafter.

1.03 SPECIAL REQUIREMENTS

- A. Furnish all valves as indicated on the plans, or as may be required for the proper control of the pipe lines installed under these Specifications, so that any fixture, line or piece of apparatus may be cut out for repair without interference or interruption of the service to the rest of the building. All water valves shall have a minimum working pressure of 125 psi, and shall be water rated unless otherwise noted on the Drawings or specified herein. All valves shall be of one manufacturer.
- B. All gate valves within the building shall be wedge gate valves with painted iron wheel handles. They shall have gland followers in stuffing boxes, and shall be constructed so that they may be repacked while open and under pressure. All valves shall have the name of the manufacturer and working pressure cast or stamped on them.
- C. All gate valves shall be all bronze with brazed or screwed joint ends as required by the piping system in which they are installed.

- D. Globe valves shall be of all bronze with composition disc, threaded or brazed joint ends as required by piping system in which they are installed.
- E. At the high point of the hot water piping system provide a ½" automatic IBBM air relief valve, 125 PSI, WOG Class. Pipe drain to spill over adjacent floor drain or service sink.
- F. All valves shall have the trademark of the manufacturer and the guaranteed working pressure cast or stamped on the body of the valve. All gates or globes, etc., shall be of one manufacturer.
- G. The exterior valves shall conform to all applicable requirements of American Water Works Association C500-61 Standard for Gate Valves for Fire Water Work Service.
- H. All valves for laboratory gases shall be U.L. listed and N.F.P.A. approved.

PART 2 - PRODUCTS

2.01 INTERIOR PIPING SYSTEM VALVES

- A. Domestic water valves tabulated herein have been selected from the catalog of the Milwaukee Valve Co. Approved equals of NIBCO Co., Crane Co. and Walworth Co. will be reviewed.

Gate Valves	3" & smaller	threaded	105
		solder ends	115
Globe Valves	3" & smaller	soldered ends	590
Angle Valves	3" & smaller	threaded	595
Ball valves	2" & smaller	threaded	BA100
	2" & smaller	solder end	BA150

- B. Ball valves as listed herein may be used for domestic water piping as an alternate for gate valves 2" and smaller. If used, provided extended stems.

- C. Gate valves 3" & smaller.

Bronze body with solder ends and all bronze stem and wedge, non-asbestos packing, malleable iron handwheel with brass wheel nut, 125 lbs. WSP, 200 lbs. WOG. Specification conforms to MSS SP-80 type 1 Class 125, ASTM B162 and CA 360.

D. Globe Valves 3" & Smaller

All bronze body and trim with soldered ends 150 lbs. WSP 300 lbs. WOG with non-asbestos packing, malleable iron handwheel, bronze handwheel nut and bronze packing nut. Specification conforms to ASTM-B62, ASTM-B16 and MSS SP-80 Type 2.

E. Ball Valves

2 piece unit with bronze body, soldered ends 316 stainless steel ball and stem, glass filled teflon seals seats and washers, zinc plated steel handle with vinyl hand grip 150 lbs. WSP-600 lbs. WOG. Specification conform to ASTM-B584, ASTM-B16, ASTM-B276 and ASTM-B633.

F. Low pressure natural gas valves shall be AGA standard bronze gas cocks. Up to 1" size tee head equal to Walworth No. 594. Up to 2" size square head equal to Walworth No. 590. 2½" and over, flanged, iron body lubricated plug type 175 psi WOG equal to Walworth No. 1796. Provide operating wrenches with each valve.

PART 3 - EXECUTION**3.01 INSTALLATION REQUIREMENTS**

- A. The entire plumbing system shall be supplied with valves so located, arranged and operated as to give a complete regulating control to all fixtures and apparatus.
- B. Shut-off valves shall be provided on all risers, branch lines and at each piece of equipment.
- C. Valves, where exposed and used in connection with finished piping, shall have the same finish as the pipe.
- D. Install valves where required for proper operation of piping and equipment, including valves in branch lines necessary to isolate sections of piping. Locate valves so as to be accessible.
- E. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward unless unavoidable. Install valve drains with hose-end adapter for each valve that must be installed with stem below horizontal plane.

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- F. Where insulation is indicated, install extended-stem valves, arranged in proper manner to receive insulation.
- G. Install valves with bodies of metal other than cast iron where thermal or mechanical shock is indicated or can be expected to occur.
- H. Do not install bronze valves and valve components in direct contact with steel, unless bronze and steel are separated by dielectric insulator. Install bronze valves in steam and condensate service and in other services where corrosion is indicated or can be expected to occur.
- I. Except as otherwise indicated, install gate, ball, globe, and butterfly valves to comply with ANSI B31.1. Where throttling is indicated or recognized as principal reason for valve, install globe or butterfly valves.
- J. Limit selection and installation of valves with non-metallic discs to locations indicated and where foreign material in piping system can be expected to prevent tight shut-off of metal seated valves.
- K. Select and install valves with replaceable seats, except where otherwise indicated.

END OF SECTION 15120

SECTION 15130
HANGERS AND SUPPORTS FOR PLUMBING WORK

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinate with and complementary to the General Conditions and Special Conditions of the Work wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing Work shall apply.

1.02 SCOPE OF WORK

- A. The work of this Contract includes providing all labor, materials, accessories, services and tests necessary to install complete and make ready for operation by the Owner, all Hangers and Supports for Plumbing System as shown on the Drawings and as specified hereinafter.

1.03 SPECIFIC REQUIREMENTS

- A. Provide products which are Underwriters Laboratories listed and Factory Mutual approved.
- B. Provide pipe hangers and supports of which materials, design, and manufacture comply with ANSI/MSS SP-58.
- C. Select and apply pipe hangers and supports, complying with MSS SP-69.
- D. Fabricate and install pipe hangers and supports complying with MSS SP-89.
- E. Assume the responsibility for the proper transfer of the loads of the piping system to the structure. No additional cost to the Owner should be expected for any corrective work during construction.
- F. Supports and hangers shall be provided for all horizontal and vertical piping. The hanger design shall conform to the ASA Code for Pressure Piping. Hangers shall be kept outside of pipe insulation.

- G. All bracket clamps and rod sizes indicated in these Specifications are minimum size only. This Contractor shall be responsible for structural integrity of all supports. All structural hanging material shall have a safety factor of five (5) built in.
- H. All horizontal cast iron pipe shall be supported every five (5) feet and at each hub and/or "no-hub" clamping assembly. When a concentration of fittings occur, additional support shall be installed consistent with good trade practices. "No-hub" system must be supported in accordance with Standard CISPI-310-78.

PART 2 - PRODUCTS

2.01 HANGERS AND SUPPORTS

- A. Pipe supports shall be of the following type and figure number, manufactured by C&P, B-Line, Grinnell, or equal as approved:
- B. Pipe Hanger Schedule

	<u>C&P</u>	<u>Michigan</u>	<u>Grinnel</u>	<u>B-Line</u>
Beam Clamp	268	364	-	B-3055
Clevis Hanger	100	400	260	B-3100
180 Degree Shield	265P	125	-	B-3151
Pipe Saddle	351	630	180	B-3160
Rigid Trapeze	371	MTO	Std. 45	M.T.O.
U-Bolt	283	150	137	B-3188
Riser Clamp	89 or 126	510	261	B-3373
Double Bolt Pipe Clamp	304	452	295	B-3144
Welding Beam Attachment	113B	320	66	B-3083
Insert	650	355	280	B-2500
Continuous Slotted Insert	1480	-	-	B-322/522

C. Insulation Protection

1. For all insulated pipe furnish clevis hangers with welded shields and equal to C&P, Inc., Fig. 100-SH.

D. Pipe Supports in Pipe Chases

1. Supports shall securely hold piping, prevent vibration, etc. Provide pipe supports and channels as required. Use Grade KJA Cycolac DH self-extinguishing ABS as manufactured by the Sumner Corporation or approved equal.

PART 3 - EXECUTION**3.01 INSTALLATION REQUIREMENTS**

- A. Provide necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations. In all cases where hangers, brackets, etc., are supported from concrete construction, care shall be taken not to weaken concrete or penetrate waterproofing. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets shall be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers shall be finally adjusted, both in the vertical and horizontal direction. Hangers in contact with copper or brass pipe shall be copper plated steel.
- B. Pipe hangers shall be of the clevis and pipe roller types, except where otherwise noted.
- C. Where piping is run near the floor and not hung from the ceiling construction but is supported from the floor, such supports shall be of pipe standards with base flange and adjustable top yoke similar to C&P Fig. 101 or equal.
- D. Except where otherwise noted, piping shall be supported from structural steel only. Provide supplementary steel where required.
- E. Piping shall not be hung from other piping, ducts, conduits or from equipment of other trades.

- F. All water piping connected to rotating equipment within all mechanical spaces shall be isolated from the building structure by means of vibration hangers inserted in the hanger rods. The vibration hangers shall consist of a steel spring in combination with a double deflection neoprene element within a rectangular steel housing. Combined static deflection shall be 1.375" minimum. Hangers shall have capability of supporting the piping at a fixed elevation during installation and shall incorporate an adjusting device to transfer the load to the spring. Deflection shall be indicated by means of scale. Vibration hangers shall be Fig. No. 360 or type PCDNHS as made by Mason Industries, as specified under another Section of these Specifications.
- G. Where additional steel is required for the support of hangers, furnish and install same subject to the approval of the Architect. Piping shall not be supported from the metal deck slab construction.
- H. All piping running on walls shall be supported by means of hanger suspended from heavy angle iron wall brackets. No wall hooks will be permitted.
- I. Lateral bracing of horizontal pipe shall be provided where required to prevent side sway or vibration. The lateral bracing shall be of a type approved by the Architect and shall be installed where directed by the Architect.
- J. All anchors shall be separate and independent of all hangers, guides and supports. Anchors shall be of heavy blacksmith construction suitable in every way for the work approved by the Architect. Anchors shall be welded to the pipe and fastened to the structure with anchor type bolts.
- K. Anchors shall be fabricated and assembled in such a form as to secure the piping in a fixed position. They shall permit the line to take up its expansion and contraction freely in opposite directions away from the anchored points; and shall be so arranged as to be structurally suitable for particular location and line loading. Submit details for approval.
- L. All horizontal steel and copper pipe shall be supported at maximum intervals as follows: Steel pipe - up to 1½" - 8'-0"; 1½" to 2½" - 10'-0"; 3" and larger - 12'-0". Copper tube and Brass Pipe - up to 1½" - 6'-0"; 1½" to

2½" - 8'-0"; 3" and larger - 10'-0". There shall be no metal-to-metal contact at supports for non-ferrous pipes. Provide 1/8" thick lead strips or Summer Inc. pipe clamps under uninsulated piping at supports. Hangers and supports shall be installed outside of insulation or insulated piping.

- M. Trapeze type hangers shall be made up of angles bolted back-to-back or channels for supporting parallel lines of piping. Trapeze type hangers shall be supported with suspension rods having double nuts, and securely attached to construction with inserts, beam clamps, steel fishplates, cantilever brackets, lag screws or other approved means. Use approved type brackets for supporting piping attached along walls. Non-insulated piping (compressed air, gas, etc.) supported by trapeze hangers shall be provided with hold down clamps at the trapeze hangers. If only non-ferrous piping (copper, etc.) is supported on the trapeze hangers, the trapeze and hold down clamps shall be copper clad.
- N. Maximum weights on hanger rods shall be such that stress in tension shall not exceed 9,000 psi, using root area of threaded portion. In no case shall hanger sizes be less than 3/8" for pipe up to 2", ½" for pipe 1½" to 3½", 5/8" for pipe 4" to 5", ¾" for pipe 6", 7/8" for pipe 8" to 12".
- O. Supports for vertical piping shall be double bolt riser clamps, with each end having equal bearing on the building structure located at alternate floors. Cast iron soil pipe shall be supported at every floor and at its base.
- P. All auxiliary steel for pipe supports shall be furnished and installed under this Section.
- Q. All hangers, rods, inserts, clamps, stanchions, brackets, etc., shall be dipped in zinc chromate primer before installation and provided with one (1) coat of approved type paint after installation. (Refer to Section 15000.)
- R. Chains, straps, perforated iron or wire hangers are not permitted.
- S. The Architect must approve method of supporting pipes from building structure before work is started. The Contractor shall bear all responsibility for materials and workmanship as described in this Section, and shall

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make sure that all hangers and supports are properly and permanently connected to building structure. No piping shall be hung from metal deck; auxiliary steel shall be provided.

- T. All pipe support shall be installed to avoid interference with other piping, hangers, electrical conduits and supports, building structures and equipment.

END OF SECTION 15130

SECTION 15150
INSULATION FOR PLUMBING WORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing and Fire Protection Work shall apply.

1.02 SCOPE OF WORK

- A. The Work of this Contract includes providing all labor, materials, accessories, services and tests necessary to install complete and make ready for operation by the Owner, all work as shown on Drawings and as specified hereinafter.
- B. The piping systems and equipment to be insulated shall include, but not be limited to the following:
 - 1. Domestic cold water piping.
 - 2. Interior storm/water drainage piping as indicated.

PART 2 - PRODUCTS

2.01 INSULATING MATERIALS

- A. All insulation shall have a composite (insulation, jacket facing and adhesive used to adhere jacket or facing to the insulation) fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 255 and UL 73, not exceeding flame spread of 25, fuel contributed of 50, and smoke developed of 50. Accessories such as adhesives, mastics, cements, tapes and cloths for fittings shall have component ratings as listed above. Insulation shall be glass fiber with a maximum K factor 0.23 at 75°F. mean temperature. Density shall not be not less than 3 lbs. per cu. ft.

- B. The materials as specified below have been selected from the catalog of Owens-Corning Fiberglass Corp. and are representative of the quality, design and finish desired. Insulation as manufactured by other manufacturers may be submitted for approval, provided the products meet fully in all respects (such as density, moisture absorption, alkalinity, thermal-conductivity, jacket, etc.) the materials as designated below.
1. Fiberglass Pipe Insulation: FS HH-I-558B, Form D, Type III, Class as indicated.
 - a. Provide Class 12 for plumbing piping.
 2. Fiberglass Pipe Fitting Insulation: FS HH-I-558, Form E, Class as indicated.
 - a. Provide Class 16 for use with Class 12 pipe insulation, where temperature does not exceed 450oF.

2.02 RELATED MATERIALS AND REQUIREMENTS

- A. At pipe supports Insul-Shield pipe saddles and matching hanger shall be used. Joints of insulation abutting Insul-Shielding pipe saddles shall be butted with IC-405, and the joints firmly pressed together.
- B. All concealed and exposed piping shall be provided with factory ASJ (Owens/Corning Fiberglass) secured in place with vapor barrier adhesive IC-225. Provide ½" aluminum bands spaced 18" on centers.

2.03 INSULATION REQUIREMENTS

- A. Cold Water Piping
 1. Cold Water - all sizes - ½" insulation, A.S. jacket.
 2. Storm drainage piping and drain body - minimum ½" insulation, A.S. jacket.

PART 3 - EXECUTION**3.01 GENERAL REQUIREMENTS**

- A. Maintain integrity of vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage. Staples shall not be used on vapor barrier.
- B. Cover valves, flanges, fittings and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory, precut or job fabricated units (at Installer's option) except where a specific form or type is indicated.
- C. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.
- D. Install protective metal shields and insulated inserts at each hanger and support to prevent compression of insulation.
- E. Do not apply insulation to hot equipment.
- F. Apply insulation using the staggered joint method for both single and double layer construction, where feasible. Apply each layer of insulation separately.
- G. Coat insulated surfaces of equipment with layer of insulating cement, troweled in a workmanlike manner, leaving a smooth continuous surface. Fill in scored block, seams, chopped edges and depressions, and cover wire netting and joints with cement of sufficient thickness to remove surface irregularities.
- H. Cover insulated equipment surface with jacketing neatly fitted and firmly secured. Lap seams at least two inches. Apply over vapor barrier where applicable.
- I. All horizontal storm drainage piping (except in service/utility corridor) under roofs, exposed and above hung ceiling, and roof drain bodies shall be insulated (sweat-proofing) as specified for water piping, but nested larger diameter covering over hubs and drain bodies.
- J. Direct contact between pipe and hanger shall be avoided. Hanger shall pass outside of metal saddle which cover a

section of high density insulation (such as calcium silicate) of sufficient length to support pipe without crushing insulation. Hangers or saddles shall not pierce insulation and vapor barriers.

3.02 INSTALLATION REQUIREMENTS

- A. Install insulation products in accordance with the manufacturer's written instructions, and in accordance with recognized industry practices to ensure that the insulation serves its intended purpose.
- B. Install insulation on pipe systems subsequent to testing and acceptance of tests.
- C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with a single cut piece to complete the run. Do not use cut pieces of scraps abutting each other.
- D. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure a complete and tight fit over surfaces to be covered.
- E. The Contractor shall take every precaution necessary to ensure that the covering material is in satisfactory condition to receive painting.
- F. Penetration of walls and floors by piping connection to rotating equipment shall be provided with a fiberglass sleeve, the full depth of pipe penetration.
- G. In all cases where new piping connects to existing piping that is insulated, the existing insulation that is removed to make the new connection shall be replaced with new insulation as hereinafter specified.
- H. Do not insulate hand holes, cleanouts, ASME stamp, or the manufacturer's nameplate. Provide neatly beveled edge at interruptions of insulation.
- I. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

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- J. The installer of the piping insulation shall advise this Contractor of required protection for the insulation work during the remainder of the construction period, to avoid damage and deterioration.

END OF SECTION 15150

SECTION 15160
PLUMBING EQUIPMENT, SPECIALTIES AND ACCESSORIES

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinate with and complementary to the General Conditions and Special Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing and Fire Protection Work shall apply.

1.02 SCOPE OF WORK

- A. The Work of this Contract includes providing all labor, material, equipment, accessories, services, and tests necessary to complete and make ready for operation by the Owner, all work as shown on the Drawings and hereinafter specified.

PART 2 - PRODUCTS**2.01 PIPE EXPANSION COMPENSATORS**

- A. Any breaks or damage to the piping system or to the Work of other Sections within the period of the guarantee due to improper provision for expansion and contraction must be replaced at this Contractor's expense.
- B. This Contractor is to provide for expansion of pipes by providing expansion compensators and/or expansion loops and shall provide anchors at pump discharge and suction lines. All expansion loops shall be prestressed.
- C. Make adequate provisions for proper expansion and contraction of piping. At connections of branches to water mains, risers and at connections to heaters, coolers and other equipment, provide sufficient number of elbow swings to allow for proper expansion and contraction of piping. Provide adequate elbow swings, expansion compensators, expansion loops or approved type expansion joints, wherever noted, indicated, or required to allow for proper expansion and contraction of mains and risers.

- D. This Contractor shall provide, where necessary to absorb expansion and contraction, in hot water recirculation pipe lines (except at building expansion joints) 3 inches and smaller and for systems with pressures less than 51 psi, Flexonics Model HP expansion compensators having two-ply phosphor bronze elbows and brass shrouds and end fittings as manufactured by U.O.P. Flexonics Division, Bartlett, Illinois. All internal parts shall be of non-ferrous metals. Service pressure shall be external to the bellows. Compensators shall have integral guides extending the full length of the bellows travel. Compensators shall have external positive anti-torque devices to prevent twist.
- E. This Contractor shall provide, as shown on the plans and/or where necessary to absorb expansion and contraction in hot water recirculation piping, except at building expansion joints, etc., pipe lines 4 inches and larger and for system pressures exceeding 50 psi, Flexonics controlled-flexing expansion joints as manufactured by U.O.P. Flexonics Division, Bartlett, Illinois, or approved equal, with plate steel flanges having ANSI drilling, pipe nipple ends beveled for welding or forged steel ANSI flanges to suit the installation. The bellows shall be hydraulically formed from a stainless steel reinforcing neck ring and control rings shall be of a design to limit movement of each corrugation, as well as to carry hoop stresses caused by internal pressures. Where required, the bellows shall be annealed and/or stress relieved. Before assembly, the corrugated bellows must be pickled to remove all scale formed by annealing and passivated to provide the maximum corrosion resistance.
- F. All lines in which expansion joints are installed must be securely anchored and guided in accordance with manufacturer's recommendations.

2.02 ESCUTCHEONS

- A. This Contractor shall provide escutcheons on all exposed pipe wherever they pass through floors, ceilings, walls or partitions.
- B. Escutcheons for pipes passing through outside walls and floors shall be Ritter Pattern and Casting Co., No. 1, solid, cast brass, flat type secured to pipe with set screws.

- C. Escutcheons for pipes passing through interior walls, partitions, and ceilings shall be Ritter Pattern and Casting Co., No. 1, solid, cast brass chromium plated type, secured to pipe with set screws.
- D. Escutcheons for pipes in unfinished areas shall be cast iron, secured with set screws.

2.03 TRAPS

- A. Each fixture and piece of equipment requiring connection to the drainage system shall be separately trapped by means of a water seal trap placed as close to the fixture as possible.
- B. All running traps on drains, etc., shall have inlet handhole cleanouts and brass plug cleanouts in bottom. Cast iron traps below grade shall have bottom plug omitted. All exposed P traps shall have bottom cleanouts and shall be chromium plated brass.

2.04 DISSIMILAR METALS

- A. Connections between pipe, fittings, hangers and equipment of dissimilar metals shall be avoided.
- B. Dielectric unions or insulated couplings shall be installed between copper or brass piping material and steel piping material or steel tanks. Unions or insulated couplings shall be used for pipe sizes 2" and smaller, and use dielectric gaskets on flanges and sleeves for pipes 2½" and larger.
- C. Pipes, fittings, hangers, etc., of dissimilar metals shall be insulated against direct contact with each other by using a high quality or grade of dielectric insulating material.

2.05 PIPE SLEEVES

- A. Any pipe required in walls and floors shall be provided with a pipe sleeve.
- B. Provide watertight sleeves for all pipes penetrating exterior foundation walls and waterproof floor areas and where other waterproof areas are noted on the Architectural and Structural Drawings.

- C. Except where indicated or specified otherwise, provide and install Schedule 40 galvanized steel sleeves for all piping passing through concrete walls or floor slabs. Sleeves shall be securely set in the framework and where not specified otherwise shall be of such length as to extend flush with each face of the wall in which they are installed. Sleeves shall be securely set in floors 3" above unfinished floor and 2" above the finished floor or tile, as applicable. Sleeves in kitchen and laundry areas shall be chrome plated.
- D. Sleeves shall have an internal diameter of at least 1" larger than the outside pipe size diameter of the pipe passing through them. Sleeves in exterior foundation walls shall be James B. Clow and Sons, No. F-1430 or F-1435, or approved equal, extra-heavy cast iron wall sleeves with intermediate integral flange. Cast iron sleeves shall be set with ends flush with wall faces.
- E. Where sleeves penetrate waterproofing, install caulking between pipes and pipe sleeves as follows:
 - 1. Pack oakum to a depth of 1" between pipe and pipe sleeve at a location permitting 3" of sealant to be installed above the oakum.
 - 2. Fill space above oakum to a depth of 3" with sealant similar and equal to Igas Joint Sealer as manufactured by Silka Chemical Corporation.
- F. Sleeves for gas piping shall extend 4 inches beyond exterior face of wall and 1 inch beyond inner face.
- G. Sleeves in waterproof floors shall be as manufactured by Zurn Inc. or equal, cast iron sleeve with integrally cast flange and flashing device.

2.06 STACK SLEEVES

- A. Stack sleeves for pipes passing through roof shall be equal to Zurn Z-195-10, with cast iron body, adjustable flashing ring, rust resistant bolts, and under deck clamp. The adjustable flashing ring shall be caulked after it is in the proper position. The space between the flashing sleeve and the pipe passing through same shall be caulked watertight.

2.07 UNIONS**A. Where Required**

1. On inlet and outlet of all apparatus and equipment having connections 2" and smaller. Where valves are adjacent to equipment, unions shall be on equipment side of valves.

B. Type

1. Steel piping: Malleable iron, WOG female pattern, brass seat, ground joint, 300 lb.
2. Copper tubing: Ground joint, cast iron, 150 lb. WOG pattern.

2.08 HOSE BIBBS

- A. Hose bibbs shall be Chicago Faucets #952 or approved equal, with vacuum breaker and loose key except as specified herein. Combination hot and cold hose bibbs shall be Chicago #305-VBC.P. or approved equal; modify for piped mounting less loose flange.

2.09 DRAINS

- A. Drains shall have heavy cast iron, with double drainage flange and weep holes, with outlet connections as indicated and of sizes indicated on Drawings. Drains (except as noted) shall be furnished with high polished brass tops consisting of a one-piece rim secured to the body and vandal-proof spanner type screws, and a solid brass grate with reinforcing members on underside. Removable sediment basket shall be of heavy duty one-piece construction as specified hereinafter. All strainers or grates shall be secured with vandal-proof spanner type screws, unless otherwise specified.
- B. All drains in floors with a waterproof membrane shall be equipped with 6 lb. lead flashing or 20 oz. soft rolled sheet copper and secured to the flashing flange with brass bolts and cast iron clamping device. Flashings shall bond not less than 1'-0" on all sides into membrane waterproofing.

- C. On roofs furnish and set in conjunction with the roofer and when directed by the General Construction Contractor, approved roof drains of cast iron unless otherwise indicated.
- D. Flashing of 6 lb. lead or 20 oz. soft rolled sheet copper, 34" x 34", shall be furnished and installed at each roof drain by means of non-puncturing type flashing clamping device.
- E. Set all drains in such a way that the floor finish and top of the drain will be plumb and flush with finish floor without requirements for future additional extension, modifications, etc.
- F. When Dex-O-Tex and/or vinyl waterproof floor is indicated on the Architectural Drawings, all drains must be provide with required flanges.
- G. All drains, except as noted, shall be similar to or equal to Zurn Mfg. Co. and shall be as follows:
 - 1. Roof Drains R.D. Type A - Similar and equal to No. Z-100-ERC Duracoated cast iron body with combination flashing collar and gravel stop, cast iron dome, underdeck clamp and sump receiver and perforated extension collar to accommodate roof insulation. Drain must be applicable for each roof construction.
 - 2. Floor Drains F.D. Type A (Mechanical and Concealed Equipment Rooms) - Similar and equal to Jay R. Smith Fig. 2233 cast iron body and flashing collar with cast iron tractor grate, flat bottom strainer and sediment bucket No. 3591 cast iron funnel attached to grate, where indicated on the Drawings.

2.10 CLEANOUTS

- A. Provide easily accessible cleanouts where indicated; at base of vertical stacks and leaders, at ends of horizontal drainage lines and at intervals not exceeding 50 ft., at each change of direction, on hand holes of running traps, and where indicated to make entire drainage system accessible for rodding. Provide at least 18 inch clearance to permit access to cleanout plugs.
- B. Cleanouts for cast iron pipe shall consist of tapped extra heavy cast iron ferrule caulked into cast iron

fittings, and extra heavy brass screw plug with solid hexagonal nut.

- C. Cleanouts turning out through walls and up through floors shall be made by long sweep ells of "Y" and $\frac{1}{8}$ bends with plugs and face or deck plates to conform to architectural finish in room. Where no definite finish is indicated on the Architectural and/or Mechanical Drawings, wall plates shall be chrome plated cast brass and floor plates shall be nickel bronze. Screws in cleanouts in finished areas shall be vandal-proof.
- D. Cleanouts shall be full size at the pipe up to and including 6 inch pipe. On larger size piping, 6 inch size plugs shall be used.
- E. The following schedule indicates the various types of cleanouts desired at various locations indicated on the Drawings. These cleanouts have been selected from the catalog of Zurn and are representative of quality design and finish desired. Cleanouts of Josam Mfg. Co., or J.R. Smith may be submitted provided they meet Specifications fully in every respect (such as material, weight, clamping features, finish, etc.). The characteristics and quality of the cleanout shall be as follows.
 - 1. Cleanout fitting in vertical stacks shall consist of tapped tees, capable of receiving a rough brass raised head cleanout plug; Zurn 1460-8.
 - 2. Cleanouts in Mechanical Equipment Rooms shall be Zurn 1420-25.
 - 3. Cleanouts in finished areas shall be Zurn Z-1420-3 or Z-1420-7 with recess for tile floors.
 - 4. Cleanouts in Dex-O-Tex waterproof floors shall be Zurn No. Z-1405-18 with extra heavy duty top.
 - 5. Cleanouts for 3 or more fixtures piped horizontally shall be extended to wall cleanouts, and shall be Zurn No. Z-1470.
 - 6. All cleanout plugs shall be brass and lubricated with graphite before installation.

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PART 3 - EXECUTION

(NOT USED)

END OF SECTION 15160

SECTION 15380
TESTING AND ADJUSTMENTS

PART 1 - GENERAL**1.01 DESCRIPTION**

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing Work shall apply.

1.02 SCOPE OF WORK

- A. The Work of this Contract includes providing all labor, materials, accessories, services and tests necessary to install, complete and make ready for operation by the Owner, all work as shown on the Drawings and as specified hereinafter.

1.03 REQUIREMENTS

- A. All tests shall be made in the presence of the Architect or their representatives, and the local authorities having jurisdiction of the work to be tested, as may be directed; and at least 72 hours notice shall be given in advance of all tests.
- B. The Work of this Contractor shall include the furnishing of all testing instruments, gauges, pumps, smoke machines, and other equipment required or necessary for tests, required by laws, rules and regulations and as specified.
- C. Provide all other tests required by local inspectors and all other authorities having jurisdiction.
- D. All appurtenances shall be operated after installation to determine whether or not they meet the requirements of the Specifications.

- E. All defects disclosed in the work by tests and otherwise shall be made good or the Work replaced without additional cost to the Owner. No caulking on screwed joints, cracks or holes will be acceptable.
- F. Tests shall be repeated after any defects disclosed thereby have been made good or the work replaced if it is deemed necessary.
- G. All tests shall be made at the expense of the Contractor.
- H. Tests are not permitted to be made with air except as noted.
- I. Contractor to provide required test plug tee fittings during erection of pipe system.
- J. If the pipe installation fails to meet testing requirements, the Contractor shall determine at his own expense the source or sources of leakage, and he shall repair or replace all defective materials or workmanship. The completed pipe installation shall meet the requirements of the tests after the leaks have been corrected.
- K. All piping which is to be enclosed in partitions or hung ceilings shall be tested and made tight when directed by the Construction Supervisor and in adequate time to permit the installation of partitions and ceilings. When necessary, the Contractor shall drain the piping and/or take over such precautions as required to prevent damage by freezing.
- L. The Contractor shall also be responsible for the Work of other trades that may be damaged or disturbed by the tests, or the repair or replacement of his Work, and he shall, without extra charges, restore to its original condition any Work so damaged or disturbed.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION**3.01 INTERIOR DOMESTIC WATER SYSTEMS**

- A. Domestic cold system: The entire water supply system shall be tested to a hydrostatic pressure of 150 pounds per square inch or 1½ times the system pressure,

whichever is greater, at lowest point of the water system in the building, and proved tight at this pressure before fixtures are installed. Water supply piping, if in any way concealed by structural work, shall be tested to the aforesaid pressure and proved tight before pipes are concealed.

- B. The test pressure shall be held for a period of not less than two (2) hours. The piping system shall be considered tight if the drop in pressure does not exceed 2 pounds per square inch during the test period. If the pressure drop exceeds 2 pounds, all repairs and alterations in the piping system necessary to meet the test shall be made.

3.02 INTERIOR SANITARY WASTE AND STORM WATER SYSTEMS

- A. The entire piping of the sanitary system and of the storm water system shall be tested with water in accordance with New York City Plumbing Code and the Local Plumbing Inspector's requirements and proved tight before the trenches are backfilled or fixtures connected.
- B. The water tests of the piping of the sanitary system and the piping of the storm water system shall comply with the requirements of the New York City Plumbing Code and all Local Authorities.
- C. All drainage and vent systems shall be filled with water and proven tight under a 10'-0" head over new building roof for a minimum of two (2) hours. Water level must remain constant throughout test without adding water.
- D. After all fixtures have been permanently connected to the sanitary system and the system is completed, a smoke test shall be applied to the sanitary system, and the entire system proved tight to the satisfaction of the Architect, when filled with smoke under pressure equal to 1" column of water. The smoke shall be produced by a smoke generating machine and not be chemical mixtures.

3.03 NATURAL GAS SYSTEM

- A. Test in accordance with State and Local Standards, and NFPA.
- B. Test of low pressure system for 10 minutes without drip with approved mercury gauge. Set air at 6 to 10 inches of mercury.

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- C. Test on site, at high and/or low pressure system shall be made as required by the Architect.

END OF SECTION 15380

SECTION 15390
APPROVED MANUFACTURERS FOR PLUMBING WORK

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section is coordinated with and complementary to the General Conditions and Special Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15100 - General Provisions for Plumbing Work shall apply.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. The manufacturers' names and models hereinafter specified represent a standard of materials, appearance, finishes, performance, etc.
- B. The Contractor has the option of submitting other manufacturers for approval in lieu of the manufacturers hereafter specified, provided their respective products conform in all respects to the manufacturers hereafter specified.
- C. The following is a list of approved manufacturers:
 - 1. Trim for Hose Bibbs
Chicago Faucet
T&S Brass
Speakman
 - 2. Hangers and Supports
Carpenter & Paterson, Inc.
B-Line
Grinnell
Michigan
 - 3. Escutcheons
Ritter Pattern and Casting Co.

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4. Insulation
Owens-Corning Fiberglass Co.
Gustin-Bacon Mfg. Co.
John Mansville

5. Valves
Milwaukee Valve Co.
NIBCO
Crane Co.
Nordstrom Gas Valves
Wallworth Gas Valves

6. Drains, Carriers and Specialties
Wade
J.R. Smith
Josam
Zurn
MIFAB

7. Piping and Fittings (Cast Iron)
American Cast Iron Pipe Co.
Tyler Pipe Co.
Charlotte Foundry Co.
United States Pipe and Foundry

8. Pipe (Steel)
Youngstown Sheet and Tube Co.
Republic Steel Co.

9. Pipe and Fittings (Copper)
Bridgeport Brass
Mueller Brass Co.
Anaconda American Brass Co.
Chase Brass and Copper Co.
Stanley Flagg Co.
Grinnell

END OF SECTION 15390

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PART 1 - GENERAL**1.01 RELATED DOCUMENTS**

- A. This Section is coordinate with and complementary to the General Conditions, wherever applicable to Mechanical and Electrical Work.
- B. Where items of the General Conditions are repeated in this Section of the Specifications, it is intended to qualify or to call particular attention to them; it is not intended that any other parts of the General Conditions shall be assumed to be omitted if not repeated herein.
- C. This Section applies equally and specifically to all Contractors and Subcontractors supplying labor and/or equipment and/or materials as required under the Heating, Ventilating and Air Conditioning, Plumbing, Sprinkler and Electrical Sections of the Specifications.

1.02 DEFINITIONS

- A. "The Contractor" or "Each Contractor" means specifically, the Contractor or Subcontractor working under his respective Section (Heating, Ventilating and Air Conditioning, Plumbing, Sprinkler or Electrical) of this Specification.
- B. "Provide" means to supply, erect, install, and connect up in complete readiness for regular operation, the particular work referred to.
- C. "Furnish" means to supply and deliver to the job.
- D. "Piping" includes, in addition to pipe, all fittings, valves, hangers, and other accessories related to such piping.
- E. "Concealed" means hidden from sight as in chases, furred spaces, shafts, hung ceilings, or embedded in construction.
- F. "Exposed" means "not concealed" as defined above. Work in trenches, crawl spaces, and tunnels shall be considered "exposed" unless otherwise specifically noted.
- G. "Approved equal" means any equipment or material which, in the opinion of the Architect, is equal in quality,

durability, appearance, strength, design, performance, physical dimensions, and arrangement to the equipment or material specified, and will function adequately in accordance with the general design.

- H. "Governmental" means all municipal, state and federal governmental agencies.
- I. Where any device or part of equipment is herein referred to in the singular number (such as "the pump"), such reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the Drawings.
- J. "HVAC" means Heating, Ventilating and Air Conditioning.
- K. "Plumbing Contractor" means the Contractor doing Plumbing and Fire Protection Work including Sprinkler Work.

1.03 CODES AND STANDARDS

- A. Building Code of New York State
- B. NFPA National Fire Protection Association
- C. ASME American Society of Mechanical Engineers
- D. ANSI American National Standards Institute
- E. ASTM American Society for Testing Materials
- F. NEMA National Electrical Manufacturers Association
- G. ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers
- H. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
- I. ARI Air Conditioning and Refrigeration Institute
- J. UL Underwriters' Laboratories
- K. AMCA Air Moving and Conditioning Association
- L. ADC Air Diffusion Council
- M. AABC Associated Air Balance Council

- N. New York City Building Code.
- O. Local Water Company Rules and Regulations
- P. NFPA-90A Air Conditioning and Ventilation Systems
- Q. National Electric Code, New York City Electrical Code
- R. Plumbing, Mechanical and Fuel Gas Code of New York State.
- S. Energy Conservation Construction Code of New York State.
- T. Local laws, rules, regulations of all authorities having jurisdiction.
- U. Utility companies standards, procedures, requirements.

1.04 INTENT

- A. It is the intention of the Specifications and Drawings to call for finished work, tested, and ready for operation. All materials, equipment, and apparatus shall be new and of first-class quality.
- B. Any apparatus, appliance, material, or work not shown on Drawings, but mentioned in the Specifications, or vice versa, or any incidental accessories, or minor details not shown but necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be provided without additional expense to the Owner.

1.05 DRAWINGS

- A. The Drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangement of equipment; ducts, conduits, piping, and fixtures.
- B. The locations of all items shown on the Drawings or called for in the Specifications that are not definitely fixed by dimensions are approximate only. The exact locations necessary to secure the best conditions and results must be determined at the project and shall have the approval of the Architect before being installed. Do not scale Drawings.
- C. Follow Drawings in laying out work and check Drawings of other trades to verify spaces in which work will be

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installed. Maintain maximum headroom and space conditions at all points. Where headroom and space conditions appear inadequate, Architect shall be notified before proceeding with installation.

- D. If directed by the Architect, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- E. Piping or ductwork connected to equipment may require different size connection than indicated on the Drawings. The Contractor shall provide transition pieces as required at the equipment.

1.06 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. Any questions or disagreements arising as to the true intent of this Specification or the Drawings or the kind and quality of work required thereby shall be decided by the Architect, whose interpretations thereof shall be final, conclusive, and binding on all parties.
- B. In case of disagreement between Drawings and Specifications, or within either document itself, the better quality, greater quantity or more costly work shall be included in the Contract Price and the matter referred to the Architect's attention for decision and/or adjustment.
- C. Maintain an awareness to avoid space conflict with other trades.
- D. Purchase the equipment and material required in accordance with field measurements taken at the proper time during the construction progress.

1.07 VISITING THE SITE

- A. Before submitting the final proposal, examine the site of the proposed work to determine the existing conditions that may affect the work, as this Section will be held responsible for any assumptions in regard.

1.08 EQUIPMENT AND MATERIALS

- A. The proposal and bid must cover all items on the Drawings and in the Specifications exactly as drawn and specified.

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- B. All proposed substitutions of equipment of other manufacturers than those specified shall be attached to the base bid in an itemized list. Directly opposite each item indicate the amount to be added to or deducted from the base bid if the proposal is accepted. Failure to furnish such an itemized list will be interpreted to mean that it is agreed to provide all items exactly as drawn and specified. The information given in the above itemized list will in no way affect the determination of low bidder.
- C. Substitutions of material and equipment of makes other than specifically named on the Drawings and in the Specifications and as provided for in the above paragraph will be approved for the following reasons only:
- D. The material or equipment proposed for substitution is equal to or superior to that specified; and that the material or equipment called for on the Drawings or in the Specifications cannot be delivered to the job in time to complete the work in proper sequence to the work of other trades, due to conditions beyond control.
- E. All pipe, fittings and valves shall be manufactured in the United States of America.
- F. The proposal and bid must cover all items on the Drawings and in the Specifications exactly as drawn and specified.
- G. The words "or approved equal" shall be understood to apply only to those items of equipment and material listed under the paragraph "List of Approved Manufacturers" or as otherwise indicated on the Drawings or in the Specifications.
- H. Within twenty (20) working days after the acceptance of the proposal, and prior to the submission of any shop drawings for review, a complete list of manufacturers shall be submitted to the Architect of all equipment and materials proposed for the work. No reviews will be rendered on shop drawings submitted before the complete list of manufacturers is reviewed.
- I. If material or equipment is installed before the Contractor obtained "No Objections" comment from Architect, and/or in the opinion of the Architect the material or equipment does not meet the intent of the Drawings and Specifications, the removal and replacement shall be made at no extra cost to the Owner.

- J. If material or equipment is installed before the Contractor obtained "No Objections" comment from the Architect, trade installing same shall be liable for the removal and replacement at no extra charge to the Owner if, in the opinion of the Architect, the material or equipment does not meet the intent of the Drawings and Specifications.
- K. The words "or approved equal" are understood to follow:
1. The name of any manufacturer, vendor, equipment or materials;
 2. Any trade name, plate number, or catalog number;
 3. Any detailed description used to define equipment or material; except where otherwise indicated on the Drawings or in the Specifications.
 4. It is the intent of these Specifications that wherever a manufacturer of a product is specified, and the terms "other approved" or "or approved equal" are used, the substituted item must conform in all respects to the specified item. Consideration will not be given to claim that the substituted item meets the performance requirements with lesser construction (such as lesser heat exchange surface, etc.) Performance as delineated in schedules and in the Specifications shall be interpreted as minimum performance.
- L. All equipment and materials required for installation under these Specifications shall be new and without blemish or defect. All electrical equipment shall bear labels attesting to Underwriters' Laboratories approval. Where no specific indication as to the type or quality of the material or equipment is indicated, a first class standard article shall be furnished.
- M. Where it is proposed to use an item of equipment other than that specified or detailed on the Drawings which requires any redesign of the structure, partitions, foundations, piping, wiring, or of any other part of the mechanical, electrical, or architectural layout, all such redesign, and all new drawings and detailing required therefore shall, with the review of the Architect and subsequent comments by the Architect "No Exception" or "Exception as Noted" on the shop drawings, be prepared at no additional cost to the Owner.

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- N. Where such deviation from contract documents requires a different quantity and arrangement of ductwork, piping, wiring, conduit, and equipment from that specified or indicated on the Drawings, furnish and install any such ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring, and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.
- O. All equipment of one type (such as fan, coils, etc.) shall be the product of the same manufacturer.
- P. Note that the comments "No Exception" or "Exception as Noted" marked on the shop drawings or other information submitted in accordance with the requirements herein before specified does not assure that the Engineer, Architect, or any other Owner's representative attests to the dimensional accuracy or dimensional suitability of the material or equipment involved or the mechanical performance of equipment. Comments on the shop drawings does not invalidate the Plans and Specifications if the shop drawings are in conflict with the Plans and Specifications.

1.09 SHOP DRAWINGS

- A. Prior to delivery to job site, but sufficiently in advance of requirements necessary to allow Architect ample time for review, submit copies (as stated in "General Conditions") of shop drawings of all equipment, materials, piping, sleeves, conduit, ductwork, and wiring diagrams, and further obtain written comments "No Exception" or "Exception as Noted" for same from the Architect, before installing any of these items.
- B. For piping, sheet metal, sleeve layout, and reflected ceiling plan shop drawings, submit a sepia transparency. After the transparency is notated and corrected by the Architect, it will be returned. Then the required number of corrected prints will be prepared.
- C. Shop drawings shall consist of manufacturer's certified scale drawings, cuts, or catalogs, including descriptive literature and complete certified characteristics of equipment, showing dimensions, capacity, code requirements, motor and drive testing, as indicated on the Drawings or Specifications.

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- D. Certified performance curves for all pumping and fan equipment shall be submitted for review.
- E. Samples of materials or equipment, when requested by the Architect, shall be submitted for review.
- F. Samples, drawings, specifications, catalogs, etc., submitted for review, shall be properly labeled indicating project name, specific service for which material or equipment is to be used, Section and Article number of Specifications.
- G. Catalogs, pamphlets, or other documents submitted to describe items on which review is being requested, shall be specific and identification in catalog, pamphlet, etc., of item submitted shall be clearly made in ink. Data of a general nature will not be accepted.
- H. The comments "No Exception" or "Exceptions as Noted" rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are reviewed, said review does not in any way relieve responsibility, or necessity, of furnishing material or performing work as required by the Contract Drawings and Specifications.
- I. "EXCEPTIONS, AS NOTED" means, unless otherwise noted on the drawings to approved for construction, fabrication and/or manufacture subject the provision that the work shall be carried out in compliance with all annotations and/or corrections indicated on the shop drawings and in accordance with the requirements of the Contract Documents. If also marked "RESUBMIT", "EXCEPTIONS AS NOTED" is invalid and a corrected submittal of the drawing is required.
- J. Failure to submit shop drawings in ample time for checking shall not entitle an extension of Contract time, and no claim for extension by reason of such default will be allowed.
- K. Prior to submission of shop drawings, thoroughly check each shop drawing, reject those not conforming to the Specifications, and indicate (by signature) that the shop drawings submitted meet Contract requirements. Deviations and/or exceptions to the contract documents should be clearly noted as being deviations and/or exceptions. The contractor will later be required to correct such deviations and/or exception at his own

expense, if they have not been noted and approved on the shop drawing.

- L. All shop drawings showing routing of ductwork, piping and conduit, shall be not less than $\frac{3}{8}$ " = 1'-0" scale.
- M. Incorporate a numbering system to help keep track of shop drawing submittals as follows:
 - 1. H.....HVAC shop drawings
 - 2. P.....Plumbing shop drawings
 - 3. E.....Electrical shop drawings
- N. Concurrent numbers shall follow the prefix letter. Example: H-1, H-2, etc. In addition, shop drawings requiring resubmission should bear the number of the original submission and bear a suffix as follows: H-1A (second submission), H-1B (third submission), etc.
- O. Label resubmitted shop drawings with a stamp indicating the submittal number, for example: SECOND SUBMISSION; THIRD SUBMISSION, etc. and send separate transmittals for each item being submitted so that one transmittal does not cover more than one specific item or group of items from one manufacturer.
- P. Before request for acceptance and final payment for the work, write a letter to the Architect stating that all shop drawings are brought to a condition "No Exception" or "Exception as Noted". Any outstanding shop drawings must be cleared with the Engineer.

1.10 RECORD DRAWINGS

- A. Furnish the Architect's Mechanical and Electrical Field Representative, at the first visit to the field, two (2) sets of reduced size photo reproductions (15½" x 23" maximum drawing size) at no additional cost to the Owner. The drawings shall be Xerox reproduced and bound.
- B. During construction keep an accurate record of all deviations between the work as shown on the Drawings and that which is actually installed.
- C. Secure from the Architect, a complete set of Mylar transparencies of the Drawings and note thereon all changes. Make a complete record of all changes and

revisions in the original design which exist in the complete work. The cost for the Mylar transparencies shall be paid for by each trade.

- D. Furnishing above transparencies and preparing these Record Drawings shall be at no additional cost to the Owner. When all revisions showing the work as finally installed are made, the corrected Mylar transparencies shall be submitted for review by the Architect.
- E. After review of the "Record Drawings" transparencies by the Architect, provide the Owner with one set of black-line prints and Mylar transparencies, and a disc copy of as-built record drawings on the latest release of AutoCAD at no additional cost to the Owner.

1.11 LAWS, ORDINANCES, PERMITS AND FEES

- A. Give all necessary notices, obtain all permits and pay all governmental taxes, fees, and other costs in connection with the work; file all necessary plans, prepare all documents, and obtain all necessary approvals of all governmental departments having jurisdiction; obtain all required equipment use permits, Certificates of Inspection for the work and deliver to the Architect before request for acceptance and final payment for the work.
- B. Include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings, (in addition to Contract Drawings and Documents) in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.
- C. All materials furnished and all work installed shall comply with the rules and recommendations of the National Fire Protection Association, with all requirements of local utility companies, with the recommendations of the fire insurance rating organization having jurisdiction, and with the requirements of all governmental departments having jurisdiction.

1.12 INDEMNIFICATION

- A. Pay all royalties and defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof.

- B. If process or article specified is an infringement of a patent, promptly notify the Architect in writing, and any necessary changes shall be as provided in the Contract for changes in the work. If the Contractor performs any work specified knowing it to be an infringement of patent, he shall bear all costs arising therefrom.
- C. Take out all necessary insurance, free of extra charge, and agree to indemnify and save harmless the party contracting for services against loss or expense, by reason of the liability imposed by law upon such party for damages because of bodily injuries, including death at any time resulting therefrom, accidentally sustained by any person or persons or on account of damage to property arising out of or in consequence of the performance of this Contract, whether such injuries to persons or damage to property are due or claimed to be due to any negligence in the performance of the Contract, the party contracting for services, employees or agents, or any other person.

1.13 ORGANIZATION OF WORK

- A. The work throughout shall be executed in the best and most thorough manner under the direction of and to the satisfaction of the Engineers, Owners and Architects, who will jointly interpret the meaning of the Drawings and Specifications, and shall have the power to reject any work and materials which, in their judgement, are not in full accordance therewith.
 - 1. Coordinate with phasing of work. Each trade shall work in phase to keep disturbance to spaces to minimal, shall work in harmony to maintain progress of work, finish work in spaces within prescribed time, shall keep spaces occupied and systems in operation.
- B. The work called for under this Contract shall be carried on simultaneously with the work of other trades in a manner such as not to delay the overall progress of the work. Furnish promptly to other trades involved at the project, all information and measurements relating to the work which they may require. Cooperate with them in order to secure the harmony necessary in the interest of the project as a whole.
- C. Furnish and install all work as fast as possible to meet all construction schedules.

- D. Keep a competent superintendent in charge of the work at all times. Such superintendent shall be replaced if unsatisfactory to the Owner.
- E. Upon award of contract, consult with the Architect and negotiate with subcontractors and manufacturers, and within thirty (30) days submit five (5) copies of a preliminary list of major equipment, for approval, complete with name of manufacturer, dates of purchase orders, and delivery dates to the site. Also submit within thirty (30) days, five (5) copies of a preliminary schedule of installation of the various systems. This list shall be revised monthly and five (5) copies shall be submitted. The second submittal shall contain the names of manufacturers of scheduled equipment (with names, addresses, and telephone numbers of local representatives).
- F. Maintain a complete file of shop drawings at all times available to the Owner's representative.
- G. Every facility shall be provided to permit inspection of the work by the Owner's representative during the course of construction.
- H. Where items of equipment and/or materials are indicated in the Specifications as being furnished by other trades for installation, assume responsibility for the unloading of such equipment and/or materials from the delivery trucks, and for providing safe storage for same as required pending installation.
- I. Where the work is to be installed in close proximity to work of other trades, or where there is evidence that the work is to interfere with work of other trades, assist in working out space conditions to make a satisfactory adjustment.
- J. If so directed by the Architect, prepare composite working drawings and sections at a suitable scale not less than $\frac{3}{8}$ " = 1'-0" clearly showing how the work is to be installed in relation to the work of other trades. If the installation is made before coordinating with other trades, make all necessary changes in the work without extra charge to the Owner.
- K. Before submitting shop drawings for sleeves, piping and ductwork, the Heating, Ventilating and Air Conditioning Subcontractor shall prepare a combined $\frac{3}{8}$ " = 1'-0" scale

shop drawing for piping and ductwork indicating location of piping and ductwork with dimensions for each floor and Mechanical Rooms. A transparent copy of these shop drawings shall be given to the Electrical Contractor.

- L. The Electrical Contractor shall indicate the location of all lighting fixtures and conduit runs on these shop drawings. The Electrical Contractor shall give the transparent copy of these shop drawings, with lighting fixtures and conduit runs indicated to the Plumbing Contractor. The Plumbing and Sprinkler Contractor shall indicate his piping on these shop drawings. Each Contractor shall keep each transparent copy not more than three (3) working days.
- M. The Heating, Ventilating and Air Conditioning Contractor shall arrange a Coordination Meeting for each floor and Mechanical Equipment Room with Plumbing and Electrical Contractors under the supervision of the General Contractor. After coordination, each Contractor shall sign the transparent copy. The Heating, Ventilating and Air Conditioning Contractor shall submit these drawings to the Architect for review and he shall call any conflicts that could not be resolved in the coordination meetings, and/or deviation from original design, to the Architect's attention. After receiving written review from the Architect, each Contractor shall prepare the shop drawings as required under the paragraph "Shop Drawings" in the Specifications.

1.14 PROTECTION OF WORK AND PROPERTY

- A. Maintain and protect all equipment, materials and tools from loss or damage from all causes until final acceptance by the Owner.
- B. Assume responsibility for the protection of any finished work or other trades from damage or defacement by the operations and remedy any such injury or damages.

1.15 TEMPORARY OPENINGS

- A. Ascertain from examination of the Architectural Drawings whether any special temporary openings in the building will be required for the admission of apparatus provided under the Contract and notify the Architect accordingly. In the event of failure to give sufficient notice to the Architect in time to arrange for these openings during

construction, assume all costs of providing such openings thereafter.

1.16 SHUTDOWNS

- A. When installation of a new system requires the temporary shutdown of an existing operating system, the connection of the new system shall be performed at such regular time or at overtime when designated by the Owner.
- B. The Owner shall be notified of the estimated duration of the shutdown period at least ten (10) days in advance of the date the work is to be performed. Obtain owner's written permission for shutdown, prior to any shutdowns. Repair any damage to existing systems and services immediately in approved manner.
- C. Work shall be arranged for continuous performance, including overtime, when approved by the Owner, if required, to assure that existing operating services will be shut down only during the time actually required to make necessary connections.

1.17 ACCESS DOORS IN FINISHED CONSTRUCTION

- A. Install all work so that all parts required are readily accessible for inspection, operation, maintenance and repair. Minor deviations from the Drawings may be made to accomplish this, but changes of magnitude shall not be made without prior written review from the Architect.
- B. Wherever mechanisms requiring access for maintenance, reading of instruments, or for operation are concealed in the structure and wherever else indicated on the Drawings, supply access doors of sizes necessary to provide ready access to the concealed items. Group together valves, controls, dampers, traps, expansion joints, cleanouts, gauges, switches, and other equipment requiring access in walls and furred spaces to reduce the number of access doors.
- C. Access doors shall be Milcor Style A, B or K, L or M, as manufactured by Inland Steel Products Co. or approved equal. Minimum access door shall be 12" x 12". For installation in plastered wall or ceiling, provide Style "K" or "L" as required. For installation in masonry walls, provide Style "M". For installation in acoustical tile surfaces, provide Style "AT". For installation in acoustical plaster surfaces provide Style "AP". Fire

resistive access doors for suspended dry wall ceiling shall be Style ATR's. Provide fire rated access doors at fire rated shafts, stairwells, corridors and at all other walls with Fire Rating.

- D. Access doors shall be installed in building structure under a separate Section.
- E. All plumbing, electric and heating and ventilating access doors etc., shall be provided with Corbin #2722-1/2 master keyed cylinder locks. These locks shall be supplied and installed by the respective Contractor. These cylinder locks shall be purchased through the General Contractor's subcontractor for hardware after submission and review of the panel schedule as hereinafter specified.
- F. Prepare a schedule showing location of all panels, cabinets, etc. to receive the Corbin lock. This schedule shall designate, by building and room number, the panel or cabinet location and shall be submitted to the Architect. This schedule is required for use in preparation of keying information. Locks shall not be purchased prior to review of this schedule.

1.18 PIPE EXPANSION

- A. All pipe connections shall be installed to allow for freedom of movement of the pipe during the expansion and contraction; anchors and guides shall be provided where necessary and/or when shown on the Drawings. Anchors and guides shall be subject to the review of the Architect.

1.19 SCAFFOLDING, RIGGING, HOISTING

- A. Provide all scaffolding, rigging, hoisting and services necessary for erection and delivery into the premises of all equipment and materials furnished under this Section of the Specifications, and remove same from premises when no longer required.
- B. In the event that supplementary bracing of the basic building structure is required to assure a secure rigging procedure and a secure route for the equipment being handled, assume full responsibility for such supplementary bracing.

1.20 BASES AND SUPPORTS

- A. Provide all bases and supports not part of the building structure of required size, type and strength, as approved by the Architect, for all equipment and materials furnished by him. All equipment, bases, and supports shall be adequately anchored to the building structure to prevent shifting of position under operating conditions.
- B. The Section furnishing the equipment shall provide not less than six-inch high concrete bases for all pumps, refrigeration machines, compressors, and rotating machinery. Bases shall extend six inches beyond machinery base in all directions, with top edge chamfered. Provide $\frac{1}{2}$ " x 6" steel dowels into floors to anchor bases. Provide anchor bolts set in pipe sleeves, two sizes larger than anchor bolts for securing machinery. After anchor bolts are aligned with equipment bases, fill sleeves with concrete and allow to set.
- C. Concrete bases are specified under other Sections of the Specification. Each Contractor shall furnish dimensioned drawings to the General Contractor. Steel dowels, sleeves and anchor bolts shall be furnished and set by the Contractor.

1.21 SLEEVES, PIPE AND CONDUIT INSERTS AND ANCHOR BOLTS

- A. Provide and assume responsibility for the location and maintenance in proper position of all sleeves, inserts, and anchor bolts required for the work. In the event that failure to do so requires cutting and patching of finished work, it shall be done without additional cost to the Owner.
- B. All pipes and conduits passing through masonry walls or partitions shall be provided with sleeves having an internal diameter larger than the outside diameter of the pipe or insulation enclosing the pipe or conduit. Sleeves shall be Schedule 40 black steel pipe.
- C. Sleeves through foundation walls shall be James B. Clow & Sons No. F-1430 or F-1435 cast iron wall sleeve with intermediate integral flange. Sleeves shall be set with ends flush with each face of wall. The space between sleeve and pipe shall be packed with a mechanical rubber seal, such as "Link Seal" manufactured by Thunderline Corp., and then with oakum to within 2" of each face of

the wall. The remaining space shall be packed and made watertight with a waterproof compound.

- D. Sleeves through concrete floors or interior masonry walls shall be Schedule 40 black steel pipe, set flush with finished wall surfaces, but extending $\frac{1}{2}$ " above finished floors. The open sleeve space shall be packed with non-combustible materials.
- E. Sleeves through non-masonry partitions shall be 22 gauge galvanized sheet steel, set flush with finished surfaces of partitions.
- F. Inserts shall be preset concrete inserts with steel reinforced rods through the insert and both ends hooked over the reinforced mesh. Inserts shall be of individual type of malleable iron construction with accommodation for removable nuts and threaded rods up to $\frac{3}{4}$ " diameter, permitting lateral adjustment, except as otherwise noted. Individual inserts shall be Grinnell Fig. 279 up to 5" pipe and conduit, Fig. 282, 6" and up to 8" pipe and conduit, Fig. 152 above 8" and up to 12" pipe and conduit. For figures 282 and 152, they shall come with an opening at the tip to allow reinforcing rods up to $\frac{1}{2}$ " diameter to be passed through the insert body. Rods shall extend a minimum of 4" on either side of the insert. Pipes larger than 12" shall be suspended from steel members only.
- G. In general, all piping and conduit shall be supported from structural steel building members only or approved malleable steel inserts imbedded in concrete pours. All loads shall be hung from steel building members. Inserts shall not be located in the same deck flute as ceiling tabs nor within 2 feet in any direction from ceiling tabs. Inserts shall not be spaced closer than 4 feet on center in all directions.
- H. Where layout revisions are required, and are approved after concrete deck is poured, piping conduit 3" and smaller may be supported at Intermediate Points by Phillips' $\frac{3}{4}$ " expansion bolts with lead shields, provided main supports are welded to structural steel and are not more than twenty feet on centers.
- I. The Contractor shall have the option of providing 18 gauge sheet metal sleeves in lieu of Schedule 40 steel pipe.

- J. Provide sleeves for pipes passing through roofs. Sleeves passing through roofs shall be as detailed on drawings extending min. 12" above finished roof. All pipes passing through roof shall be minimum of 10" from walls or other construction to permit proper flashing. Provide counter flashing.
- K. Where sleeves pass through waterproofed floors, they shall be IPS brass pipe sleeves of the required diameter, brazed at the bottom to 18" x 18", 16-ounce copper flashing for bond with waterproofing. The tops of the sleeves shall extend ½" above finished floor.
- L. No ductwork, piping, conduit or equipment shall be supported from corrugated decking construction. For this area provide supplementary steel to support ductwork, piping, conduit or equipment. Supplemental steel members shall be welded to building structural steel.
- M. All hangers, rods and supports shall be installed prior to construction fireproofing.
- N. The required fire resistance rating of floor or floor/ceiling assemblies and walls shall be maintained where a penetration is made for electrical, mechanical, plumbing pipes, conduits, ducts and systems. Fire stopping shall be provided at openings around vents, pipes, ducts, conduits at floor levels and walls with non-combustible materials, such as rockwool or equal.
- O. For openings around pipes and conduits and/or sleeves, 3M product Caulk CP 25 and Putty 303 is approved equal.

1.22 ESCUTCHEONS

- A. Provide escutcheons on pipes wherever they pass through ceilings, walls, or partitions.
- B. Escutcheons on pipes passing through outside walls shall be Ritter Pattern and Casting Co., No. 1, solid, cast brass, flat type secured to pipe with set screw.
- C. Escutcheons for pipes passing through floors shall be Ritter Pattern and Casting Co., No. 36A, split-hinged, cast brass type, designed to fit pipe on one end and cover sleeve projecting through floor on the other end.
- D. Escutcheons for pipes passing through interior walls, partitions, and ceilings shall be Ritter Pattern and

Casting Co., No. 3A, split-hinged, cast brass chromium plated type.

1.23 MANUFACTURERS' IDENTIFICATION

- A. Manufacturer's nameplate, name or trademark, shall be permanently affixed to all equipment and material furnished under this Specification. Where such equipment is in a finished occupied space, the nameplate shall be in a concealed but accessible location. The nameplate of a Subcontractor or Distributor will not be acceptable.

1.24 EQUIPMENT NAMEPLATES

- A. Provide for each item of equipment, including panelboards, disconnects, breakers, starters, switches, and all control devices, pumps, fans, compressors, boilers, etc., a permanently attached nameplate made of black surface, white core laminated bakelite with incised letters. Subcontractor furnishing equipment shall provide nameplate. Pneumatic, electric and mechanically actuated gauges shall have a brief, but complete description of their function. Stating the air pressure or voltage range alone is not acceptable. Nameplates shall be a minimum of 3" long by 1½" wide and shall bear the equipment name and item number in ½" high white letters as designated in the equipment schedule. Mounting screws shall have chrome plated acorn headed screws.

1.25 TAGS AND CHARTS

- A. Furnish and attach to each valve as hereinafter specified, a 1½" diameter brass tag with ½" indented numerals filled with durable black compound. Tags shall be securely attached to stems of valves with copper wire and "S" hooks.
- B. Valve charts shall consist of schematic drawings of piping layouts, showing and identifying each valve and describing the function. Upon completion of the work, one (1) copy of each chart, sealed to rigid backboard with clear lacquer placed under glass and framed, shall be hung in a conspicuous location in the main equipment room, unless otherwise directed by the Architect. Two (2) additional unmounted copies in 8½" x 11" leather ring binders shall be delivered to the Architect. Also furnish three (3) copies of schematic flow chart with corresponding valve numbers noted on chart.

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- C. Provide tags for the following valves:
 - 1. Zone control, bypass, shut-off, check and balancing valves.
 - 2. Building and area shut-off and balancing valves.
 - 3. Control, by-pass, shut-off, balancing and drain valves for major pieces of equipment such as domestic hot water heaters, heat exchangers, refrigeration machines, pumps, heating, ventilating and air conditioning units, etc.
 - 4. System drain valves, safety and relief valves. Vacuum breakers.

1.26 IDENTIFICATION

- A. Identification shall be in accordance with "Scheme for Identification of Piping System ANSI A13.1" and OSHA safety color regulation.
- B. Markers shall be snap-on type as manufactured by Seton Nameplate Corp., New Haven, Conn. (Setmark System), Bunting Stamp Co. Inc., Pittsburgh, P.A. or approved equal. Markers shall completely encircle the pipe with a substantial overlap. No adhesive shall be used. They shall be manufactured of U.L. approved, self-extinguishing plastic. When the pipe including insulation (if any) is larger than 6 inches diameter, markers shall be strap-on type.
- C. Provide identification for piping, ductwork and conduit for electrical work.
- D. Pipe shall be lettered and valves tagged in accordance with the schedule below. Lettering shall be located near each valve and branch connection and at intervals of not over 40 feet (10 feet on fire lines) on straight runs of pipe. Provide flow arrows for all piping at each marker. Adjacent to the legend, stencil the size of the pipe, conduit or ductwork. Letter Colors are as follows: Yellow with black letters, green with white letters, blue with white letters and red with white letters.

STENCIL AND VALVE TAG SCHEDULE

<u>Service</u>	<u>Stencil Designation</u>	<u>Color</u>	<u>Tag Designation</u>
Cold Water	Cold Water	Green	C.W.
Hot Water (Plumbing)	Hot Water-Deg. F.	Yellow	H.W.-Deg. F.
Hot Water Circulating	Hot Water Cir.	Yellow	H.W.C.
Chilled Water Supply	Chilled Water	Green	CHWS
Chilled Water Ret.	Chilled Water Return	Green	CHWR
Gas	Gas	Yellow	G
Vent Piping	Vent	Green	----
Air Conditioning Drain	Air Conditioning Drain	Green	----
Pumped Condensate Return	Pumped Cond. Ret.	Green	P.C.R.
Heating Water Supply	Heat. Water Sup.	Green	H.W.S.
Heating Water Return	Heat. Water Ret.	Green	H.W.R.
Chemical Water Treatment	Chemical W.T.	Green	C.W.T.
Air Conditioned Supply Air	A.C. Supply Air	Green	----
Return Air	R.A.	Green	----
Exhaust Air	E.A.	Yellow	----
Outside Air	O.A.	Green	----
Mixed Air	M.A.	Green	----

E. Tanks, pumps, fans and other equipment shall be stenciled to show the number, if any, and service.

F. Exposed conduits for alarm and communication systems shall be banded at intervals of not over 10 feet. Bands shall be of the following colors:

Fire Alarm System Red

- G. Except where other means of identification are specified, electric cabinets, switchboards, motor control centers, transformers, system control boards, disconnecting switches, remote control switches, individual motor starters and motor control pushbutton stations shall be stenciled to show the service and number, if any, of the equipment controlled, as appropriate. Panelboards and other electrical equipment located in finished areas, such as offices, shall have the identification placed on the inside of the cabinet doors.
- H. Cabinet housing emergency lighting panelboards shall have the word "EMERGENCY" stenciled in 2-inch high red letters on the outside of the cabinet, in addition to other lettering required above.
- I. The bolted covers of housings for disconnecting switches or links in bus ducts between network transformers and switchboards shall be lettered to identify the equipment within.
- J. Serial numbers shall be stenciled on the tanks and covers of transformers having their nameplates attached to the high voltage switch chamber covers.

1.27 DRIP PANS

- A. Examine the drawings, and in cooperation with the Electrical Work confirm the final location of all electrical equipment to be installed in the vicinity of piping. Plan and arrange all overhead piping no closer than three feet from a vertical line to electric switchboards, panelboards, or similar equipment.
- B. Where the installation of piping does not comply with the requirements of foregoing paragraph, where feasible the piping shall be relocated.
- C. Provide copper gutters as follows:
 - 1. Provide a gutter of 16 ounce cold rolled copper under every pipe which is within 2'-0" (two feet) of being vertically over any motor, electrical controllers, switchboards, panelboards, or the like.

2. Each gutter shall be soldered and made watertight, properly suspended; and carefully pitched to a convenient point for draining. Provide a $\frac{3}{4}$ inch drain, to nearest floor drain or slopsink.
3. In lieu of such separate gutters, a continuous protecting sheet of similar construction, adequately supported and braced, properly rimmed, pitched and drained, may be provided over any such motor, and extending 3'-0" in all directions beyond the motor, over which such piping has to run.

1.28 TOOLS

- A. All special tools for proper operation and maintenance of the equipment shall be delivered to the Owner's representative and a receipt requested for same at no additional cost to the Owner.

1.29 QUIET OPERATION

- A. All equipment and material shall operate under all conditions of load without any sound or vibration which in the opinion of the Architect is objectionable. Where sound or vibration conditions arise which are considered objectionable by the Architect, eliminate same in a manner reviewed by the Architect.

1.30 RUBBISH REMOVAL

- A. See to it that the project is at all times maintained free of all rubbish, rubble, waste material, packaging materials, etc. accumulating as a result of his work.

1.31 CLEANING, PIPING, DUCTS AND EQUIPMENT

- A. Clean all piping, ducts, and equipment of all foreign substances inside and out before being placed in operation.
- B. If any part of a system should be stopped by foreign matter after being placed in operation, the system shall be disconnected, cleaned, and reconnected wherever necessary to locate and remove obstructions. Any work damaged in the course of removing obstructions shall be repaired when the system is reconnected at no additional cost to the Owner.

10/31/03

Soundproofing of Msgr. McClancy Mem. H.S.

- C. During construction, properly cap all pipes and equipment nozzles so as to prevent the entrance of sand, dirt, etc.

1.32 DELIVERY OF MATERIAL

- A. Deliver the material and store same in spaces indicated by the Architect and assume full responsibility for damage to structure caused by any overloading of the material.

1.33 CUTTING AND PATCHING (IN EXISTING CONSTRUCTION)

- A. All cutting and patching shall be done under another Section. Furnish the sizes and locations of all chases and openings required for the installation for his work before the walls, floors and partitions are built.
- B. As a general rule, chases, shafts and wall openings as shown on the Drawings will be provided for most of the ducts and pipings, but promptly arrange with the Construction Supervisor for additional openings should any be required for the work.
- C. Provide the labor and materials for all work included under the Contract or Subcontract in ample time and sufficient quantities so that all of the work of the Contract or Subcontract may be installed in proper sequence to avoid unnecessary cutting of the floors and walls.
- D. Any cutting and patching required due to the failure to comply with the above provisions, shall be done at no extra cost to Owner. Such cutting and patching shall be done under Division One, as approved by the Architect.
- E. Where existing piping or ductwork insulation are damaged by the requirements of the work, replace all damaged insulation to match existing.
- F. Refer to Paragraph: "Sleeves, Inserts and Anchor Bolts" for additional requirements.

1.34 ALTERATIONS

- A. When new work and alterations render equipment, piping and ductwork useless, such equipment, piping and ductwork shall be removed and connections thereof to lines or ducts remaining shall be properly capped or plugged and left in construction. If construction, such as hung

ceiling, furred beam, chase, etc., is opened up and removed during the course of the construction, the useless pipe and ducts therein shall be treated as though exposed to view. When required to accommodate new work, useless piping and ductwork concealed in construction shall be treated as though exposed to view.

- B. When existing piping and duct systems, at points of connection to new work or in rerouting are found defective, such defective portions shall be removed and replaced with new materials without cost to the Owner.
- C. Provide temporary supports where required.
- D. Where alterations reveal piping, ductwork, conduit circuits, wiring, and accessories that must necessarily remain in service, same shall be rerouted, replaced or altered as required to make same completely concealed in the new work at no additional cost to the Owner.
- E. Where existing piping or ductwork insulation is damaged by the requirements of the work, replace all damaged insulation to match existing.
- F. Cutting in existing building shall be done by each Contractor as reviewed by the Architect. Rough patching shall be done by each Contractor. Finish patching, ceiling construction removal, new ceiling in existing building will be done under another Section.

1.35 EXCAVATION AND BACKFILL

- A. All excavation trenching, backfilling and compaction required for each Section shall be done by the respective contractor for that Section.
- B. Each Contractor shall provide all labor, materials, equipment and appliances required to complete the excavating, backfill and pumping required for his work, to the extent specified hereinafter.
- C. Unclassified excavation shall include the excavation of all materials encountered in the work, such as earth, boulders, rock, shale, rubble, masonry or timber foundations, stumps and all materials without classification. Do all excavation, trenching and backfilling necessary to construct and complete the utility and all its appurtenances. All excavation shall be made by open cut from the surface. No tunneling will

be allowed except by written consent of the Architect. Provide all necessary shoring and bracing. Care shall be taken to avoid undermining of all existing utilities, footings or foundations. Take full responsibility for any additional work resulting from his excavating and trenching.

- D. Locations and elevations of pipe lines, conduits, cables, etc., shown are not to be used as final for installation of work; however, they are to be followed as closely as possible, ground conditions permitting. Exact locations of grade shall be determined on job.
- E. Under no circumstances, lay pipe or conduit or install appurtenances in water. Keep trenches free from water. Perform all necessary pumping as required to keep trenches free from water at no additional cost to the Owner.
- F. Before starting the excavation work, strip all existing sod and soil within entire limits of this Contract, which is suitable for top soil and stockpile in location approved by the Architect.
- G. Take precaution by frequently spraying excavation area during excavation with water, in order to prevent dust being blown. Stockpiles of fill and topsoil shall also be kept moist by water spray.
- H. Where existing utilities are encountered, support, shore and protect said existing utilities and allow ample time for such measures as may be necessary for continuances of such services.
- I. Notch under pipe bells to provide solid bearing for the entire body of pipe.
- J. Excavation for utilities, and appurtenances (such as manholes, etc.), shall be to required depths below existing or finished grades. Note areas of cut and/or fill and schedule and perform work accordingly. Where utilities are installed in filled areas, fill shall be compacted to 95% of its maximum density, by the Contractor, who is installing the particular utility, before installing in the utility line, manhole or other appurtenances.
- K. Excavations shall be sheeted and braced where necessary. Assume responsibility for all damage to persons,

structures, and property resulting from the quality, strength, placing, maintaining and removing or lack of sheeting. Repair or replace any existing underground piping or conduit disturbed or damaged.

- L. Width of trenches shall be adequate for work required to be done in trench for proper installation of the utility system.
- M. All steel sheeting ordered left in place shall be cut off at least 6" below the bottom of the pavement foundation or 2 feet below natural ground in unpaved areas. Provide and maintain all such safeguards necessary for the protection of persons, the safety of cell traffic movement and the protection of all the structures encountered. No trench shall be opened more than 200 feet in advance of the completed work without permission of the Architect.
- N. As soon as the joints are inspected and tested for acceptance, backfill material consisting of sand or approved earth shall be evenly and carefully placed and tamped around and over the pipe in layers not exceeding six (6) inches in thickness to one (1) foot over the top of the pipe. Backfill for the remainder of the trench shall be approved material and shall contain no stone more than six (6) inches in its largest dimensions. From a point one (1) foot over the top of the pipe, the backfill shall be deposited in thoroughly rammed and compacted layers not over twelve (12) inches thick. No backfilling shall be done with frozen earth. The trench shall be brought to an elevation so as to allow the placement of the temporary pavement in paved areas and to the surface of the ground as it existed prior to the work in non-paved areas. Should there be a deficiency of proper material for this purpose, furnish and place such additional material as may be directed by the Architect. When so directed, the backfill shall be trench backfill to a depth to be determined by the Architect. Generally, backfilling shall be to final grade, or subgrade to receive other Section's work. Compaction shall be to 95% maximum density under pavement and 92% under grass areas.
- O. All backfill shall be tamped and shall be done so far as practicable by suitable mechanical means. The machine used shall be of a type satisfactory to the Architect, as to power of blows and area of rammer and shall be used in such a manner as to thoroughly compact the backfill to a degree which will insure against later settlement. The Architect reserves the right to require flushing of

trench, in addition to tamping, where, in his opinion, same will further settle the backfill.

- P. Excavated material suitable and required for backfilling shall be stockpiled in the area selected by the Architect. All excavated material in excess of that required for backfilling shall be immediately removed to location directed by Architect. The Contractor shall leave clear and in good order all roadways and sidewalks affected by the construction. Where unstable or backfilled ground is encountered, the Contractor shall furnish and install suitable concrete or brick pier supports at each joint and on ten (10) foot centers maximum.

1.36 GRADING

- A. Grade the excavated area to its original grade and restore the area to its original position. The entire area in the vicinity of construction where excavation, filling and backfilling has been done shall be raked clean of all trash and other debris. After completion of this work all trash and debris shall be removed from the premises. Cleaning of the premises shall be done at intervals, sufficiently often to maintain an orderly appearance of the construction area and as directed by the Architect.
- B. Final grading shall be done under other Sections of the Specifications.

1.37 PAINING

- A. All finish painting is specified under other Sections of the Specifications.
- B. Paint all unpainted, non-insulated, non-galvanized, ferrous metal surfaces of pipes, conduits, ducts, equipment, fixtures, hangers, supports and accessories as follows:
1. Exposed - One prime coat of oil-varnish based paint.
 2. Concealed - One coat of black asphaltum paint. (not normally required)
 3. Underground - Two coats of black asphaltum paint.

- C. Nameplates on all equipment shall be cleaned and left free of paint.

1.38 LUBRICATION

- A. Assume responsibility that all rotating equipment is properly lubricated as soon as it is connected by the Electrical Subcontractor before operation of this equipment is started. Assume responsibility for any damage to any equipment that is turned on without previously having been oiled or greased when connected up.

1.39 TESTS

- A. All piping, wiring, and equipment shall be tested as specified under the various sections of the work. Labor, materials, instruments and power required for testing shall be furnished under the particular Section of the Specifications.
- B. Tests shall be performed satisfaction of the Architect. The Architect will be present at such test, when he deems necessary and such other parties as may have legal jurisdiction.
- C. Pressure tests shall be applied to piping only before connection of equipment and installation of insulation. In no case shall piping, equipment, or accessories be subjected to pressure exceeding their rating.
- D. All defective work shall be promptly repaired or replaced and the tests shall be repeated until the particular system and component parts thereof receive the review of the Architect.
- E. Any damages resulting from tests shall be repaired or replaced and the tests shall be repeated until the particular system and component parts thereof receive the approval of the Architect.
- F. The duration of tests shall be as determined by all authorities having jurisdiction, but in no case less than the time prescribed in each Section of the Specifications.
- G. Equipment and systems which normally operate during certain seasons of the year shall be tested during the appropriate season. Tests shall be performed on individual

equipment, systems, and their controls. Whenever the equipment or system under test is interrelated with and depends upon the operation of other equipment, systems and controls for proper operation, functioning, and performance, the latter shall be operated simultaneously with the equipment or system being tested.

- H. The electrical work shall include providing any assistance (such as removal of switchboard and panelboard trims and covers, pull and junction box covers, etc.) deemed necessary by the Architect to check compliance with the Drawings and Specifications.

1.40 OPERATING INSTRUCTIONS

- A. Two months prior to the completion of all work and the final inspection of the installation by the Owner, five (5) copies of a complete Instruction Manual, bound in booklet form and suitably indexed, shall be submitted to the Architect for review. All written material contained in the manual shall be typewritten or printed.

- B. The Manual shall contain the following items:

Table of Contents (Plumbing, HVAC and Electrical)

- I. Introduction - Explanation of Manual and its use.

II. Description of Systems

1. Complete schematic drawings of all systems.
2. Functional and sequential description of all systems.
3. Relationship of system where applicable to the supervisory data system.

III. Systems Operation

1. Start-up procedures.
2. Shut-down procedures.
3. Reset and adjustment and balancing procedures.
4. Seasonal operation.
5. All posted instruction charts.

IV. Maintenance

1. Cleaning and replacement - lines, components, filters, strainers, ducts, fans, etc.
2. Lubrication.

3. Charging and filling.
4. Purging and draining.
5. Systems trouble shooting charts.
6. Instruments checking and calibration.
7. Procedures for checking out functions with remote (Supervisory Data Console) indication and control.
8. Recommended list of spare parts.

V. Listing of Manufacturers

VI. Manufacturer's Data (Where multiple model, type and size listings are included, clearly and conspicuously indicate those that are pertinent to this installation).

1. Description - Literature, drawings, illustrations, certified performance charts, technical data, etc.
2. Operation.
3. Maintenance - including complete trouble-shooting charts.
4. Parts List.
5. Names, addresses and telephone numbers of local recommended repair and service companies.
6. Guarantee data.
7. Model No. and Serial No. of all equipment.

1.41 INSTRUCTION OF OWNER'S PERSONNEL

- A. After completion of all work and all tests and at such time as designated by the Architect, provide the necessary skilled personnel to operate the entire installation for a period of five (5) consecutive days eight (8) hours each.
- B. During the operating period, fully instruct the Owner's representative in the complete operation, adjustment and maintenance of the entire installation including chillers, air conditioning units, heating system, unit ventilators, fan coils, boilers, and overall system. Include minimum of (10) consecutive days of eight (8) hours each to instruct owner's designated representatives for operation of systems.

1.42 GUARANTEE

- A. The Contractor guarantees by his acceptance of the Contract that all work installed will be free from any and all defects and that all apparatus will develop capacities and characteristics specified, and that if during a period of one year from date of completion and acceptance of work any such defects in workmanship, material or performance appear, he shall immediately replace, repair, or otherwise correct the defect or deficiency without cost to the Owner within a reasonable time. Notify the Architect in writing of the time required to do work. For heating systems the guarantee period must include one continuous heating season from November 1st to April 1st. For cooling systems the guarantee period must include one continuous cooling season from May 1st to October 1st.
- B. Replace or repair to the satisfaction of the Owner any and all damage done to the building or its contents or to the work of other trades in consequence of work performed in fulfilling guarantee.
- C. This Article is general in nature and will not waive stipulations of other claims which specify guarantee periods in excess of one (1) year.
- D. In the event default on this Guarantee, the Owner may have such work done as required & charge the cost to the Contractor.
- E. The date of acceptance shall be the date of final payment by the Owner or notice of acceptance by the Owner, whichever is later.

1.43 OPERATION PRIOR TO COMPLETION

- A. The Owner may require operation of parts or all of the installation for the beneficial occupancy prior to final completion and acceptance of the building.
- B. The operation shall not be construed to mean acceptance of the work by the Engineer for the Owner. The Owner will furnish supervisory personnel to direct operation of the entire system and the Contractor shall continue to assume this responsibility until final acceptance.

1.44 INSTALLATION OF MOTORS AND CONTROL EQUIPMENT

- A. The Electrical Contractor shall furnish and install power wiring for all electrical devices, individual motor starters, furnished to him at the job site by other trades.
- B. The HVAC Contractor shall provide all wiring for the Automatic Temperature Controls, Chilled Water System Control, Hot Water System and Boiler Control, and air conditioning systems, except as otherwise specified herein.
- C. The Electrical Contractor shall, except where otherwise noted, provide wiring for all Plumbing and and Fire Alarm Systems.
- D. For single phase motors which are not interlocked with other motors and which have temperature control or motor control devices in the power circuit, furnishing of control devices, installation and wiring shall be by the Electrical Contractor.
- E. For all HVAC 3-phase motors or HVAC equipment, temperature control wiring, motor control wiring and associated interlocks shall be provided by the HVAC Contractor, including the installation of all control devices. For all plumbing equipment control, wiring motor control, wiring and associated interlocks shall be provided by the electrical contractor, including the installation of all control devices.
- F. Electrically operated equipment supplied by other trades, which are to be installed and wired by the Electrical Contractor, shall be delivered with detailed instructions for their installation and wiring in sufficient time and proper sequence to meet the work schedule.
- G. Each contractor shall furnish all electrical motors, starters and other motor control devices for motor driven equipment required for the work. In his work, the Electrical Contractor shall provide the code required disconnect switches for all motors, except where otherwise noted. The setting of all motors, required for mechanical equipment, including unmounted motors, shall be done as part of the mechanical work.
- H. If a motor is replaced (even with the same horsepower) a new starter shall be provided for that motor.

- I. Equipment which includes a group of electrical control devices mounted in a single enclosure or on a common base with equipment, shall be supplied completely wired as a unit with terminal boxes or leads ready for external wiring.
- J. All electrical items furnished and/or installed as part of the mechanical work shall conform to NEMA Standards, to the requirements of the National Fire Protection Association, and to the requirements of any local authority having jurisdiction. Any field modifications required to insure such conformance shall be included as part of the mechanical work.
- K. The furnishing of floor mounted motor starting equipment shall include the purchase and delivery of channel sills for mounting.
- L. Whether or not shown on the drawings, the Electrical Contractor shall furnish and install a local disconnect switch at each motor which is not in sight from the controller location.
- M. The supplying of any and all "field instruction" diagrams deemed necessary by the Architect for the complete delineation of electrical wiring for mechanical equipment shall be included as part of the mechanical work.
- N. The drawings describing the electrical or the mechanical work may include explanatory wiring diagrams indicating the function intended for the motor control circuits of certain motors. The "field instructions" wiring diagrams required as part of the mechanical work shall conform to these intended functions.

1.45 ELECTRIC MOTORS

- A. Each Contractor shall provide all electric motors required for driving all motor driven equipment required to be furnished under his Section of the Specification.
- B. All motors shall be designed for 3 phase, 60 cycle alternating current operation with 200 volts across the motor terminals, except that, unless otherwise specified herein, all motors ½ HP and smaller shall be designed for single phase, 60 cycle alternating current at 120 volts across the terminals. Before ordering motors, ascertain the actual voltages and other current characteristics that will be available and permissible for each motor.

Report the same in writing to the Architect and obtain approval before ordering motors. The designation of current characteristics in these Specifications does not relieve the responsibility for ascertaining the actual conditions of electric service available for each motor or for the proper operation of all motors under the actual conditions.

- C. The speed, horsepower, type and other essential data for each motor, if not given under paragraphs describing the various motor driven apparatus, or in schedules on the drawings shall be obtained from the manufacturer of the respective apparatus and shall be submitted to the Architect for his review. All two speed motors shall be single winding type.
- D. Provide oversized motor junction box for 2 speed motors.
- E. All motors shall be built in accordance with the latest rules of the National Electrical Manufacturers Assn., and of the Institute of Electrical and Electronic Engineers and also as hereinafter specified.
- F. Motors $\frac{1}{2}$ HP and larger shall have Class B insulation. All motors shall be rated for continuous duty and shall be designed for temperature rises not to exceed 55°C. for fully enclosed type, 55°C. for splashproof types and 40 °C. for all other motors excepting as otherwise specified herein. Motors shall be capable of withstanding momentary overloads of fifty (50%) without injurious heating. They shall operate without excessive heating, flashing or sparking under any conditions within the specified capacity of load and speed. All motors shall operate quietly and shall be replaced if, in the Architect's opinion, they do not do so. All motors which are in the airstream of air conditioning units, shall be totally enclosed type.
- G. Motors $\frac{1}{2}$ HP and larger shall have ball or roller bearings with pressure grease lubrication, except where otherwise noted.
- H. Direct connected motors shall be furnished without an adjustable base. All motors connected to driven equipment by belt shall be furnished with adjustable sliding bases, except fractional motors with slotted mounting holes.
- I. All motor leads shall be permanently identified and supplied with connectors.

- J. Motors shall have nameplates giving manufacturer's name, serial number, horsepower, speed, voltage, phase power factor, service factor and current characteristics.
- K. The insulation resistance between stator conductors and frames of motors at the time of final inspection shall be not less than one-half megohm.
- L. All motors shall be of the proper type for the duty and shall have sufficient torque to start and run the equipment to which they are connected and starting currents and running currents shall not exceed the limits imposed by the laws or rules and regulations of the public authorities having jurisdiction or of the electrical utility company. All motors shall have sufficient horsepower capacity and rated duty to operate the apparatus to which they are connected so as to give the speeds and performances specified, but the horsepower shall be in no case less than that started herein or shown on the drawings. A schedule giving the characteristics of the motors proposed for each type of service shall be submitted to the Architect for approval.
- M. The maximum full load speed of each direct connected motor shall be suitable for the equipment it drives.
- N. Except where V-belt drive is specified, the fan wheels for ventilating fans shall be mounted on the motor shafts, which shall be designed for this duty.
- O. All motors except motors furnished as an integral part of equipment and factory installed on the equipment, shall be of same manufacture.
- P. Polyphase motors shall be squirrel cage induction high efficiency energy saver type, suitable for the starting torque and current requirements.
- Q. Single phase motors shall be of the capacitor start induction run or split phase type as required for proper operation of the driven equipment.
- R. All motors shall be high efficiency type, shall meet all applicable codes. Minimum acceptable efficiency shall be as follows:

OPEN DRIP-PROOF (ODP)				TOTALLY ENCLOSED FAN-COOLED (TEFC)			
Motor Size (HP)	Speed (RPM)			Motor Size (HP)	Speed (RPM)		
	1200	1800	3600		1200	1800	3600
	NEMA Nomial Efficiency				NEMA Nomial Efficiency		
1	82.5%	85.5%	77.0%	1	82.5%	85.5%	77.0%
1.5	86.5%	86.5%	84.0%	1.5	87.5%	86.5%	84.0%
2	87.5%	86.5%	85.5%	2	88.5%	86.5%	85.5%
3	88.5%	89.5%	85.5%	3	89.5%	89.5%	86.5%
5	89.5%	89.5%	86.5%	5	89.5%	89.5%	88.5%
7.5	90.2%	91.0%	88.5%	7.5	91.0%	91.7%	89.5%
10	91.7%	91.7%	89.5%	10	91.0%	91.7%	90.2%
15	91.7%	93.0%	90.2%	15	91.7%	92.4%	91.0%
20	92.4%	93.0%	91.0%	20	91.7%	93.0%	91.0%
25	93.0%	93.6%	91.7%	25	93.0%	93.6%	91.7%
30	93.6%	94.1%	91.7%	30	93.0%	93.6%	91.7%
40	94.1%	94.1%	92.4%	40	94.1%	94.1%	92.4%
50	94.1%	94.5%	93.0%	50	94.1%	94.5%	93.0%
60	94.5%	95.0%	93.6%	60	94.5%	95.0%	93.6%
75	94.5%	95.0%	93.6%	75	94.5%	95.4%	93.6%
100	95.0%	95.4%	93.6%	100	95.0%	95.4%	94.1%
125	95.0%	95.4%	94.1%	125	95.0%	95.4%	95.0%
150	95.4%	95.8%	94.1%	150	95.8%	95.8%	95.0%
200	95.4%	95.8%	95.0%	200	95.8%	96.2%	95.4%

1.46 INDIVIDUAL MOTOR STARTERS

- A. For single-phase motors $\frac{1}{2}$ HP or smaller, starters shall be manual, 120 volts, single-pole or 240 volts, 2-pole with thermal overload protection and pilot light. Where interlocking or automatic control (other than for unit and cabinet heaters) is required, starters shall be combination circuit breaker and magnetic starter with pilot light.
- B. For 3-phase motors $\frac{1}{2}$ HP and over, starters shall be full-voltage combination circuit breaker and magnetic across-the-line contactor, rated 208 volts, 3-phase. All magnetic starters shall have three thermal overloads.
- C. For motors requiring electric interlocks, or automatic control features, starters shall be equipped with the necessary auxiliary relays and contacts to provide the control features desired. Such starters shall be also provided with "hand-off-auto" pushbuttons mounted in cover. For two-speed motors, provide "high-low-off-auto" four position selector switch. Furnish adjustable 20-second time delay between high and low speeds for motors 10 HP and above.

- D. In addition to any auxiliary contacts required for interlocking purposes, each magnetic starter shall be equipped with one normally open auxiliary control circuit contact either for "sealing in" or as a spare for future use.
- E. Indicating lights shall be transformer or series resistor type. There shall be one red light for each single speed motor to indicate when motor is running. For multiple speed motors one indicating light for each speed shall be provided.
- F. The starter disconnecting means shall be circuit breakers. The external operating handle shall clearly indicate "ON" or "OFF" position of the switch and shall be interlocked with the door to require throwing the handle to the "OFF" position to open the door. The handle shall be arranged for locking both the door closed and the disconnect in the "OFF" position with up to 3 padlocks. Provide defeat device in cover to permit opening door in "ON" position.
- G. Circuit breakers in combination starter units shall be of the magnetic trip type with an adjustable trip setting for selecting instantaneous trip points of fault protection (motor circuit protector). Field adjustment of the instantaneous trip shall be performed by the Electrical Contractor. Select the trip setting at approximately 10 times the motor nameplate full-load current. If the circuit breaker trips on starting, incrementally increase the settings. In no case shall the trip setting exceed 13 times the motor full-load current.
- H. Overload heaters shall be furnished for all starters and shall be sized in range of 115 to 125 percent of full load current. The motor starters shall be shipped with the overload heaters inside the compartment but not installed. The Electrical Contractor shall verify the ratings of the heater coils based on the motor nameplate data before installing the overloads. The Contractor supplying the starter shall replace any improperly selected heaters.
- I. A transformer shall be supplied in each starter unit for 120 volt control voltage. Transformer capacity shall be adequate to supply the holding coil requirements plus the solenoids, relays and other devices required to be controlled from the starter. A fuse shall be supplied in one secondary terminal of the control transformer. The other terminal shall be grounded to the housing of the

starter. Fuses shall be also provided in the transformer primary leads per the National Electrical Code.

- J. All enclosures shall be NEMA Type I sheet steel with hinged cover for general purpose indoor application, unless otherwise indicated. Enclosures shall be arranged for equipment or wall mounting. Weatherproof NEMA Type 4 enclosures shall be provided for all outdoor starters.
- K. Each starters shall be clearly identified by engraved nameplates after installation. The nameplates shall be bakelite black plates with $\frac{1}{2}$ " high white letters and shall be securely fastened to starter with mounting screws made of non-corrosive metals.
- L. Stainless steel flush mounted starter and enclosures shall be provided for all starters located in the kitchen and dishwasher areas.
- M. All starters, except those furnished as an integral part of equipment and factory installed on the equipment, shall be of the same manufacturer.
- N. Starters shall be as manufactured by Westinghouse, General Electric, Square D, Eaton/Cutler-Hammer, or Allen-Bradley.
- O. Shop drawings shall be provided with dimensions, ratings, wiring diagrams and schedule of nameplates for approval prior to fabrication.

1.47 MOTOR CONTROLLERS

- A. Motor controllers shall be defined as control devices such as pushbuttons, switches, etc. which are not mounted in starter cover, required for remote control of motors.
- B. Unless otherwise noted, motor controllers shall be housed in NEMA Type 1 general purpose enclosures. Outdoor controllers shall be provided with weather proof NEMA Type 4 enclosures. Provide nameplate to indicate the motor with which they are associated.
- C. The controllers to be installed in finished area shall be flush mounted.
- D. The Electrical Contractor shall install and provide wiring for motor controllers. The contractor providing the motor shall furnish the controllers.

- E. Unless otherwise noted, pushbuttons shall be of the normal duty, spring return momentary type.
- F. Selector switches and pushbuttons shall be equipped with nameplates indicating the function of each of their positions as noted in the list of electric motors and motor controls or shown on the drawings.
- G. Pilot light shall be transformer or series resistor type for operation at 120 V.
- H. Pilot lights shall be equipped with nameplates indicating the operating conditions they annunciate as noted in the list of electric motors and motor controls or shown on the drawings.

1.48 SEMI-FINAL AND FINAL SITE VISITS FOR OBSERVATION

- A. As the project approaches completion, the Engineer and Architect, at their discretion shall determine a period of time in which they shall perform a Semi-Final Site Visit to observe the Mechanical and Electrical installation. At the conclusion of this Semi-Final Site Visit, a Semi-Final Punchlist shall be issued to the appropriate contractor for the deficiencies in the work of his trade. Complete all work and perform all corrective measures as required by the Semi-Final Punchlist. After this corrective and completion work has been accomplished, in writing, advise the Architect and the Engineer that every item on the Semi-Final Punchlist has been completed. After the Architect and Engineer make a Final Site Visit to observe the Mechanical and Electrical installation and make a Punchlist, a similar letter of Compliance shall be forwarded through channels.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION 15000

SECTION 15600
GENERAL PROVISIONS FOR HVAC WORK

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinated with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK INCLUDED

- A. Work Included:
 - 1. The work includes providing all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all Heating, Ventilating and Air Conditioning Work as shown on the Drawings and hereinafter specified, including, but not limited to the following:
 - a. Provide an air cooled chilled water refrigeration plant consisting of electrical chillers, outdoor mounting, on grade, glycol chilled water treatment, underground piping, chilled water pumps, and all associated power and control wiring, all as hereinafter specified.
 - b. All motor starters and controllers for equipment furnished by this Contractor. Packaged type units shall be furnished completely prewired with panels mounted on the units as specified. All other motor starters and controllers will be turned over to the Electrical Contractor for installation and wiring.
 - c. Rooftop packaged medium pressure air handling units used for single duct systems, air cooled electric DX system, gas fired furnace and economizer outside air controls.
 - d. Filters.

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- e. Fans.
- f. Unit heaters and convectors.
- g. Hot water-to-hot water heat exchangers to generate hot water and be pumped to unit ventilators and heaters hot water pumps.
- h. Four pipe unit ventilator, fan coil air conditioning units with chilled and hot water heating coils, packaged controls including enclosures, drain piping.
- i. Condensate pumps for cold condensate, split systems.
- j. Hot and chilled water specialties such as expansion tanks, air vents, air separators, reducing and safety valves, etc.
- k. Accessories such as V-belt drives, flow measuring devices, draft gauges, machinery guards, thermostats, pressure gauges.
- l. Water treatment for chilled and hot water systems including 40% polypropylene glycol.
- m. Inertia blocks and vibration isolation equipment.
- n. Piping, fittings, and valves.
- o. Sheet metal ductwork and accessories such as dampers, access doors, etc.
- p. Registers, grilles and diffusers.
- q. Fire dampers and smoke dampers.
- r. Installation of smoke detectors in ductwork.
- s. Acoustical duct lining and sound traps.
- t. Pipe, duct and equipment insulation.
- u. Roof curbs and flashing.
- v. Temperature Control: A complete, integrated electronic-DDC system of temperature control shall be installed in connection with the HVAC

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systems, including workstation, DDC panels, unitary controls, all thermostats, diaphragm valves, damper motors and dampers for the outdoor air intakes and fan discharges. All control wiring for automatic temperature controls, including interlocking wiring for fans, chillers, pumps, etc. by this Contractor.

- w. Excavation and backfill as specified under "Special Requirements for Mechanical and Electrical Work".
- x. Painting, pipe and equipment identification for all work by this Contractor is previously specified under "Special Requirements for Mechanical and Electrical Work".
- y. Test and balancing of equipment, air and water systems.
- z. Sleeves, pipe inserts and anchor bolts, escutcheons, prefabricated roof curbs, etc., as hereinafter specified. Supports, hangers for equipment, ducts, piping.
- aa. Identification, name plates, tags and charts.
- bb. Cutting and rough patching. Patching of all unused opening. Fire-stop all openings for ducts, pipes, conduits.
- cc. Furnishing and setting of electric motors.
- dd. Furnishing of starters, motor control centers and motor control devices as specified under "Special Requirements for Mechanical and Electrical Work".
- ee. Templates and anchor bolts for equipment bases.
- ff. Cap flashing or pipe and duct passing through roof.
- gg. Removal, relocation and/or demolition of existing HVAC work in conjunction with the existing buildings as indicated on the Contract Drawings and as required for installation of new work. Temporary work

- including valved pipe connections, ducts, dampers, fans, wiring to keep existing systems in operations and spaces occupied.
- hh. Energy management (building automation) system.
 - ii. Concrete pads for all HVAC work.
 - jj. Tie-in new piping with the existing boiler plant hot water lines to existing building as indicated on Drawings.
 - kk. New chiller plant provide new chilled water lines to fan coils, unit ventilators as indicated on Drawings.
 - ll. Installation of fire and smoke dampers in the existing and new ductwork and fan systems.
 - mm. Modification, calibration, removal, reinstallation, wiring of controls related to existing building heating system controls, boiler controls, existing valves, temperature reset controls, heat timer controls. Relocate panels, controls, reconnect.
 - nn. Provide controls, valves, fittings, accessories, piping for existing heaters, convectors, radiator which will remain in operation. Test, balance water flows.
 - oo. Fill, drain, refill, vent, cut, cap existing hot water system as many times as required to install new work. Fill, drain, refill, vent chilled water system as many times as required.
 - pp. Provide new support, insulation on existing piping. Reinsulate existing piping where insulation is removed and/or disturbed.

1.03 WORK INCLUDED UNDER OTHER SECTIONS OF THE SPECIFICATIONS

- A. The following work is included under other Sections of the Specifications:
 - 1. Framed openings as shown on the Drawings.

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2. Trenches and covers.
3. Final connections to HVAC equipment shall be made by this Contractor. Gas supply shall be within 5'-0" of equipment.
4. Floor and funnel drains adjacent to equipment requiring same will be furnished and installed by the Plumbing Contractor.
5. Outside air inlets, exhaust outlets, louvers and screens through walls, and elsewhere as noted on the Drawings. Motorized dampers furnished and installed under this Contract.
6. Base flashing of curbs and sleeves at roofs.
7. Power wiring for all motors except where otherwise noted.
8. Temporary heat.
9. Setting of access doors furnished by this Contractor.
10. Undercutting of doors or louvers in doors.
11. All motor disconnect switches, except where in combination starters and where otherwise noted.
12. Dunnage beams for air handling equipment supports.
13. Finish painting.
14. Access doors in ceiling and walls.
15. Finish patching.
16. Ventilating hoods - kitchen, labs, etc.
17. Wiring of switches, aquastats, pressure controls in power circuit of cabinet and unit heaters.
18. Fan shutdown system.
19. Mounting of all starters, motor control centers, starter panelboards, and motor control devices: Division 16.
20. Unit ventilator piping enclosures.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with quality established in Section 15000 "Special Requirements for Mechanical and Electrical Work", and hereinafter specified. All work performed shall comply with local codes.

1.05 SUBMITTALS

- A. Submit shop drawings covering the following items:
1. Coordination drawings.
 2. Duplex condensate pumps, including pump curves.
 3. Internal cleaning and treating of piping.
 4. Sleeve and ductwork penetration drawings.
 5. Identification schedule and samples.
 6. Air handling units (packaged rooftop type).
 7. Air filters and draft gauges.
 8. Coils.
 9. Heat exchangers.
 10. Expansion joints, anchors and guides, including details of installation.
 11. Air diffusers, registers and grilles.
 12. Unit ventilators, fan coil units including sound data.
 13. Schedule of ductwork, joints, gauges, supports, flexible connections, fire dampers, access doors, etc.
 14. Utility fans, centrifugal fans, and power roof ventilators and propeller fans, curbs.
 15. Sheet metal fabrication drawings, duct layouts.
 16. HVAC specialties.

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17. Machinery guards and V-belt drives, curbs, supports.
18. Sheet metal shop standards, details.
19. Schedule of piping and fitting materials.
20. Piping shop drawings, piping layouts, details of pipe risers, details of pipes in pipe enclosures, equipment piping details.
21. Schedule of valves, strainers, vacuum breakers.
22. Flow metering device and systems.
23. Thermometers and pressure gauges.
24. Expansion tanks.
25. Underground conduit for chilled water piping.
26. Schedule of pipe and ductwork supports, including inserts, escutcheons, etc.
27. Heating systems, including unit heaters, cabinet heaters, unit ventilators, etc., as specified.
28. Water pumps including pump curves.
29. All motor starters, and motor control devices.
30. Air cooled chillers including sound criteria.
31. Water treatment equipment and systems.
32. Schedule of insulation types and samples of each type.
33. Vibration isolation schedule including inertia block details.
34. Templates for equipment bases.
35. Acoustic material, sound traps.
36. Integrated controls and energy management system for all equipment, system including but not limited to chillers, air handling units, unit ventilators, fan coil units, fans, pumps, boilers, heat

exchangers, heaters, etc. for local and centralized monitoring, controls, alarm functions.

37. Air vents, air separators, water strainers, reducing and safety valves for water systems.
 38. Automatic temperature controls.
 39. Concrete pad location and size.
 40. Testing and balancing reports.
 41. Supports, hangers.
 42. Operating and maintenance manuals.
- B. All shop drawings being submitted that include electrical work shall be submitted with all internal and external wiring diagrams.
- C. The previously listed items are major equipment and do not limit this Division's responsibility to submit shop drawings for all equipment and accessories which are to be provided under this Division of the Specifications.

PART 2 - PRODUCTS

2.01 SPARE PARTS

- A. Chilled water, condensate return pumps and hot water pumps - For each pump listed, unless otherwise specified:
1. One set of wearing rings.
 2. One set of bearings.
 3. One set of packing glands complete with rings, nuts and bolts.
 4. Three gaskets for casing joint.
 5. Sufficient stuffing box packing for four packings.
- B. Where pump specifications do not require packing glands of stuffing boxes, spares listed may be omitted.

C. Filters:

1. The Contractor shall furnish a minimum of two complete spare filter sets for the filters for all units.

D. Miscellaneous Spare Parts:

1. Water column glasses shall be provided for each tank utilizing one.
2. One complete set of gaskets shall be provided for each of the following pieces of equipment:
 - a. Converters (hot water).
3. Furnish one complete set of V-belts for each belt driven unit installed.

2.02 LIST OF MANUFACTURERS

- A. The manufacturer's name appearing first on this list is the manufacturer the project design was based upon. However, the additional manufacturers listed herein are also acceptable with the provision that they meet the requirements of these Specifications, ratings, and/or space allocations listed in the Specifications or shown on the Drawings.

1. Duplex Condensate Pump

- a. Federal Pump Corp.
- b. Domestic Pumps
- c. Little Giant Company
- d. or approved equal

2. Air Cooled Chillers (Modular)

- a. Arctichill
- b. Airstack

3. Water Pumps (Base Mounted)

- a. Bell & Gosset
- b. Peerless
- c. Weiman
- d. Taco

4. Air Conditioning Units
 - a. Trane
 - b. York
 - c. Carrier
5. Water Coils
 - a. American Air Filter
 - b. Trane
 - c. Bohn
 - d. Carrier
 - e. or approved equal
6. Air Filters
 - a. American Air Filter Farr
 - b. Cambridge
 - c. National
 - d. or approved equal
7. Draft Gauges
 - a. Dwyer
 - b. or approved equal
8. Centrifugal Fans and Utility Sets
 - a. Greenheck
 - b. Peerless
 - c. Trane
 - d. Twin City
 - e. Buffalo
 - f. ACME
 - g. or approved equal
9. Propeller Fans
 - a. Greenheck
 - b. Peerless
 - c. Buffalo Forge
 - d. ACME
 - e. American Cool Air
 - f. or approved equal
10. Heat Exchangers
 - a. Bell and Gossett
 - b. Patterson - Kelley
 - c. Yula Corp.

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- d. approved equal
- 11. Cabinet & Unit Heaters
 - a. Vulcan
 - b. Trane
 - c. Sterling
 - d. Dunham-Bush
 - e. or approved equal
- 12. Finned Tube Radiation & Convectors
 - a. Vulcan
 - b. Trane
 - c. Sterling
 - d. or approved equal
- 13. Unit Ventilators, Fan Coil Units
 - a. Trane
 - b. Carrier
- 14. Expansion Tanks & Flash Tanks
 - a. Bell & Gossett
 - b. Amtrol
 - c. Buffalo
 - d. or approved equal
- 15. Water Specialties
 - a. Bell & Gossett
 - b. Taco
 - c. or approved equal
- 16. Expansion Joints
 - a. Zallea
 - b. Flexonics
 - c. or approved equal
- 17. Thermometers & Pressure Gauges
 - a. Ashcroft
 - b. U.S. Gauge
 - c. Trerice
 - d. Weiss Instruments

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18. Motors
 - a. General Electric
 - b. Westinghouse
 - c. Allis Chalmers
 - d. or approved equal

19. Starters, Motor Control Centers, Switches
 - a. General Electric
 - b. Westinghouse
 - c. Cutler-Hammer
 - d. or approved equal

20. Diffusers, Registers & Grilles
 - a. Anemostat
 - b. Titus
 - c. Carnes

21. Valves
 - a. Jenkins
 - b. Crane
 - c. Walworth
 - d. Stockham
 - e. or as specified under paragraph on "Valves".

22. Insulation and Acoustic Lining
 - a. Owens-Corning Fiberglas Corp.
 - b. CSG Snap-on
 - c. Johns Manville
 - d. or approved equal

23. Vibration Isolation
 - a. Vibration Eliminator Co.
 - b. Mason Industries
 - c. Korfund Corp
 - d. or approved equal

24. Automatic Temperature Controls
 - a. Johnson Service Co.
 - b. Honeywell
 - c. Siemens
 - d. Trane Co.

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25. Water Treatment
 - a. Heating Economy Services, Co., Inc.
 - b. Astro Pak Corp.
 - c. Okite Chemical Corp.
 - d. Drew Chemical Corp.

26. Underground Conduit
 - a. Ric-Wil Co.
 - b. Permapipe
 - c. Kaiser Co., E.B. (EBKO)

27. Internal Cleaning & Treating of Piping
 - a. Heating Economy Services Co., Inc.
 - b. Astro Pak Corp.
 - c. Okite Chemical Corp.
 - d. Drew Chemical Co.

PART 3 - EXECUTION

(NOT USED)

END OF SECTION 15600

SECTION 15681
PACKAGED AIR COOLED CHILLER (ON GRADE)

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all high pressure air handling units as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacture of this material with characteristics and capacities required whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.
- D. Codes and Standards
 - 1. Capacity ratings shall be in accordance with ARI Standard.
 - 2. Refrigeration system shall be constructed in accordance with ASHRAE 15: Safety Code for Mechanical Refrigeration.
 - 3. Air-cooled Condensers shall meet or exceed the minimum COP/Efficiency levels as prescribed in ASHRAE 90A: Energy Conservation in New Building Design.

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4. All electrical components shall be UL listed and labeled.
 5. Comply with the 1990 Clean Air Act and all other Federal, State and City Codes and Regulations.
- E. Packaged Water Chiller - Air Cooled Condenser shall have an energy efficiency ratio (EER) not less than 10.0 EER as per ARI 590-86.
- F. Permits necessary for work in connection with the installation of the refrigeration equipment and the operation thereof shall be obtained by the Contractor. Refrigeration equipment such as chillers, condensers and condensing units shall have been accepted by the Materials and Equipment Acceptance Division of the Department of Buildings, and the MEA acceptance number shall be indicated on the Shop Drawings.

1.04 SUBMITTALS

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work.

PART 2 - GENERAL

2.01 DESCRIPTION

- A. Furnish and install as shown on plans and schedule, Arctichill or approved equal, outdoor, modular, air cooled liquid chillers, as scheduled on drawings.
- B. Chiller shall have scroll type compressors and consist of multiple independent refrigerant circuits. Each refrigerant circuit shall consist of an individual compressor set, evaporator, thermal expansion valve, liquid line solenoid valve, filter drier, fin and tube condenser, and control system. Each circuit shall be constructed to be independent of other circuits from a

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refrigeration and electrical stand-point. The multi-circuit chiller must be able to produce chilled water even in the event of a failure of one or more refrigerant circuits.

- C. Each module shall be individually serviceable. Upon failure of a compressor or module(s), remaining compressors and modules shall function.
- D. General
 1. Chiller Modules shall be ETL listed in accordance with UL Standard 1995, and have MEA approval. Casing shall be corrosion resistant painted, mill finish aluminum.
 2. Modules shall ship wired and charged with refrigerant. All modules shall be factory run tested prior to shipment.
 3. Compressors, heat exchangers, condenser fans, piping and controls shall be mounted on a heavy gauge steel frame. Electrical controls, contactors, and relays for each module shall be mounted within that module. Module shall be provided within a steel enclosure suitable for outdoor use. Exposed steel surfaces shall be provided with a powder coat paint finish.
 4. Chiller noise shall not exceed 77 dBA at 5 feet from chiller in all directions.
 5. Chiller shall not require licensed refrigeration engineer for operation of chiller in New York City.
- E. Chilled Water Mains: Each module shall include supply and return mains for chilled water. Grooved and connections shall be provided for interconnection to piping with Victaulic type couplings.
- F. Evaporators: Each evaporator shall be non-clogging and shall be shell and tube type, not requiring strainer in main headers in side the chiller. Evaporator heat exchanger shall not be mounted above the compressor to prevent the effect of migration of refrigerant to the cold evaporator with consequent liquid slugging on start-up. Each module shall have built-in isolation valves to isolate water side from main headers. Hot gas bypass built-in per compressor circuit shall be provided.

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G. Compressor: Each module shall contain two hermetic scroll compressors mounted to the module with rubber-in-shear isolators. Each system also includes high discharge pressure and low suction pressure safety cut-outs.

H. Condenser Fans: Each module shall contain dual condenser fans for each refrigerant circuit. These fans shall be multi-blade vane-axial type made of plastic composite material for quiet operation. Fans shall be direct drive. Fan motors shall all be pressure controlled and suitable for outdoor use, protective discharge metal guard on top.

I. Local Controls System:

1. Scheduling of the various compressors shall be performed by a microprocessor based control system (Master Controller). A new lead compressor shall be selected every 24 hours to assure even distribution of compressor run time.

If this Master Controller fails each module shall continue to operate independently with its own temperature sensors. Master Controller shall have RS communication port (RS-232). Protocol by Arctichill. Software and interface modem and networking devices by BAS.

2. The Master Controller shall monitor and report the following on each refrigeration system:

- a. Discharge Pressure Fault
- b. Suction Pressure Fault
- c. Compressor Winding Temperature
- d. Suction Temperature
- e. Evaporator Leaving Chilled Water Temperature
- f. Reset Chilled Water Temperature based on outdoor air temperature

3. The Master Controller shall monitor and report the following system parameters"

- a. Chilled Water Entering and Leaving Temperature
- b. Discharge Refrigerant Temperature
- c. Chilled Water Flow
- d. Provide Scheduled Inputs/Outputs to BAS via RS communication port.

4. An out of tolerance indication from these controls or sensor shall cause "fault" indication at the

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Master Controller and shutdown of that compressor with the transfer of load requirements to the next available compressor. In the case of a System Fault, the entire chiller will be shutdown. When a fault occurs, the Master Controller shall record conditions at the time of the fault and store the data for recall. This information shall be capable of being recalled through the keypad of the Master Controller and displayed on the Master Controller's LCD. A history of faults shall be maintained including date and time of day of each fault (up to the last 20 occurrences).

5. Individual monitoring of leaving chilled water temperatures from each refrigeration system shall be programmed to protect against freeze-up.
6. The control system shall monitor entering and leaving chilled water temperatures to determine system load and select the number of compressor circuits required to operate. Response times and set points shall be adjustable. The system shall provide for variable time between compressor sequencing and temperature sensing so as to fine tune the chiller to different loads and building conditions.
7. Flow switches shall be provided by chiller manufacturer for field installation and wiring.
8. Chiller/compressor shall have anti-short cycle timer to prevent excessive cycling.
9. Condenser fan cycling shall be based on head pressure with fan speed control.
- J. Chiller shall have external inputs and outputs to be compatible with the building management system to include Remote Start/Stop capability and Cooling Alarm output, monitoring chilled water temperature, failure alarms.
- K. Each refrigerant circuit shall include all refrigerant specialties such as dryer, filter, sight glass, suction and discharge isolation valves, charge valve, noise suppressors, solenoid valves, by-pass valves to provide reliable operation down to 0°F ambient.

L. SINGLE POINT POWER CONNECTION

1. Chiller shall be provided with a single point power connection. This will include pre-engineered wiring for field installation and connection to a factory mounted chiller junction box. Junction box shall include individual fusing for each Module Set and provide a single point of connection to building power.
2. Each module shall be complete with its built-in disconnect.
3. Starter for modules shall be built-in, accessible from outside.
4. Integral control transformer for controls shall be provided from unit single point power connection.
5. Contractor shall provide outdoor, weather-proof master disconnect.

2.02 SAFETIES, CONTROLS AND OPERATION

- A. The chiller safety controls shall be provided (minimum) as follows:
 1. Low evaporator refrigerant pressure
 2. Loss of water flow through the evaporator
 3. High condenser refrigerant pressure
 4. High compressor motor temperature
 5. Low suction gas temperature
 6. Low leaving evaporator water temperature
- B. Failure of chiller to start or chiller shutdown due to any of the above safety cutouts shall be annunciated by display of appropriate diagnostic description at the unit control panel. This annunciation will be in plain English. Alphanumeric codes shall be unacceptable.
- C. The chiller shall be furnished with a Master Controller as an integral portion of the chiller control circuitry to provide the following functions:
 1. Provisions for connection to automatically enable the chiller from a remote energy management system.
 2. The control panel shall provide alphanumeric display showing all system parameters in the

English language with numeric data in English units.

D. Normal Chiller Operation

1. When chiller is enabled, the factory supplied Master Controller modulates the chiller capacity from minimum to maximum as required by building load. Compressor(s) shall be sequenced to start/stop to maintain water temperature.
2. The chiller control system shall respond to Entering Water Temperature and will have an integral reset based on entering water temperature to provide for efficient operation at part-load conditions.
3. Chilled water temperature shall be reset based on outdoor air temperature.
4. Safeties shall prevent chiller operation when such conditions occur.

2.03 CONTRACTOR RESPONSIBILITY

- A. Assemble and install chiller on channels (channels by Contractor, provide vibration isolators under the channels, mechanical and electrical assembly of chiller, disconnect, power and control wiring, mount and wire water flow switch; temperature sensors (return and discharge chilled glycol). Provide and wire outside air temperature sensors, connect BAS control wirings, create software with protocol provided. Provide interface, modem and integration for required remote functions. Coordinate with controls section. Provide flexible pipes.
- B. Contractor shall field assemble and connect cables to modules and wiring within modules.

2.04 START-UP AND GUARANTEES

- A. Provide factory trained technician's services, minimum of (3) days, (8) hours each, start-up and include all such costs in bid price. Include additional (3) days, (8) hours each day time for troubleshooting, controls coordination.

- B. Provide minimum of 12 months guarantee from date of start-up for labor and material. Provide extended 5 year guarantee for compressors replacement.

PART 3 - EXECUTION

3.01 PIPING SYTEM FLUSHING PROCEDURE

- A. Prior to connecting the chiller to the building chilled water loop, the piping shall be flushed with a detergent and hot water (110-130°F) mixture to remove previously accumulated dirt and other organic residue. In old piping systems with heavy encrustation of inorganic materials consult a water treatment specialist for proper passivation and/or removal of these contaminants.
- B. During the flushing a 30 mesh (max.) Y-strainers (or acceptable equivalent) shall be in place in the system piping and examined periodically as necessary to remove collected residue. The flushing process shall take no less than 6 hours or until the strainers, when examined after each flushing, are clean. Old systems with heavy encrustation shall be flushed for a minimum of 24 hours and may take as long as 48 hours before the filters run clean. Detergent and acid concentrations shall be used strict accordance with the respective chemical manufacturers instructions. After flushing with the detergent and/or dilute acid concentrations the system loop shall be purged with clean water for at least one hour to ensure that all residual cleaning chemicals have been flushed out.
- C. Prior to supplying water to the chiller the Water Treatment Specification shall be consulted for requirements regarding the water quality during chiller operation. The appropriate chiller manufacturer's service literature shall be available to the operator and/or service contractor and consulted for guidelines concerning preventative maintenance and off-season shutdown procedures.

3.02 WATER TREATMENT REQUIREMENTS

- A. Supply water for the chilled water circuit shall be analyzed and treated by a professional water treatment specialist who is familiar with the operating conditions and materials of construction specified for the chiller's heat exchangers, headers and associated piping. Cycles of concentration shall be controlled such that recirculated water quality for modular chillers using 316

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stainless steel brazed plate heat exchangers and carbon steel headers is maintained within the following parameters:

1. pH..... Greater than 7 and less than 9
2. Total Dissolved Solids (TDS) ... Less than 1000 ppm
3. Hardness as CaCO3 30 to 500 ppm
4. Alkalinity as Ca CO3 30 to 500 ppm
5. Chlorides Less than 200 ppm
6. Sulfates Less than 200 ppm

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15681

SECTION 15735
PUMPS FOR HVAC

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The Work includes providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all pumps as shown on the Drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this equipment with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than ten (10) years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section, "Special Requirements for Mechanical and Electrical Work", and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section, "Special Requirements for Mechanical and Electrical Work".

1.06 GUARANTEE

- A. Refer to Section, "Special Requirements for Mechanical and Electrical Work".

PART 2 - PRODUCTS**2.01 END SUCTION PUMPS**

- A. The casing and suction head of the pump shall be of cast iron material and end suction, vertical split type. Casing and suction head shall be equipped with 125# ANSI flanges. Pumps shall be assembled on heavy duty fabricated structural steel base plates, which bases must include drip rim with tapped drain connections, which shall be piped to nearest floor drain. The impeller shall be of the enclosed type and shall be bronze. The impeller shall be statically and hydraulically balanced and keyed to the shaft. Efficiency and unit maximum BHP shall be quoted and guaranteed. Maximum head shall occur at and only at the no flow condition. The shaft shall be of steel material and removable shaft and shall be stainless steel. Bearings shall be single row, ball type and oil lubricated.
- B. Pumps shall have replaceable case wear rings.
- C. Stuffing box housing shall be deep enough to allow for a single John Crane type (1) mechanical seal. Each pump shall be flexibly coupled to a motor, Class B, DP enclosure. A flexible coupling with coupling guard shall be used. Except where otherwise noted, bearings shall be grease lubricated. Seals to be capable to withstand system condition for water temperature chemical treatment content as hereinafter specified under "Water Treatment". Provide John Crane cyclone separator to insure clear water flushing of the seal faces.
- D. Pumps shall have capacities as scheduled on the Drawings. Pumps shall be selected to operate at or near their point of peak efficiency thus allowing for operation at capacities of approximately 25% beyond design capacity. In addition, the design impeller diameter shall be selected so that the design capacity of each pump (GPM and TDH) shall not exceed 90% of the capacity obtainable with maximum impeller diameter at the design speed for that model or as approved.
- E. Casings shall be provided with suitable steel lifting lugs.

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- F. Pump shall be drawn down slightly on the foundation bolt nuts. Provide a form or dam around the contour of the bed plate. Pour grout through holes, provided for this purpose, in sufficient quantity to reach a level of 3/4" to 1" above the bottom of the bed plate. Allow grouting to set thoroughly, then proceed with pipe connections.
- G. Install pumps on housekeeping pad and inertia pad with spring isolators in between.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where pumps are to be installed and determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Add concrete under structural members of pump base and grout around the base as required by manufacturer's written instruction.
- C. Coordinate with other work as necessary to interfere installation of equipment with other components of systems.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment and after motor has been energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactory corrected. Refer to Section Test and Balancing.

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- B. All pump casings shall be hydrostatically tested at 1½" times design working pressure. The pump manufacturer shall be responsible for his service department aligning in the field prior to start-up of all flexibly coupled units. Alignment shall be with dial indicator with accuracy of plus or minus .002 inches. The pump manufacturer must submit a written report certifying that the alignment work had been performed by his personnel and that the pumps are ready for operation.

END OF SECTION 15735

SECTION 15736
DUPLEX CONDENSATE PUMPS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all duplex condensate pumps as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 DUPLEX CONDENSATE PUMPS (Low Inlet Type)

- A. Furnish and install where shown on Drawings, horizontal duplex condensate pumps, each consisting of two pumps, two motors, two starters with pilot lights and a single receiver per pump set. Units shall be as scheduled on the Drawings.
- B. The condensate receiver shall be manufactured of cast iron or copper bearing steel over 70 gallons. The receiver shall be equipped with an externally adjustable mechanical alternators, water level gauge, dial thermometer, (2) pressure gauges for pump discharge.
- C. A cast iron inlet strainer with vertical self-cleaning bronze screen and large dirt pocket shall be mounted in the inlet line to the receiver. The screen shall be easily removable for cleaning, requiring no additional space for servicing.
- D. Pumps shall be close coupled vertical design, permanently aligned, bronze fitted and be equipped with stainless steel shaft, enclosed bronze impeller, renewable bronze case ring, and mechanical shaft seal. Each pump shall be close coupled to a vertical drip proof motor. Motor shall have 3500 RPM.
- E. The pump manufacturer shall furnish, mount on the pump unit, and wire a NEMA I sheet metal (plastic not approved) control cabinet with piano hinged door, containing:
 - 1. 2 Combination magnetic starters (each having 3 overload relays) with circuit breakers and cover interlock.
 - 2. 2 "Hand-Off-Automatic" selector switches.
 - 3. 1 Numbered terminal strip
 - 4. 1 Removable control mounting plate
- F. Each pump control circuit shall be completely independent of the other. The mechanical alternator shall (1) change the operating sequence automatically after each cycle, (2) provide simultaneous operation under peak load conditions, and (3) operate the second pump

automatically, should the active pump or its control fail.

1. A control circuit transformer for each circuit shall be provided when the motor voltage exceeds 250 volts. All factory installed wiring shall be numbered for easy identification and the numbers shall coincide with those shown on the wiring diagrams.
2. Pump manufacturer must verify that terminal head sizes are adequate for wire sizes specified.
3. The unit shall be factory tested as a complete unit. The pump manufacturer shall furnish complete elementary and connection wiring diagrams, piping diagrams, installation and operating instructions.
4. Pumps shall be low inlet type as scheduled, suitable for cold condensate.
5. Insulate receiver, pumps, accessories to prevent condensation.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.

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- C. Check alignment and, where necessary (and possible), realign shafts of motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15736

SECTION 15740
WATER TO WATER HEAT EXCHANGERS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all steam to water heat exchangers as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 WATER TO WATER HEAT EXCHANGERS

- A. Furnish and install, where shown on the Drawings, a water to water heat exchanger(s).
- B. Type: Shell and tube, U-bend removable tube bundle, primary water in shell, water to be heated water in tubes.
- C. Materials:
 - 1. Shell - steel
 - 2. Tubes - $\frac{3}{4}$ " O.D. copper
 - 3. Heads - Steel or cast iron
 - 4. Tube Sheets - Steel
 - 5. Tube Supports - Steel
- D. Construction: A manufacturer's data report for unfired pressure vessels, form No. U-1, as required by the provisions of the ASME Code Rules, is to be furnished to the Architect. This form must be signed by a qualified inspector holding a National Board commission certifying that construction conforms to the latest ASME Code for Unfired Pressure Vessels for:
 - 1. 125 psig working pressures
 - 2. 240°F. temperatureas detailed in form No. U-1. The ASME "U" symbol should also be stamped on the converter.
- E. Fouling factor shall be 0.0005.
- F. Capacity of heat exchanger shall be as scheduled on the Drawings.
- G. All gaskets shall be able to withstand Glycol solution.
- H. Heat exchanger shall be Bell & Gossett, Patterson Kelley Yula, or approved equal.
- I. Provide vent, drain, with related piping, valves.
- J. Provide saddles, supports, angles, rods.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, test equipment to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15740

SECTION 15745
AIR HANDLING UNITS (LOW AND MEDIUM PRESSURE)

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all air handling units as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 ROOF TOP AIR CONDITIONING UNITS (COMBINATION GAS HEATING /ELECTRIC COOLING)****A. General**

The unit shall be UL listed, designed for outdoor roof top installation. Completely factory assembled and tested, piped, internally wired, fully charged with R-22, compressor oil and shipped in one piece. Filters, outside air system, gas-fired heating section and all operating and safety controls furnished factory installed and factory tested. Cooling capacity shall be rated in accordance with ARI standard 360, with U.L. approval. All units shall have decals and tags to aid in service and indicate caution areas. Electrical diagrams shall be printed on long life water resistant material ship attached to control panel door.

1. Units shall be complete with 0% to 100% outside air economizer cycles with outside air, return air, relief air dampers, enthalpy controls, outside and return air temperature and humidity sensors, controllers, power exhaust.
2. Units shall be suitable for horizontal side discharge with duct collars.
3. Units shall provide night set back, morning warm-ups, occupied/unoccupied modes, controls.
4. Install units on structural steel with neoprene isolators between steel and unit. Provide supplemental steel as required.
5. Noise levels shall not exceed specified unit noise levels.

B. Casing

Exterior panels shall have a minimum of 1.25 oz. zinc coated per sq.ft. of steel phosphatized and finished with painted finish; screws shall be coated with zinc-plus-zinc chromate. Access panels shall be 18 gauge, screw fastened. Removable access panels with handles shall be for access to control box, provided filter, outside air dampers, evaporator, supply fan sections, gas-fired section and compressor compartment. All access doors

shall have neoprene gaskets. Interior surfaces or exterior casing members in contact with air stream shall have 1" mat-faced fiberglass insulation. One-piece roof assembly curved for natural drainage shall have modified lock seam joints filled with sealant over all but condenser section.

1. Access doors for filter section and fan shall be hinged.

C. Refrigeration System

a. Compressors

Scroll compressors shall have a simple mechanical design with only three major moving parts. Compressors shall be direct-drive, 3600 rpm, with suction gas-cooled hermetic motor. Compressor shall include centrifugal oil pump, oil level sightglass and oil charging valve. Each compressor shall be provided with crankcase heaters installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. Factory installed discharge and liquid line service valves refrigerant line filter drier and thermostatic expansion valve shall be provided for each refrigerant circuit. Lead/lag controls for compressors shall be provided for equal run time of compressors.

D. Evaporator Coil

Seamless copper tubing of 1/2", OD mechanically bonded to heavy-duty aluminum fins of configured design. All coils shall be dual circuited with independent thermal expansion valves and factory pressure and leak tested at 300 psi.

E. Condenser Coil

Configured aluminum fin secondary surface mechanically bonded to primary surface of 3/8". OD seamless copper tubing. Sub-cooling circuit with liquid accumulator shall be standard. Factory tested at 450 psig air pressure. Vacuum dehydrated.

F. Condenser fans and Motors

All condenser fans shall be vertical discharge, direct-drive fans, statically and dynamically balanced with steel blades and zinc-plated steel hubs. Three phase

motors with permanently lubricated ball bearings, built-in current and thermal overload protection, and weathertight slingers over bearings.

1. Provide condenser coil vinyl coated wire mesh screen guards.

G. Supply Fan

All fans shall be statically and dynamically balanced and tested at rated speed after being installed in the factory-assembled units. Fan ratings shall be certified as per ARI 410-72. Supply fans shall be double inlet forward curve fans on a common shaft.

Bearings are to be connected through aluminum tubing to external lubrication fittings located at the drive end of the fan section. The bearings are to be mounted on heavy gauge channel reinforced steel panels which shall form an integral part of the fan section frame. Fan sheels and scrolls are to be protected against corrosion by a two coat baked-on epoxy enamel finish. Bearings shall be self-aligning, grease-lubricated ball bearings sized to provide minimum average bearing life of 200,000 hours. Lubrication fittings shall be provided on exterior of cabinet. Fan shaft shall be continuous diameter, cold finished steel, ground and polished to insure trouble-free operation and tolerances within the recommendations of bearing manufacturers. Adjustable pitch shall be furnished with all motors. Entire assembly shall be completely isolated from unit by two inch deflection spring isolation.

H. Filters

Filters shall be factory installed 2" throw-away filters high efficiency filters. Provide four (4) inch thick high efficiency filters also.

I. Gas Fired Heating Section

Completely assembled and tested factory installed natural gas fired, pilotless, forced combustion type power burner, with corrosion resistant aluminized steel and stainless steel components. Complete gas train with two stage gas heating, shut-off valve, regulating valve shall be provided.

Provide safety controls for the proving of combustion air prior to ignition, and continuous flame supervision. On

initial call for heat the combustion blower shall purge the heat exchanger 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset from thermostat. Extended heat exchanger warranty of five years.

J. 0 to 100% outside air shall be introduced through horizontal louvered intake hood complete with rain lip and bird screen. Provide unit mounted outside air intake motorized damper.

K. Electrical System & Controls

Each roof top AC unit shall be furnished with an electrical disconnect switch. Provide horizontal economizer system and microprocessor controls.

Unit shall be completely factory wired with necessary control and contractor pressure lugs or terminal block for power wiring. Units shall provide an internal location for a non-fused disconnect with external handle for safety. Unit mounted microprocessor controls shall provide anti-short cycle timing for compressors to provide a high level of machine protection.

1. System shall be complete with transformer.
2. Integral microprocessor based controls shall make all heating, cooling, and/or ventilation decisions based on outside air, space air temperature, humidity, safety controls and shall maintain space temperature, ventilation.
3. Communication interface shall be provided to allow all controls, monitoring and alarm function through integrated remote system and communication link, to Trane Co. tracer system. Refer to controls section of specifications and coordinate, integrate all controls for operation, monitoring from central system.
4. Timed override and scheduled start/stop time clock functions shall be provided.
5. Zone sensors with night set back, electronic time clock shall be provided for each unit and integrated in central system.

L. Remote monitoring/control

All controls, monitoring function for system status, temperature controls, resets, temperature controls, resets, failures shall be provided at remote central location. See controls section of these specifications for details and coordinate.

- M. Provide liquid, suction line shutoff valves, factory installed 15 amp GFI outlet, powered from integral transformer. Provide communication interface.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.
- C. Check alignment and, where necessary (and possible), realign shafts of motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15745

SECTION 15760
FANS AND GRAVITY VENTILATORS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all fans and ventilators as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 UTILITY FANS**

- A. Furnish and install utility type centrifugal fans of the sizes and types called for in the equipment schedule and as shown on the plans. All fans shall be rated and tested in accordance with the AMCA test code and shall bear the certified rating label of AMCA.
- B. Fan and motor housings (weatherproof hood) shall be constructed of heavy gauge steel of lockseam construction with Bonderite finish and shall be constructed to permit rotation on the job to any discharge position, in 45 deg. increments. Fan wheels are to be of the type as scheduled on the drawings, except as noted below, with blades riveted to the back plate and inlet shroud. Wheels shall be locked in position on cold rolled steel shaft with a tapered key. Fan bearings shall be of the heavy duty cast iron pillow block grease lubricated type, supported independent of the fan housings. Wheels shall be dynamically balanced at the factory.
- C. Where belt driven fans are indicated in the equipment schedule "V" belt drive shall be of the high capacity type. Fan sheave shall be located outboard of the two bearings supported fan shaft to permit replacement of drives without removing bearings or disturbing position of wheel and shaft. Motor base shall be fully adjustable in all directions to provide for proper drive alignment and to allow for adjustment of belt tension.
- D. All fans shall have integral gravity damper or discharge dampers and damper motors interlocked with fan. Fans 200 cfm and above shall have motorized dampers.
- E. Lab exhaust fans shall be furnished with spark resistant construction, explosion-proof motor, heresite coating on all portions of fan in contact with air stream.
- F. Kitchen hood exhaust fans shall have aluminum wheels, grease tray, shall have angle discharge minimum 40 inches above roof.
- G. All roof-mounted fans shall be completely weatherproof. Provide outdoor covers on motor and drive. Unit to be hot-dip galvanized and painted with an extra coat of zinc chromate iron oxide paint.

2.02 ROOF FANS

- A. Furnish and install the roof fans where indicated on the Drawings.
- B. The fans shall have spun aluminum housings, or sectionalized aluminum housing, nonoverloading sparkproof blades, air cooled motor out of the air stream, sheaves and V-belt drives, electrically operated aluminum draft dampers, and motor disconnect switch, and aluminum bird screen. Damper motors shall have inherent overload protection.
- C. The fans shall have the capacities indicated on the drawings.
- D. Each roof fan shall be furnished with a prefabricated roof curb as hereinafter specified.
- E. Curbs shall be Greenheck, Fiber-Aire as manufactured by Swartwout, Inc. shall be approved equal.

2.03 PROPELLER FANS

- A. The propeller fans shall have the capacities in the schedule on the Drawings. Provide OSHA protective screens for motor and fan.
- B. The propeller fans shall be as manufactured by Clarage Co., Buffalo Forge, American Air Filter, or equal as approved by the Architect.
- C. Provide electrically operated dampers and motors. Damper motor voltage shall be 120 V. Provide transformer if fan motor is 200 or 460 V.

2.04 PREFABRICATED ROOF CURBS

- A. Furnish and install a roof curb for each roof exhaust fan, as indicated on the Drawings. The curbs shall be all aluminum curbs. Insta-Curb as manufactured by Swartwout Fabricators, Inc. shall be approved equal.
- B. All roof curbs for roof exhaust fans shall have fiberglass linings.
- C. All roof curbs shall be insulated, aluminum.
- D. Roof curbs shall be of same manufacturer as roof fans.

2.05 IN-LINE FANS

- A. Furnish and install In-line Centrifugal Fans (direct or belt drive) of size and capacities as indicated on Drawings.
- B. The fans shall be the square shaped and of heavy gauge formed steel. One of the sides shall be hinged and shall support the entire drive assembly (motor only for direct drive fans) and wheel allowing the assembly to swing out for cleaning, inspection or service without dismantling the unit in any way.
- C. For direct drive fans, the motor shall be isolated from the air stream by a motor enclosure and shall draw cooling air from outside the fan housing.
- D. For belt drive fans, the motor shall be mounted on the hinged side exterior isolated from air stream. The belt and pillow block ball bearings shall be protected from air stream by an enclosure. The shaft shall be keyed to both the wheel and pulley.
- E. The fan inlet shall be spun Venturi throat overlapped by a backward curved centrifugal wheel with spun cone for maximum performance.
- F. Air and sound shall be A.M.C.A. certified.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.

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- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.
- C. Check alignment and, where necessary (and possible), realign shafts or motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15760

SECTION 15765
UNIT VENTILATORS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all room terminal units as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 UNIT VENTILATORS****A. General**

Unit ventilator shall be ARI certified or tested by an independent testing and balancing lab witnessed by owner's representative. Non-ARI manufacturers must be within 10 percent of catalog airflow and capacities, or removal of these units from the jobsite will be required at the expense of the manufacturer or contractor.

1. Each ventilator shall be blow-through air configuration.
2. Sound ratings of unit ventilators shall not exceed scheduled unit sound ratings. Noise data shall be submitted for approval.
3. For each vertical unit, 6 inch deep false-back shall be provided by unit ventilator manufacturer for installation of sound attenuator by general construction trade. Construction finish, paintings shall match unit.
4. Each unit shall be single point power connection with transformers for controls, valves, damper wiring, terminal strip.
5. Horizontal unit ventilators shall be supported from building structure with angles, rods, spring isolators.

B. Cabinet

1. Cabinets shall be 16-gauge furniture quality steel, with exposed edges rounded. Provide 14-gauge removable front panels with tamper-proof camlocks. Provide steel bar discharge grilles welded in place as an integral part of unit structure. Insulate internal parts and surfaces exposed to conditioned air stream with moisture resistant insulation. Where ducted inlets or front discharge are shown or required, provide same and coordinate.

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- a. For exposed, horizontal units, integral double deflecting supply air grille and return grille shall be provided.
2. End pockets shall be a minimum of 12-inches wide, 15 inch deep to facilitate piping, conduits and service. If standard end pocket is less than 12-inches wide, an extended cabinet unit shall be provided.
3. Cabinet insulation shall be 1/2-inch thick dual density bonded glass fiber. The exposed side shall be a high density erosion proof material suitable for use in airstreams up to 4500 feet per minute (FPM). Insulation shall meet the following Underwriters Laboratories Fire Hazard Classification:
 - Flame Spread = 20
 - Fuel Contributed = 15
 - Smoke Developed = 0
4. Cabinet accessories shall include a matching steel construction, reinforced for use with unit ventilators. Steel alignment pins, adjustable leveling bolts, kick-plate, and wall filler sections as required.
5. Access for inspection and cleaning of the unit drain pan, coils and fan section shall be provided. The unit shall be installed for proper access. Procedures for proper access, inspection and cleaning of the unit shall be included in the maintenance manual.
6. All steel surfaces shall be phosphatized, cleaned and finish painted of color as selected by Architect. Final finish shall be applied by an electrostatic powder spray system, with a minimum thickness of 1.5 mil with no visible run marks. Each unit shall be supplied in one of seven decorator colors as selected by the architect.

C. Fan Board Assembly

The unit ventilator fan board assembly shall be a single, rigid assembly and includes the fans, fan housings, bearings, fan shaft and motor. The fan motor

shall be mounted on the fan board constructed of 14 gauge galvanized steel.

D. Motors

The motors shall be a single speed permanent split capacitor with thermal overload protection. A multiple tap auto transformer shall be wired to the motor to provide different rpm settings and to ensure rated capacity with all coil combinations. The motor shall also be provided with a quick-disconnect plug and permanently lubricated bearing.

E. Fans

Fans shall be centrifugal forward-curved double width, double-inlet corrosion resistant galvanized wheels, statically and dynamically balanced, direct driven. Fans shall be in the blow-through configuration.

F. Hydronic Coil and Drain Pans

1. Separate, independent heating and cooling coils shall be provided for four pipe systems. All hydronic coils shall be plate fin type and manufactured by the unit ventilator manufacturer. All coils are to be proof and leak tested. The proof test must be performed at 1.5 times the maximum operating pressure and the leak test at the maximum operating pressure. Standard four pipe heating coil shall be in the preheat location. A drain pan shall be provided under the cooling coil, with drain connection. Drain pan shall be easily removable for cleaning.
2. The drain pan shall be constructed of galvanized steel and insulated to prevent sweating. The bottom of the drain pan shall be sloped in two planes which pitches the condensate to the drain connection. The drain pan, when the unit is installed and trapped per the manufacturers installation manual, shall be designed to leave puddles no more than 2-inch in diameter and no more than 1/8-inch deep no longer than 3 minutes following step 3 of the following test. The test steps are:
 - a. Temporarily plug the drain pan.

- b. Fill the drain pan with 1/2" of water or the maximum allowed by the drain pan depth, whichever is smaller.
- c. Remove the temporary plug.

G. Filters

Each unit shall be equipped with a single 1-inch thick, throwaway or permanent, filter accessible without removal of the unit front panel.

H. Fresh Air / Return Air Dampers

1. Units shall use dual blade with a compressible seal, capable of varying proportion of mixed air from 100 percent room air to 100 percent outside air. On floor mounted units, Ultra low leak damper seal made of closed cell EPDM material shall be provided. Leakage shall be less than 1 percent against 0.5 inches external static pressure.
2. Damper shall contain a continuous divider placed between the damper blades to separate the fresh air and return air compartments to prevent blow-through.
3. Units with outside air shall have minimum and maximum outside air set points.
4. All dampers shall be complete with motors, linkages, shall have minimum outside air, maximum outside air stops.
5. Modulating ASHRAE-II controls shall be provided.

I. Direct Digital Controls

This system shall utilize factory furnished and mounted DDC controls for operation of the unit ventilators. Each unit shall be connected to Tracer system for remote start/stop, temperature, timed operation, monitoring, alarm and controls functions, through communication wiring. The unit shall be UL listed. The following options shall be provided with DDC control:

- Valve control
- Damper controls
- Economizer

- Night setback
- Morning warm-up
- Low limit thermostat
- Mixed air and discharge sensing
- Fan, filter status switch
- Timed override
- Integrated Comfort™ system capabilities

J. Wallboxes

1. Wallboxes shall provide year-around moisture free, outdoor air intake directly to the unit ventilator through the exterior wall. Contractor shall provide ductwork, sleeves, extension as required for air intake.
2. Wallboxes shall be constructed of extremely heavy gauge material and designed to last the life of the building. Internal parts shall be interlocked in addition to being held securely in place by the frame-within-a-frame design for proper louver alignment. Wallboxes shall contain a 1/2-inch square mesh galvanized screen in back of the louver.

K. Each unit shall have DDC, modulating valve package with shut-off valve, circuit setters, control valves, P/T ports for each coil. Valves shall be wired from unit power.

L. Integrate unit ventilators with central control system for start/stop, controls, monitoring functions as described under controls sections and provide devices, wiring as required.

M. Sound Ratings

1. Sound ratings of unit ventilators shall not exceed following. Certified, factory generated sounds ratings shall be provided for review.

Vertical Unit Ventilator Sound Ratings

Octave Band	1	2	3	4	5	6	7	8
Center of Frequency	63	125	250	500	1000	2000	4000	8000
100 Low Speed	52	65	57	52	47	43	35	25
125 Low Speed	55	64	60	56	50	47	40	31

150 Low Speed	54	70	60	56	49	44	37	29
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Horizontal Unit Ventilator Sound Ratings

Octave Band	1	2	3	4	5	6	7	8
Center of Frequency	63	125	250	500	1000	2000	4000	8000
100 Low Speed	59	61	55	54	43	45	38	29
125 Low Speed	65	67	61	62	55	50	44	36

2. Additional attenuation shall be provided by sound attenuators for unit ventilators, fan coils as per sound attenuators in false-back per general construction trade.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.
- C. Check alignment and, where necessary (and possible), realign shafts of motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field

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correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15765

SECTION 15767
FAN COIL UNITS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all room terminal units as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 FAN COIL UNITS**

- A. Units: Basic unit shall include chassis, cooling coil, hot water heating coil, heavy density faced glass fiber insulation, air blockoffs around coils, removable fan board/drain pas assembly, auxiliary drain pan, fans housings, motor and filter. Chassis shall be of 18 gauge galvanized steel with flanged edges. Unit capacity shall be as scheduled on the Drawings. Unit shall be phosphatized, finish painted with baked on powder paint of color as selected by Architect. Unit shall be thermally and acoustically insulated with closed-cell insulation. Front panels shall be 16 gauge. Integral discharge grille shall be recessed in cabinet to resist condensate for vertical units. Flush, hinged top access door, 20 gauge galvanized steel shall be provided.
- B. Water Coils: Separate Hot Water and chilled water coils for four (4) pipe systems shall have 3/4" O.D. seamless copper tubes mechanically bonded to configured aluminum fins with continuous fin collars and sleeved coil end supports. Maximum working pressure 300 psig, factory burst test 450 psi (air) and leak test 300 psi (air under water). Coils shall have female sweat connections to accept 3/8" copper tubing.
- C. Drip Pans: Horizontal main drain pans shall be galvanized steel. Drain pan insulation shall be one-piece, self-extinguishing polystyrene foam insulating liner. Auxiliary drainpan shall be provided.
- D. Fans: Fan wheels shall be aluminum, centrifugal, forward curved, double width thermoplastic material. Fan housings shall be of sheet metal. Wheels and housings shall be non-corrosive.
- E. Motor: The motor shall have integral thermal overload protection and start at 78% of rated voltage. The motor shall operate satisfactorily at 90% of rated voltage of all speed settings and at 10% overvoltage without undue magnetic noise. Temperature rise by winding resistance method shall not exceed 55°C. (PSC). Motor shall be 3-speed permanent split capacitor type. The motor shall be factory run tested in assembly unit prior to shipping. The motor cord shall be quickly detachable at switch box by locking pronged connector.

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- F. Filter: The filter shall be concealed from sight and removable without displacing front panel. The filter shall be throwaway type of woven glass fiber.
- G. Fresh Air Dampers: Fresh air damper in fresh air opening shall be factory installed. Dampers shall be 18 gauge. Fresh air opening shall be sealed off with gasket. Damper shall allow 0% to 100% outside air, with minimum, maximum set points, adjustable, motorized type.
- H. Controls: The fan coil manufacturer shall furnish a factory wired unit mounted control system that includes a manually-operated fan motor three speed plus off switch, combined with a 4-pipe automatic changeover thermostat in a common junction box and electronic control valves. The speed switch and thermostat shall be unit mounted below discharge grille access door.
- I. For each unit, fan coil unit manufacturer shall provide 6-inch deep false-back for installation of sound attenuator by general construction trade. Construction, finish, painting shall match units.
- J. Direct Digital Controls

This system shall utilize factory furnished and mounted DDC controls for operation of the fan coil units. Each unit shall be connected to Tracer system for remote start/stop, temperature, timed operation, monitoring, alarm and controls functions, through communication wiring. The unit shall be UL listed. The following options shall be provided with DDC control:

- Valve control
- Damper controls
- Economizer
- Night setback
- Morning warm-up
- Low limit thermostat
- Mixed air and discharge sensing
- Fan, filter status switch
- Timed override
- Integrated Comfort™ system capabilities

K. Wallboxes

- 1. Wallboxes shall provide year-around moisture free, outdoor air intake directly to the unit ventilator through the exterior wall. Contractor shall

provide ductwork, sleeves, extension as required for air intake.

2. Wallboxes shall be constructed of extremely heavy gauge material and designed to last the life of the building. Internal parts shall be interlocked in addition to being held securely in place by the frame-within-a-frame design for proper louver alignment. Wallboxes shall contain a 1/2-inch square mesh galvanized screen in back of the louver.

- L. Each unit shall have DDC, modulating valve package with shut-off valve, circuit setters, control valves, P/T ports for each coil. Valves shall be wired from unit power.
- M. Integrate fan coil units with central control system for start/stop, controls, monitoring functions as detailed under controls section and provide devices, wiring as required.
- N. Sound Data

Fan coil unit sound shall not exceed following sound ratings:

1. Medium Speed

	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Total Noise	55 dB	58 dB	38 dB	54 dB	50 dB	45 dB	38 dB	31 dB

2. Low Speed Sound

	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Total Noise	50 dB	52 dB	51 dB	48 dB	42 dB	36 dB	26 dB	22 dB

3. Contractor shall submit sound data at low and medium speeds.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and

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notify architect in writing of conditions detrimental to proper and timely completion of the work.

- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.
- C. Check alignment and, where necessary (and possible), realign shafts of motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirement. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15767

SECTION 15770
UNIT HEATERS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all unit heaters as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Manufacturing firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 UNIT HEATERS**

- A. Furnish and install, where shown on the plans, propeller type unit heaters of size and type as indicated on the plans. All ratings shall be based on tests in accordance with the Standard Test code adopted jointly by the Industrial Unit Heater Association and the American Society of Heating and Ventilating Engineers.
- B. The casing shall be made of die formed steel parts, phosphatized for rust resistance, and finish with baked enamel. All hardware, both internal and external, shall be cadmium plated for rust resistance.
- C. The fan blades shall be specially designed for unit heater application, and quiet operation, and shall operate in a die formed steamlined inlet. Wheels shall consist of die formed aluminum blades riveted to die formed steel spiders. Small sizes may be one piece aluminum construction. Unit heater shall have adjustable discharge louvers.
- D. Unit heaters shall be properly supported from building construction with $\frac{1}{2}$ " diameter hanger rods and braced as required to prevent sidesway.
- E. Motors used on either horizontal or projection type unit heaters shall not exceed 1750 RPM, and shall be designed for continuous operation at a temperature rise of not more than 55 deg. C. above the ambient temperature. Motor bearings where difficult to reach, shall be provided with extended oil or grease tubing.
- F. Provide on-off switch with thermal overload for single phase motors. Provide remote line voltage thermostat, transformer.

2.02 HOT WATER UNIT HEATERS

- A. Coil shall be constructed of nonferrous fins mechanically bonded to copper tubes. Suitable means for tube expansion shall be provided by tube bends or by provision for entire coil to move inside casing. All coils shall be given 500 pound hydrostatic and 100 pound air tests by the manufacturer before assembly.

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PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, energized with normal power source, test equipment to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15770

SECTION 15790
UNDERGROUND PIPING CONDUIT SYSTEMS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Sections is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all underground prefabricated insulated pipe conduit systems to supply chilled water, as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Only firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years shall be acceptable.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

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1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 UNDERGROUND CHILLED WATER LINES

PREFABRICATED, PREINSULATED PIPING SYSTEM

- A. Provide piping system of the prefabricated type. Installation, maintenance, testing, and repair requirements shall be in accordance with the manufacturer's instructions, supplemented and amended as specified herein and as indicated on the Contract Drawings.
1. Piping shall be "Ferro-Therm PTS" as manufactured by Perma-Pipe.
 2. Piping shall comply with ANSI Standards.
- B. The prefabricated piping system shall be structurally strong, sufficient to withstand Highway H-20 Loading, completely waterproof, and entirely resistant to attack by salts, water, and all ground chemicals normally encountered in underground environments.
- C. Product Pipe
1. Chilled Water Service
 - a. Pipe up to and including 10 inch:
ASTM A53B, sch 40, ERW black steel with ends prepared for butt-welding in the field.
 - b. Fittings:
Fittings shall match pipe in wall thickness.
- D. Outer Jacket:
- The outer protective insulation jacket shall be seamless high-density polyethylene (HDPE) in accordance with ASTM D1248, Type 3, Class C. PVC or tape materials are not allowed. The minimum thickness of the HDPE jacket shall be as follows:

<u>Jacket OD (in)</u>	<u>Minimum Jacket Thickness (in)</u>
OD < 12	0.125

- E. Insulation: Insulation shall fill the annular space between the pipe and the jacket with rigid polyurethane conforming to ASTM C591, with a nominal 2 lbs/ft³ density. 'K' factory shall not be greater than 0.13 BTU/hr/'F/ft³ @ 73°F. Insulation shall have a closed cell content of 90-95%, and sufficient compressive load characteristics to enable entire system to withstand Highway H-20 Loading with 2'0" depth of cover, minimum, unless otherwise indicated. Insulation shall be factory applied to the piping via automatic dispensing equipment having all temperature, humidity and volume factors per unit integrated into its application calculation. Insulation thickness shall be 2-inches.
- F. Fittings shall be factory-fabricated assemblies shipped to the jobsite as a unit consisting of steel fitting, insulation and outer jacket. Jacket for fittings shall match the jacket for unit lengths. The molded jacket for fittings shall be seamless and no mitering, taping, gluing, or shrink-wraps shall be allowed.
- G. The field joints shall be sealed with the provision of the pressure testable joint closure. The closure shall be an electro-fused split sleeve HDPE joint. The completed joint shall be air tested at 5 psi for 5 minutes while simultaneously soap testing the joint closure seams for possible leaks. All joint closures and insulation shall occur in straight sections. No field insulation and jacketing of fittings will be allowed. Field joint air-testable closure will be applied only after hydrostatic testing of product pipe and application of the insulation.
- H. Terminal ends of the system piping shall be provided with factory installed end seals sealed to the jacket and the pipe. End seals shall be certified as having passed a 20-foot head pressure test.
- I. Buried Utility Warning and Identification Tape: Provide plastic tape manufactured specifically for warning and identification of buried piping.
1. Warning and identification shall be CAUTION-BURIED PREINSULATED WATER PIPING BELOW or similar.
 2. Use permanent code and letter coloring unaffected by moisture and other substances contained in trench backfill material.

3. Bury tape with the printed side up at a depth of 12 inches below the top surface of earth or the top surface of the subgrade under pavements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Piping Systems: Installation of piping systems includes equipment, materials, installation, workmanship, examination, inspection and testing. Provide proper facilities for lowering sections of pipe into trenches. Do not, under any circumstances, drop or dump pipe, pipe fittings, valves, or any other water piping material into trenches.
1. Field assembly shall be in accordance with the manufacturer's written instructions and installation procedures, as approved.
 2. Deviations will not be permitted except as specifically authorized in writing by the Engineer.
 3. Install piping straight and true to bear evenly on sand bedding material. Cut pipe accurately to measurements established at the site. Work into place without spring or forcing.
 4. Minimum depth of cover shall be 2 feet, unless otherwise indicated. Grade the pipeline in straight lines, taking care to avoid the formation of dips or low points. Support pipe at its proper elevation and grade, taking care to secure firm and uniform support. Wood support blocking will not be permitted. Lay pipe so that the full length of each section of pipe and each fitting rests solidly on the pipe bedding.
 5. Keep trenches free of water until joints have been properly made. Do not lay pipe when conditions of trench or weather are unsuitable.
- B. Cleaning of Piping: Keep the interior and ends of new piping and existing piping affected by the Contractor's operations thoroughly cleaned of water and foreign matter. Clean pipe, fittings, valves and accessories before placing in position. Keep piping systems clean during installation by means of plugs or other approved methods. When work is not in progress, securely close

open ends of pipe and fittings to prevent water and foreign matter from entering the pipes and fittings.

- C. Inspection of Piping Systems: Inspect piping before placing into position. Pipe, pipe fittings, valves and accessories will be carefully inspected before and after installation.
- D. Demolition: Carefully remove materials so as not to damage material which is to remain. Replace existing work damaged by the Contractor's operations with new work on the same construction.
- E. Field Supervision: A qualified factory trained supervisor, employed by the prefabricated, preinsulated piping manufacturer, shall be present to instruct Contractor's Tradesmen in the correct installation technique of the prefabricated piping.

3.02 EXCAVATING, BACKFILLING, AND COMPACTING

- A. Provide all required excavation, backfilling, and compacting under this Section and as designated on the Contract Drawings.
- B. All concrete, roadway and other surfaces (including the foundations thereof) either adjacent to or not adjacent to the line of the Project that may have become damaged, directly or indirectly, as a result of the Contractor's operations, shall be restored by the Contractor at his own cost and expense to a condition similar to an equally as good as that existing previous to the commencement of construction.
- C. Coordinate with existing utilities, piping, conduits, manholes, oil tanks. Be extra cautious during excavation, not to damage existing work. Any damage shall be repaired immediately by Contractor at his own expense.

3.03 DELIVERY, STORAGE, AND HANDLING

- A. Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Do not store materials directly on the ground. Keep inside or pipes and fittings free of dirt, water and debris.
- B. Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound

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undamaged condition. Avoid contact with water, keep preinsulated pipe clean and dry at all times during the storage and installation of the pipe. Pipe exposure to water inside the trench and/or during storage shall be avoided. Take special care to avoid injury to coatings and linings on pipe and fittings; make satisfactory repairs if coatings or linings are damaged. Carry pipe to the trench; do not drag it.

END OF SECTION 15790

SECTION 15801
HVAC SPECIALTIES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all HVAC Specialties as shown on the Drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacturer of this equipment with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than ten (10) years.
- B. Provide products produced by the manufacturers, which are listed in Section entitled "Approved Manufacturers List".
- C. Provide equipment whose performance under specified conditions is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section entitled "Special Requirements" for mechanical and electrical work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section "Special Requirements" for mechanical and electrical work.

1.06 GUARANTEE

- A. Refer to Section "Special Requirements" for mechanical and electrical work.

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PART 2 - PRODUCTS

2.01 THERMOMETERS

- A. Furnish and install, where indicated on the Drawings, at inlet and outlet piping to boilers, chillers, heat exchangers and elsewhere as shown, and where specified herein, separable well-type dial or 9" mercury adjustable angle type in glass stem, thermometers as manufactured by American, Trerice, Weksler, Weiss or approved equal.
- B. All thermometers shall be installed in such a manner as to cause a minimum of restriction to flow in the pipes and so that they can easily be read from the floor.
- C. Dial thermometers shall be 5 inch hermetically sealed, bimetal with stainless steel cases, antiparallax dials with raised jet black figures, stainless steel stems, and brass separable sockets unless otherwise specified. Thermometers for duct mounting shall have union connections in lieu of separable sockets. Separable wells shall be stainless steel for steel pipe and brass for copper pipe. Separable wells shall be standard type for uninsulated pipe and logging extension type of proper length for insulated pipe. Stem shall extend a minimum of 2½" into the fluid.
- D. The accuracy of all thermometers shall be within 1% of the scale range.
- E. All instrument wells for controls and indicators furnished by the temperature control manufacturer shall be installed under this Section.
- F. Where conditions are such that thermometers would not be readable from the floor, remote bulb dial thermometers shall be mounted on panelboards. The thermometers shall be 5 inch dials and shall be vapor actuated. The thermometers shall have separable wells. Panel mounted thermometers shall be provided with an engraved nameplate mounted below each thermometer to identify its service. The nameplates shall be chrome plated with black filled letters.
- G. A thermometer shall be installed in the hot water inlet and outlet of each heat exchanger. A thermometer shall be installed in the chilled water inlet and outlet of each refrigerator machine. Additional thermometers shall be installed where indicated on the Drawings.

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H. The scale range for the thermometers shall be as follows:

<u>Service</u>	<u>Temperature Range</u>	<u>Remarks</u>
Hot Water	30° to 300° F	
Chilled Water	0° to 120° F	

2.02 PRESSURE GAUGES

- A. Furnish and install where indicated on the Drawings in inlet and outlet piping to boilers, chillers, heat exchangers and elsewhere as shown, and where specified herein, Bourdon spring type pressure gauges as manufactured by U.S. Gauge, Weksler, Trerice, Marsh, Ashcroft, or approved equal.
- B. All gauges shall be installed so as to be easily readable from the floor. Where conditions are such that gauges on piping would not be readable from the floor, the gauges shall be installed on panelboards.
- C. The gauges shall have dull, black enamel cast aluminum casings with chrome plated bezels or rims. The gauges shall have white faces with black filled engraved numerals and adjustable pointer. The diameter of the dial shall be not less than 4½ inches. Gauges shall have brass bronzed brushed rotary type movement.
- D. Panel mounted gauges shall be designed for flush mounting with back connections and shall be provided with an engraved nameplate mounted below each gauge to identify its service. The nameplates shall be chrome plated with black filled letters.
- E. Differential pressure switches, pressure sensing pipe taps, furnished by temperature control manufacturers shall be installed under this Section.
- F. The accuracy of all gauges shall be within 1% of the scale range.
- G. All gauges on water lines shall be fitted with filter type pressure snubbers consisting of ¾" dia. x ¼" thick, micro metallic stainless steel filter, as manufactured by Operating and Maintenance Specialties or approved equal.
- H. A pressure gauge shall be installed in the suction and discharge of each hot water, and chilled water pump. A pressure gauge shall be installed in the chilled water inlet and outlet of each refrigerating machine. A pressure gauge shall be installed in the inlet and outlet

of each heat exchanger. Additional pressure gauges shall be installed where indicated on the Drawings.

I. The scale range of pressure gauges shall be as follows:

<u>J. Service</u>	<u>Pressure Range</u>
Chilled Water	0 to 100 psig.
Hot Water	0 to 100 psig.
Discharge side of Water Pressure Reducing Valve	0 to 100 psig.

K. All other pressure gauges shall have a range at least twice the working pressure, but in no case less than 0 to 30 lbs. A ball valve shall be installed on the water side of each gauge.

2.03 MACHINERY GUARDS

- A. Moving parts of machinery exposed to contact by personnel shall be guarded by barrier to a type which complies with OSHA Code.
- B. Exposed moving parts such as belts and couplings shall have not less than $\frac{3}{4}$ " No. 16 gauge metal guards with all edges rounded and gauge, material and construction shall be in accordance with OSHA standards - paragraphs 7173.3, 7173.5 and 7174.1. Guards shall have $1\frac{1}{4}$ " x $1\frac{1}{4}$ " x $\frac{1}{8}$ " angle iron frame properly supported.
- C. All machinery guards covering the ends of motor or equipment shafts shall have openings for the insertion of a tachometer. Machinery guards shall be painted with two coats of machinery gray enamel.

2.04 EXPANSION TANKS

- A. Furnish and install as shown on the Drawings, EX-TROL Pressurized Diagram Type Expansion Tanks as manufactured by AMTROL INC. It shall be air precharged to the initial fill pressure of the system. It shall be suitable for a maximum working pressure of 125 psi and shall be furnished with ASME stamp and certification papers. It shall have a sealed-in elastomer diaphragm suitable for an operating temperature of 240° F. (EX-TROL to be furnished with saddles for horizontal installation).

2.05 EXPANSION LOOPS, ANCHORS AND GUIDES

- A. Provisions for expansion in piping mains, branches, and risers shall be made by the installation of offsets, expansion loops, as indicated on the Drawings and as required. Every 100'-0" horizontal hot water piping shall have expansion loop and anchors. Minimum loop shall be 8'-0" by 6'-0" if not indicated on the Drawings.
- B. All piping with loops shall be anchored so as to throw all expansion toward the loops.
- C. Guides shall be installed on both sides of each expansion loop. Guides shall be Flexonics pipe alignment guides or approved equal. Anchors and guides shall be secured to beams, columns or concrete slabs.
- D. Pipe hangers and rollers are not considered guides.
- E. Provide 12" long guides for each expansion joint. Guides shall be located 3'-0" on each side of the expansion joints.
- F. Furnish and install as shown on plans, or where necessary to absorb max. 1 $\frac{3}{4}$ " expansion and max. $\frac{1}{4}$ " contraction between two anchor points in copper lines, up to and including 2 $\frac{1}{2}$ ", Flexonics Model HB Expansion Compensators having two-ply phosphor bronze bellows and brass shrouds and end fittings, as manufactured by Flexonics Division of Calumet and Heela, Inc., Bartlett, Illinois. All internal parts shall be of non-ferrous metals. Service pressure shall be external to the bellows. Compensators shall have internal guides extending the full length of the bellows travel. Compensators shall have internal positive anti-torque devices to prevent twist or torque on installation and shall have properly located positioning clip to insure installation of correct end-to-end dimension to allow full rated traverse. Compensator shall be for max. 125 psig. working pressure. Test pressure shall not exceed 175 psig.
- G. Furnish and install as shown on plans, or where necessary to absorb max. 1 $\frac{3}{4}$ " expansion and max. $\frac{1}{4}$ " contraction between two anchor points in iron and steel pipe lines up to and including 2 $\frac{1}{2}$ ", Flexonics Model II Expansion Compensators having two-ply stainless steel bellows and carbon steel shrouds and end fittings, as manufactured by Flexonics Division of Calumet & Heela, Inc., Bartlett, Illinois. Service pressure shall be external to the bellows. Compensators shall have properly located positioning clip to insure installation at correct

end-to-end dimension to allow full rated traverse. Compensator shall be for Max. 150 psig. working pressure. Test pressure shall not exceed 200 psig.

- H. Manufacturer shall note on all submittal forms the resultant anchor loads due to pressure thrust and compressive forces at design conditions. Expansion joints shall be as manufactured by ADSCO, Zallea, Flexonic, or approved equal.

2.06 DRAFT GAUGES

- A. Furnish and install at each filter, draft gauges for measuring the resistance of the air through the filters.
- B. Each draft gauge shall be an inclined tube differential type for indoor units, equipped with a shut-off cock opening to atmosphere for checking zero setting, and with a shut-off cock in the lines to points where the draft is measured. The scale shall have a white background with heavy black divisions and figures; shall not be less than 8" long, and shall be graduated to read by hundredths of an inch up to resistances to be encountered. Each gauge shall be provided with a bubble level gauge and with screw adjustment for zero settings.
- C. Draft gauge for rooftop units and outdoor units shall be 2000 Series Magnehelic as made by Dwyer or approved equal. Gauges shall be provided complete with two static pressure tips case, fittings and means of mounting. Scale shall be as required. Set gauges to be easily readable from floor level. Gauges shall be of Dwyer make or approved equal.

2.07 AUTOMATIC FLOW-CONTROL VALVES

- A. The Contractor shall provide and install for each unit ventilator, one "Autoflow" model FVT or Griswold compact pressure compensating flow control valves in one piece configuration consisting of ground joint union and flow control valve and Petes plugs. Petes plugs shall be provided on both sides of condensor flow heat pumps only.
- B. All valves are to be factory set to control the flow rate within 4% of the selected rating over an operating pressure differential of at least ten times the minimum required for full flow conditions.

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- C. The valves shall be all metal with threaded or sweat connections. Metallurgy shall be all brass and stainless steel.
- D. Performance certification of valves by an independent laboratory shall be furnished.
- E. All valves shall have unions to allow field-exchange of internal components without removing the valve body from the pipeline.
- F. All valves shall be permanently marked to show direction of flow and flow rates.

2.08 AIR VENTS, DRAINS

- A. In installing water piping systems and all equipment, carefully plan the actual installation in such a manner that high pints and air pockets are kept to a minimum and are properly vented where they are unavoidable. All air elimination devices called for on the Drawings and in these Specifications shall be provided and properly installed. In addition, furnish and install all other air elimination devices which may be required due to job conditions. Assume responsibility for a proper, continuous and automatic air elimination to assure even and balanced distribution of water to all equipment.
 - 1. Provide air vents at all high points in closed chilled water, hot water system piping, in piping to each coil, equipment.
- B. Furnish and install an Armstrong No. 1 AV or Sarco 13W automatic air vent with test petcock at each high point in the water piping mains and where indicated on the Drawings. Furnish and install a 125 psig rated valve on the system side of each automatic air vent. Vents on hot water, dual temperature water and chilled water lines shall have Hoke Fig. No. PY-271 valves or approved equal. Vents on all other waterlines shall have Hoke Fig. No. RB-271 valves or approved equal.
- C. Furnish and install manual air vents Hoffman No. 500 or approved equal, for all upfed radiation. Furnish and install a 125 psig rated ball valve on the system side of each manual air vent. Provide access to all air vents.
- D. Provide valved drains with caps and hose-bibb adapters at all low points in closed hot water and chilled water system piping and at all equipment, coils.

2.09 AIR SEPARATORS

- A. Furnish and install full line size, air separators for water system where indicated on the Drawings. The separators shall be Rolairtrol, as manufactured by Bell and Gossett or equal as approved by the Architect.
- B. The units shall be of ASME construction and shall be stamped 125 psig W.P.
- C. The units shall be furnished without integral strainers.
- D. The units shall be installed in strict accordance with the manufacturer's recommendations.
- E. The units shall be supported on 2" pipe legs and shall be provided with a ¾" drain gate or ball valve with hose end and cap.

2.10 COMBINATION BALANCING AND SHUT-OFF VALVES (CIRCUIT SETTERS)

- A. Valves shall be circuit setter/circuit setter-plus as manufactured by Bell & Gossett.
- B. Valves shall be bronze body (up to 3") with brass ball or cast iron body (4" and above) with bronze disc with EPDM insert. Valves shall be precisely calibrated for balancing and shut-off service, complete with retainable memory stop. Readout port with valves shall be provided as integral part of valve assembly.
- C. Valves shall be rated for minimum of 200 PSIG pressure, 250°F temperature and shall be used for water service.
- D. Provide readout kits, suitable for flow, temperature and pressure of system it is installed and turn over to owner for owner's use.

2.11 TRIPLE DUTY VALVES

- A. Valves shall be heavy duty type, minimum 175 PSI working pressure and rated for 250°F temperature, as manufactured by Bell & Gossett.
- B. Seats shall be bronze with replaceable bronze disc, EPDM seat.
- C. Valves shall perform functions of non-slam check valve, balancing valve and shut-off valve.

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- D. Valves shall be calibrated, with retainable memory stop for balancing, equipped with brass read-out valve. Read-out kits shall be provided.

2.12 SUCTION DIFFUSER

- A. Furnish and install suction diffuser at inlets of pumps. Suction diffusers shall be angle pattern with flow straightening fittings and combination diffuser-strainer cylinder and adjustable support foot.
- B. Suction diffusers cylinders shall have free areas equal to five times cross-section area of pump suction opening.
- C. Suction diffusers shall be cast iron body, minimum 175 PSI rated, stainless steel strainer mesh.

2.13 V-BELT DRIVES

- A. All V-belt drives furnished under this Section shall be Gates Rubber Co., Woods, or approved equal. Drives shall be designed with an overload factor of twice the fan brake horsepower but in no case less than 125% of motor horsepower rating. Machined cast iron pulleys shall be used. Manufacturer's shop drawings shall state actual transmission capacity of each drive. Provide companion sheaves for adjustable sheave drives. Companion sheaves shall be selected such that the individual belts shall not exceed a two degree misalignment of the groove centerlines between the driving and driven sheaves. Sheaves shall be complete with flanges and locking devices. All sheaves shall be selected with a 1.5 minimum service factor.
- B. Provide matching belts.
- C. All motors up to 3 HP shall have variable speed drives.
- D. All motors 10 HP to 25 HP for speeds below 1000 RPM shall have variable speed drives.
- E. Provide fixed drives above 1000 RPM for 10 to 25 HP and for all units above 25 HP.

2.14 STRAINERS FOR WATER SYSTEM

- A. Furnish and install a full size Y-pattern strainer on the inlet of each control valve and each water pump, where indicated on the Drawings.

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- B. The strainers shall be as manufactured by Spence, Sarco, Barnes and Jones, Elliott, Crane or Mueller.
- C. All strainers, except where otherwise noted, shall have bronze body up to 2½", semi-steel above 2½", rated at 125 psig for all systems with 50 psig max. pressure and 250 psig for all others. Strainers 2 inch diameter and smaller shall have screwed ends. Strainers 2½ inch diameter and larger shall have flanged ends.
- D. All strainers shall have removable cylindrical or conical screens of brass construction. They shall be designed to allow blowing out of accumulated sediment and to facilitate removal and replacement of the screen without disconnecting the main piping.
- E. Screens for water 1/16" for 3" inclusive, 1/8" for 4" and above.
- F. An approved blow-out connection with gate valve shall be made to each strainer. The valves shall be located not higher than 8 feet above the floor. All drain connections shall be piped to floor drains.

2.15 REDUCING AND SAFETY VALVES FOR WATER SYSTEM

- A. Furnish and install pressure reducing and safety valves for makeup water systems and where indicated on the drawings.
- B. The reducing valve shall be Model 7 pressure reducing valve with field adjustable setting as manufactured by Bell & Gossett or equal as approved by the Architect.
- C. The safety valves shall be of size and capacity as indicated on the Drawings. The valves shall be made by Bell and Gossett or approved equal and shall have 150 pound raised face flange on the inlet and discharge for all sizes 2½" and above 2" and below shall be screwed.
- D. The safety valves shall be steel valves with stainless steel trim. The bonnet shall be enclosed and equipped with a packed lifting lever. The spring shall be carbon steel rated for 450° F.
- E. The vertical discharge line from the safety valves shall be installed as close to the safety valves as possible and piped to drain.

2.16 PRESSURE AND TEMPERATURE TEST STATIONS

- A. Furnish and install in each supply and return runout to each coil and where indicated on the Drawings, a ¼" MPT fitting to receive either a temperature or pressure probe ⅜" OD. Fitting shall be solid brass with valve core of Nordel (Max. 275°F.), fitted with a color coded and marked cap with gasket, and shall be rated at 1000 psig.
- B. In addition, the installing contractor shall supply the Owner with six pressure gauge adapters with ⅜" OD probe and 6 five inch stem pocket testing thermometers; 25-125°F for chilled water and six 50-500°F for hot water.
- C. Provide two pressure and temperature test kit consisting of one 0-150 PSI, water pressure gauge and one 0-30 psi water pressure gauge each with No. 500 gauge adapter attached, a 25-125°F. pocket testing thermometer, a 0 to 220°F. pocket test thermometer, a No. 500 gauge adapter, and a protective carrying case. Provide one additional 0-60 psi pressure gauge and one additional 0 to 30 psi pressure gauge.
- D. Test kit shall be used by the Balancing Contractor to balance the systems and then it shall be turned over to the Owner.
- E. Test stations and test kit shall be manufactured by Paterson Engineering Company, Inc. or approved equal.

2.17 FLOW MEASURING DEVICES

- A. Provide complete Venturi flow measuring system as manufactured by Barco Division, Aeroquip Corp., or approved equal.
- B. This shall be a coordinated system, including Venturi flow stations and portable master meter, supplied by one manufacturer. Each Venturi station shall be complete with pressure tap nipples, quick disconnect valves and safety shut-off valves, indented metal identification tag on chain, giving pipe size, Venturi series, station identification, and meter reading at specified flow rate. Venturi stations shall be one piece brass screwed ½" through 2". Sizes 2½" through 8" shall consist of plated cast iron Venturi insert held between specially machined self-centering 150# steel weld neck units. Sizes 10" and larger shall be fabricated steel plated, with welding ends. Venturi size and series shall be selected so that

design flow rate shall be between 10" and 40 inches of water pressure differential on a 0-50" meter with permanent pressure loss of not more than 10% indicated flow rate differential pressure. Minimum flow rates of 2½ FPS are permissible. Venturi stations shall be compatible with temperatures and pressure of the system.

- C. Master meter shall consist of 6" round dial, dry type meter supplied with scale reading zero to 50 inches of water differential pressure and shall be mounted in a portable water and rot-proof fiberglass carrying case complete with 10 ft. lengths of ¼" high pressure high temperature connecting hose, quick disconnect socket valves, venting valves, installation and operating instructions and capacity curves. Master meter shall become property of the Owner.
- D. Upstream pipe diameters of straight pipe shall be five (5) minimum and downstream pipe diameters shall be two (2) minimum as recommended by manufacturer.
- E. For location of Venturi flow stations refer to the Drawings.

2.18 REFRIGERATION ACCESSORIES

- A. Refrigerant Filter-Dryer: Provide, refrigerant filter-dryers. Refrigerant filter-dryers shall be replaceable core "Catch All" type, as manufactured by Sporlan Valve Company.
- B. Moisture and Liquid Indicator: Provide combination liquid and moisture indicators type "See All", as manufactured by Sporland Valve Company.
- C. Refrigerant Strainers: Provide Refrigerant Strainers. Strainers shall be as manufactured by Henry Valve Company, Type 895.
- D. Thermal Expansion Valves: Provide Thermal Expansion Valves. Thermal expansion valves shall be Type "MVE-G", as manufactured by Sporlan Valve Company, or approved equal, with external equalizer and remote bulb with refrigerant 22 charge.
 - a. The Contractor shall submit manufacturer rating tables and/or selection charts for approval.
- E. Liquid Line Solenoid Valves: Provide Liquid Line Solenoid Valves. Valves to have stainless steel diaphragm-welded and lead-proof construction, replaceable

thermostatic element and tight seating. Valve shall be as manufactured by Sporlan Valve Company or approved equal.

- F. Flexible Pipe Connections: Provide flexible pipe connections. Flexible pipe connectors to be all bronze construction, metal braided type suitable for Refrigerant 22.

2.19 EVACUATION OF REFRIGERATION PIPING

- A. When testing of refrigerant piping is completed as specified hereinafter, blow off the pressure in the system to atmosphere and provide final evacuation. Provide a vacuum pump capable of pulling vacuum of at least 1 mm Hg. absolute. Use a Zimmerli gauge to read vacuum. Remove all moisture from the system. Operate the vacuum pump until a vacuum of 2.5 mm Hg. is achieved.
- B. When the system is evacuated, break the vacuum with oil pumped, dry nitrogen, open the compressor suction and discharge service valves and re-evacuate the system to 2.5 mm Hg. absolute. Stop vacuum pump and allow system to stand under a vacuum a minimum of 12 hours. If no noticeable rise in pressure has taken place after 12 hours, the system shall be charged.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where these specialties are to be installed and determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install HVAC Specialties where shown, in accordance with manufacturer's written instructions and with recognized industry practices, to ensure that HVAC Specialties comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of HVAC Specialties with other components of systems.

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3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of HVAC Specialties, test HVAC Specialties to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

END OF SECTION 15801

SECTION 15810
VIBRATION ISOLATION

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 15050 - Seismic Restraint for Isolated and Unisolated Equipment, Piping Ductwork, Tanks and Stacks shall apply.

1.02 DESCRIPTION OF WORK

- A. The Work includes providing all labor, materials, equipment, accessories, services and tests to complete and make ready for operation by the Owner, all vibration isolations as shown on the Drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacture of this equipment with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than ten (10) years.
- B. Provide products produced by the manufacturers which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance under specified conditions is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - "Special Requirements for Mechanical and Electrical Work" and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - "Special Requirements for Mechanical and Electrical Work".

1.06 GUARANTEE

- A. Refer to Section 15000 - "Special Requirements for Mechanical and Electrical Work".

1.07 TECHNICAL REQUIREMENTS

- A. All mechanical equipment shall be mounted in accordance with the specifications below and for the specific requirements shown in the equipment schedule.
- B. The isolation manufacturer shall supply all unit isolators, complete rails, fan and motor bases and structural steel forms for concrete inertia blocks, where called for and shall be responsible for the selection of all vibration eliminators and shall guarantee to meet the requirements of these Specifications.
- C. Wherever rotational speed is mentioned as the disturbing frequency, the lowest such speed in the system shall be used. All isolation devices shall be selected for uniform static deflections according to distribution of weight. Lateral motion of all isolators shall be $\frac{1}{4}$ " maximum during start-up and shut-down.
- D. "Outdoor" isolators, steel parts other than galvanized springs and cadmium plated springs shall be suitably coated to resist corrosion. Isolators shall be equipped with limit stops to resist wind velocity.
- E. All fan units and air handling units (except fans with wheels under 27") shall be isolated as follows:
1. Up to 450 RPM: 75% efficiency ($3\frac{1}{2}$ " maximum deflection)
 2. 450 RPM to 850 RPM: 90%
 3. 850 RPM and over: 95%
- F. Submittals shall show disturbing frequency, required efficiency, designed deflection and outside diameter of springs, when pertinent.
- G. All horizontal pipe runs within the mechanical equipment room area, but not less than 50 feet from connected equipment shall be isolated from building structure by means of units designed for insertion in rods.

PART 2 - PRODUCTS

2.01 VIBRATION ISOLATION

A. Mountings:

1. Type A:

- a. Double deflection neoprene mountings shall have a minimum static deflection of 0.35. All metal surfaces shall be neoprene covered to avoid corrosion and have friction pads both top and bottom, so they need not be bolted to the floor.
- b. Bolt holes shall be provided for those areas where bolting is required. On equipment such as small vent sets and close coupled pumps, steel rails shall be used above the mounts to compensate for the overhang.
- c. Manufacturer/Type:

Mason Industries, Inc.: ND or Rails RND
Vibration Eliminator Co.:T44 or D-Rails

2. Type B:

- a. Spring isolators shall be free-standing and laterally stable without any housing and complete with ¼" neoprene acoustical friction pads between the base plate and the support. All mountings shall have leveling bolts that must be rigidly bolted to the equipment.
- b. Spring diameters shall be no less than 0.8 of the compressed height of the spring at rated load. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection.
- c. Submittals shall include spring diameters, deflections, compressed spring height and solid spring height.

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d. Manufacturer/Type:

Mason Industries, Inc.: SLFH, on rails type
ICS

Vibration Eliminator Co. OSK

3. Type C:

a. Equipment with operating weight different from the installed weight such as chillers, boilers, etc., and equipment exposed to the wind such as cooling towers, shall be mounted on spring mountings as described under Type "B" of this paragraph, but a housing shall be used that includes vertical resilient limit stops to prevent spring extension when weight is removed. The housings shall serve as blocking during erection and cooling tower mounts shall be located between the supporting steel and roof or the grillage and dunnage. The installed and operating heights shall be the same. A minimum clearance of $\frac{1}{2}$ " shall be maintained around restraining bolts and between the housing and the spring so as not to interfere with the spring action. Limit stops shall be out of contact during normal operation. Mountings used out of doors shall be hot dipped galvanized.

b. Manufacturer/Type:

Mason Industries, Inc. SLR
Vibration Eliminator Co. KW

4. Type D:

a. Vibration hangers shall contain a steel spring and a double deflection neoprene element in series. Neoprene elements shall have a minimum deflection 0.35". The neoprene element shall be molded with a rod isolation bushing that passes through the hanger box. Springs shall have a minimum additional travel to solid equal to 50% of the rated deflection and be seated in a neoprene cup with an integral molded bushing that passes through the lower hanger box.

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b. Manufacturer/Type:

Mason Industries, Inc. DNHS - 30N
Vibration Eliminator Co. SNRC

5. Type F:

a. Vibration hangers shall contain a double deflection neoprene element manufactured as an integral part of the element design to prevent short circuiting of the rod as it penetrates the housing body. Minimum static deflection shall be .35".

b. Manufacturer/Type:

Mason Industries, Inc. W30
Vibration Eliminator Co. SNC

6. Type DE:

a. Elastomer hanger rod isolators shall incorporate the following:

- 1) Molded unit type neoprene elements with projecting bushing, lining rod clearance hole.
- 2) Neoprene element to be minimum 1 $\frac{1}{4}$ " thick.
- 3) Steel retainer box encasing neoprene mounting.
- 4) Clearance between mounting hanger rod and neoprene bushing shall be minimum of $\frac{1}{8}$ ".
- 5) Minimum static deflection of 0.35".

b. Mason Type HD or approved equal.

B. Bases:

1. Type G:

a. Vibration isolator manufacturer shall furnish integral structural steel bases for both driver and driven machines.

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- b. Bases shall be rectangular in shape for all equipment other than centrifugal refrigeration machines and pump bases which may be "tee" or "L" shaped. Pump bases for split case pumps shall include supports for suction and discharge base ells. All perimeter members shall be WF beams with a minimum depth equal to 1/10th of the longest dimension of the base. Beam depth need not exceed 14" provided that the deflection and misalignment is kept within acceptable limits as determined by the manufacturer. Height saving brackets shall be employed in all mounting locations to provide a base clearance of one inch.
 - c. Bases shall be WF bases as manufactured by Mason Industries, Inc. or approved equal.
2. Type H:
- a. Vibration isolator manufacturer shall provide steel members welded to height-saving brackets to cradle machines having legs or bases that do not require a complete supplementary base.
 - b. Members shall be sufficiently rigid to prevent strains in the equipment.
 - c. Inverted saddles shall be ICS as manufactured by Mason Industries, Inc. or approved equal.
3. Type J:
- a. Vibration isolator manufacturer shall furnish structural channel concrete forms for floating foundations.
 - b. Bases for split case pumps shall be large enough to provide support for suction and discharge base ells. The base depth shall be a minimum of $\frac{1}{10}$ of the longest span, but not less than 6" or greater than 14". Forms shall include minimum concrete reinforcement consisting of $\frac{1}{2}$ " on 6" centers running both ways and a layer 1 $\frac{1}{2}$ " above the bottom and a top layer of reinforcing steel as above for all bases exceeding 120" in one direction. Isolators shall be set into pocket housings which are an integral part of the base construction and set at the proper height to maintain a 1"

clearance below the base. Bases shall be furnished with templates and anchor bolt sleeves as part of this system.

c. Manufacturer/Type:

Mason Industries, Inc. KIPWF
Vibration Eliminator Co. SN Frames

4. Type Y:

a. Rooftop packaged air handling units shall be installed on a spring supported isolation curb which shall combine the manufacturer's curb and the isolation base into one assembly. The system shall be designed with 1", 2" or 3" static deflection steel springs which are both adjustable, removable and interchangeable after the rooftop unit has been installed. The system shall maintain the same operating and installed height both with and without the equipment load and shall be fully restrained during wind load conditions allowing no more than $\frac{1}{4}$ " motion in any direction. The isolation curb shall be designed to accept and utilize outer placement of standard 2" roof insulation to act as a sound attenuation system for the inside of the curb. The entire unit shall become an integral part of the membrane waterproofing. The entire assembly shall be dry galvanized or PVC coated. The isolation curb shall be model P-6000 as manufactured by Mason Berger East. Options for the system include an elevation kit model EK-1 and a sound barrier pack framing kit complete with offset plenum for lightweight roof deck areas model SBC-3. Note: Where this option is utilized, General Contractor is to furnish and install sound barrier material.

b. Manufacturer/Type:

Mason Industries, Inc.: Model P-6000
Vibration Eliminator Co.:

5. Type R:

a. Rooftop fans, condensing units, exterior ducted air handling units, etc. shall be installed on continuous equipment support piers which

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shall combine a regular equipment support and an isolation system into one assembly. The system shall be designed with 1", 2" or 3" static deflection steel springs which are both adjustable, removable and interchangeable after equipment has been installed. The system shall maintain the same operating and installed height both with and without the equipment load and shall be fully restrained during wind load conditions allowing no more than ¼" motion in any direction. The isolation pier shall be designed to accept 2" rigid insulation and to be an integral part of the membrane waterproofing. The entire assembly shall be dry galvanized or plastic coated. The isolation rail pier system shall be model R-7000 as manufactured by Mason Berger East, Inc.

b. Manufacturer/Type:

Mason Industries, Inc. R-7000
Vibration Eliminator Co.

c. ISOLATION SCHEDULE:

Vibration Eliminator Specification
Type for Equipment Location:

Type of Equipment	With No Occupied or Unoccupied Spaces Below	Above Occupied or Unoccupied Spaces
Packaged Air Cooled Chillers	2" thick neoprene pad Outdoor type, weatherproof	
Self-Contained Air Conditioning Units	Type B (1.0" deflection)	Type B (1.0" deflection)
Pumps: Through 15 HP	Type B (Rail Type) (1.0" deflection), Type G base	Type B (Rail Type) (1.0" deflection); Type G base
Factory Assembled, Air Handling Equipment:		
Suspended Units	Type D (1.5" deflection)	Type D (2.0" deflection above 600 rpm)

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Floor Mounted Units	Type B (1.0" deflection)	Type B (2.0" deflection above 600 rpm) Type B-H (2.5" deflection below 600 rpm)
Class I Fans (Arrangement 1 & 3) Floor Mounted:	Type B-G (1.0" deflection)	Type B-G (2.0" deflection above 600 rpm) (3.0" deflection below 600 rpm) (4.0" deflection below 400 rpm)
Suspended:	Type F (1.5" deflection)	Type F (2.0" deflection)
Class I Fans (Arrangement 9)		
Floor Mounted:	Type B (1.0" deflection)	Type B (2.0" deflection)
Suspended:	Type F (1.5" deflection)	Type F (2.0" deflection)
Class II and III Fans	Type B-J (1.0" deflection)	Type B-J (2.0" deflection above 600 rpm) (3.0" deflection below 600 rpm) (4.0" deflection below 400 rpm)
Outdoor Fan (Arrangement (9 & 10))		
Utility Fans:	Type C	Type C (1.0" deflection)
Piping in Boiler or Mechanical Equipment Rms.	See Spec. Text	See Spec. Text

- D. For internally spring isolated air handling units, provide 1 1/2" neoprene pads with steel plate in middle, minimum of 4" x 4" size, every 2 feet on center all around perimeter of units, between structural steel and bottom of air handling units.

2.02 FLEXIBLE CONNECTIONS

- A. Provide a flexible pipe connector at pumps, chillers and other vibrating equipment.
- B. Flexible connector shall be:
 - 1. Flexible stainless steel braided hoses, minimum 14 inch long.
 - 2. Straight connectors to have two spheres reinforced with a mold-in external ductile iron ring between spheres.
 - 3. Elbow shall be long radius reducing type.
 - 4. Rated 250 psi at 170°F. Dropping in straight line to 170 psi at 250°F. for sizes 1½" to 12". Elbows shall be rated no less than 90% of straight connections.
 - 5. Sizes 10" and 12" to employ control cables with neoprene end fittings isolated from anchor plates by means of ½" bridge bearing neoprene bushings.
 - 6. Minimum safety factor, 4 to 1 at maximum pressure ratings.
 - 7. Submittals to include test reports.
 - 8. Mason Type MFTNC Superflex, or approved equal.

PART 3 - EXECUTION**3.01 INSPECTION AND COORDINATION**

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the Work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.
- C. Coordinate work with other trades to avoid rigid contact with the building. Inform other trades following work, such as plastering or electrical, to avoid any contact which would reduce the vibration isolation.

- D. Bring to the Architect's attention, prior to installation, any conflicts with other trades which may result in unavoidable rigid contact with equipment or piping as described herein, due to inadequate space or other unforeseen conditions. Corrective work necessitated by conflicts after installation shall be at the responsible Contractor's expense.
- E. Bring to the Architect's attention, any discrepancies between the Specifications and field conditions or changes required due to specific equipment selection, prior to installation. Corrective work necessitated by discrepancies after installation shall be at the Contractor's expense.

3.02 INSTALLATION

- A. Mount floor-mounted equipment on minimum 4" thick concrete housekeeping pads over complete floor area of equipment. Mount vibration isolating devices and related inertia blocks on concrete pad.
- B. Each fan and motor assembly shall be supported on a single structural steel frame. Flexible duct connections shall be provided at inlet and discharge ducts.
- C. The machine to be isolated shall be supported by a structural steel frame or concrete inertial base.
- D. Brackets shall be provided to accommodate the isolator. The vertical position and size of the bracket shall be specified by the isolator manufacturer.
- E. The minimum operating clearance between the equipment frame or rigid steel base frame and the housekeeping pad or floor shall be 1". Minimum operating clearance between concrete inertia base and housekeeping pad or floor shall be 2".
- F. The equipment structural steel or concrete inertia base shall be placed in position and supported temporarily by blocks or shims, as appropriate, prior to the installation of the machine or isolators.
- G. The isolators shall be installed without raising the machine and frame assembly.
- H. After the entire installation is complete and under full

operational load, the isolators shall be adjusted so that the load is transferred from the blocks to the isolators. When all isolators are properly adjusted, the blocks or shims shall be barely free and shall be removed.

- I. Isolation mounting deflection shall be (minimum) as specified or scheduled.
- J. Install equipment with flexibility in wiring connection.
- K. Verify that all installed isolator and mounting systems permit equipment motion in all directions. Adjust or provide additional resilient restraints to flexibly limit start-up equipment lateral motion to $\frac{1}{4}$ ".
- L. Prior to start-up, clean out all foreign matter between bases and equipment. Verify that there are no isolation short circuits in the base isolators or seismic restraints.
- M. All piping and ductwork to be isolated shall freely pass through walls and floors without rigid connections. Penetration points shall be sleeved or otherwise formed to allow passage of piping or ductwork and maintain $\frac{1}{4}$ " to $1\frac{1}{4}$ " clearance around the outside surfaces. This clearance space shall be tightly packed with firestopping or fiberglass and caulked airtight after installation of piping or duct ductwork.
- N. No rigid connections between equipment and building structure shall be made that degrades the noise and vibration isolation system herein specified.
- O. The contractor shall not install any equipment, piping or conduit which makes rigid contact with the "building" unless permitted in this Specification. Building includes, but is not limited to, slabs, beams, columns, studs and walls.
- P. Obtain inspection and approval of any installation to be covered or enclosed, prior to such closure.
- Q. Diagonal thrust restraint shall be as described for Type D hanger with the same deflection as specified for the spring mountings. The spring element shall be designed so it can be pre-set for thrust and adjusted to allow for maximum of $\frac{1}{4}$ " movement at start and stop. Diagonal restraints shall be attached at the centerline of thrust. Restraint shall be Mason Type WB or approved equal.

3.03 PIPING ISOLATOR INSTALLATION

- A. The isolators shall be installed with the isolator hanger box attached to, or hung as close as possible to, the structure.
- B. The isolators shall be suspended from substantial structural members, not from slab diaphragm unless specifically permitted.
- C. Hanger rods shall be aligned to clear the hanger box.
- D. Horizontal suspended pipe 2" and smaller piping shall be suspended by Type DE isolator with a minimum 3/8" deflection. water pipe larger than 2" shall be supported by Type F isolator with minimum 1" or same static deflection as isolated equipment to which pipe connects, whichever is greater.
- E. Horizontal pipe floor supported at slab shall be supported via Type B, with a minimum static deflection of 1" or same deflection as isolated equipment to which pipe connects, whichever is greater.
- F. Vertical riser pipe supports shall utilize neoprene elements.
- G. Vertical riser guides, if required, shall avoid direct contact of piping with building.
- H. Pipe sway braces, where required shall utilize two (2) neoprene elements.

3.04 FIELD QUALITY CONTROL

- A. Obtain inspection and approval of any installation to be covered or enclosed, prior to such closure.
- B. Upon completion of installation of all vibration isolation devices herein specified, the local representative of the isolation materials manufacturer shall inspect the completed system and report, in writing, "any installation error, improperly selected isolation devices, or other faults in the system that could affect the performance of the system. Contractor shall submit a report to the Architect, including the manufacturer's representatives final report, indicating all isolation reported as im-

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properly installed or requiring correction, and include a report by the Contractor on steps taken to properly complete the isolation work.

END OF SECTION 15810

SECTION 15815
WATER TREATMENT AND CLEANING

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinated with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all water treatment and cleaning as shown on the drawings and hereinafter specified.
- B. The Contractor shall engage the services of a water treatment contractor who shall provide a complete water treatment service. The service shall include furnishing and application of all chemicals, at least one visit a month to collect samples for chemical analysis at the water treatment company's laboratory, and all necessary inspection, adjustment, and maintenance of the chemical treating devices. Complete chemical control of the treatment shall be included. Reports shall be furnished to Architect after each visit.
- C. Water treatment shall be applied concurrently with the operation of each circulating water system for a period of one year. An initial dose of treatment chemical shall also be applied immediately after each system is initially filled with water if operation is to be delayed after filling.
- D. In addition to the chemicals indicated, slimicides and algaecides shall be provided as necessary. Chromate and phosphate will not be acceptable. All chemicals shall be approved by local and state agencies having jurisdiction.

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- E. The firm's water treatment laboratory shall be equipped to analyze water in accordance with the statement methods of the American Public Health Association.
- F. Water treatment contractor shall provide chemical feeding devices during the period of this contract. At the termination of the contract, the treatment equipment shall belong to the Owner.
- G. Provide a water treatment program for the following systems:
 - 1. Hot water closed heating systems.
 - 2. Chilled water closed systems.

1.03 QUALITY ASSURANCE

- A. Firms regularly engaged in manufacture of this material with characteristics and capacities required, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide product produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 CHEMICAL TREATMENT CLOSED HOT WATER AND CHILLED WATER SYSTEM**

- A. Provide a Nitrite based material to maintain the following conditions in each closed water system.

	<u>Hot Water</u> (180°F. max.)	<u>Chilled Water</u>	<u>Hot Water</u> (250°F. max)
pH7.5	9.5 - 20.5	7.5 - 9.0	7.5 - 9.0
Nitrite	800 - 1200ppm		
Molybdate		100 - 200ppm	300 - 400ppm

2.02 CHEMICAL TREATMENT - CLEANING - DEGREASING

- A. Provide a supervised program of cleaning and degreasing chemicals used in the specified systems prior to start-up. Sufficient chemicals shall be added to each system to establish a concentration of 120 ppm degreasing chemicals containing 20% dioctylsulfocuccinate and a concentration of 240 ppm of cleaning chemical containing 15% polyacrilate and 25% diphosphonate in the water. Systems shall then be circulated for a minimum of 8 hours, dumped, flushed, and refilled, with the correct corrosion inhibitors added for operation. Strainers are to be hand cleaned after flushing.

2.03 CHEMICAL FEED EQUIPMENT - CHILLED & HOT WATER SYSTEM

- A. Provide a 5 gallon bypass feeder with 3" opening on top for intermittent feed of corrosion inhibitor across a suitable pressure drop in each closed system as manufactured by NFC - or equal.

2.04 CHEMICAL FEED EQUIPMENT FOR HOT WATER AND CHILLED WATER (40% GLYCOL) SYSTEM

- A. Glycol Water Treatment Units (one each for hot water and chilled water systems)

Provide 40% Propylene Glycol water treatment unit of capacity and constructed as specified and shown on the Drawings for introducing chemicals into the hot water and chilled water systems.

1. Tank: 50 gallon polyethylene tank with a steel hinge cover. Tank is fully supported and

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restrained by a carbon steel bottom mounted stand. Stand and cover shall be painted with water based enamel.

2. Gear Pumps: Duplex gear pumps (one as a standby) shall be provided factory mounted piping and valves.

Pump suction shall include PVC drain valve, Y-strainer and flexible tubing. Pump discharge tubing shall include PVC ball valve, check valve, piping and 1/4" NPT back up pressure gauges.

Provide combination starter with disconnect switch, alternate switch, Hand-off-Auto.

Pump is rated at 3.5 GPM 60 psi discharge pressure, 1/3 HP motor, 120 V/ 1-phase/60.

3. Control Panel: Built-in combination starter with disconnect switch, 115 V/1-phase control power, indication of pump running light and low level light.
4. Low Level Controller: Complete solid state, all plastic low level controller is mounted on tank top for low level glycol water indication in make-up tank. The low level controller shall shut down pump control and sound alarm.
5. Pressure Switch: Built-in 1/4 NPT pressure switches at the discharge side of pump (low pressure/high pressure).
6. Provide strobe light on low level control.
7. Model "GL50-D" glycol feed package manufactured by J.L. Wingert Co. or approved equal.

B. Glycol

40% Propylene Glycol.

C. pH Comparator

Suitable range to conform to the chemical treatment furnished.

D. Metal test cabinet complete with sufficient glassware

and reagents to make each of the following determinations once a day, for the period of the contract and the guarantee:

1. pH by color comparator.
2. Chemicals used by color comparator and titration.
3. Total dissolved solids by concentration hydrometer.

2.05 WATER TREATMENT CONTROL TESTING EQUIPMENT

- A. Provide a test set complete with apparatus and chemical reagents for the determination of Molybdate, ph (7.5 - 9.2), Nitrite and any additional test as required by water treatment company.

2.06 CLEANING OF PIPING SYSTEMS

- A. Preliminary Cleaning:

1. Clean new piping internally by flushing prior to the application of pressure tests and before the chemical clean out procedures specified herein. Provide temporary strainers at the inlet to the chilled water and hot water pumps before the start of cleaning procedures.
2. Block off and isolate circulating pumps, cooling coils and heating coils during the preliminary flushing and draining process.
3. Thoroughly flush piping clear of foreign matter with City water under pressure, and then drain before proceeding with pressure testing. Blow down accumulations of grit, dirt and sediment at each strainer and each low point in the piping systems.

- B. Chemical Clean out:

1. After completion of pressure testing, chemically clean internally each recirculating water system (including chilled water, hot water, and condenser water).
2. Provide temporary connections with valves to fill the piping and remaining equipment with water for

the purpose of draining piping and equipment after completion of the chemical clean out procedure. Provide temporary blind flanges and/or caps to isolate the piping and equipment noted herein.

3. Provide temporary piping connections, valves, strainers, bypasses, and blank connections where required to clean out systems. Line each strainer basket with a fine mesh nylon screen and replace the screens at the end of each day's circulation until each system is thoroughly cleaned.
- C. Hot Water Heating System: Fill each system with City water; start circulation pump and vent high points manually until all air is released from the system.
1. All new and portions of the remaining recirculating water systems, both open and closed, to be filled and flushed with a solution of a non-foaming chemical detergent, to remove all foreign matter. Circulate the solution for a minimum of 8 hours and drain as rapidly as possible to remove suspended matter. Flush the system with fresh water, drain a second time and refill. After final filling, the pH of the water must not exceed the pH of the fresh raw water by more than 0.5 pH.
 2. Introduce the chemical solution into the system gradually by injecting into the suction side of the circulating pump, or by means of a bypass chemical feeder located on the discharge side of the permanent hot water secondary system circulating pump. Slowly raise and then maintain the temperature of the circulating water at 150°F by circulating through the hot water converter.
 3. While the water is being heated and circulated, open each drain connection for a short flow. Repeat at hourly intervals. Replace any water drained during blowdown with chemical solution as required until air is eliminated from the system. The chemical clean out procedure to be continuous in this manner for two (2) 8-hour periods.
 4. At the conclusion of the chemical clean out period, completely drain the entire system and allow to cool. Flush out with fresh City water prior to final activation of the system. Remove

temporary equipment and strainers, reconnect permanent pump and replace items previously removed.

D. Chilled Water Systems:

1. Clean these system as described for the hot water heating system with the following exception:
2. Circulate the chemically treated water at ambient temperature. For additional requirements for chiller, refer to Section 15681.
3. Accomplish the chemical cleanout during a minimum of three (3) - 8 hour periods.

E. Filling of Water Systems:

1. After completion of the chemical clean out, fill each water system with air vent, and add chemical treatment.
2. If the outdoor ambient temperature drops to 32°F., and the danger of freeze-up exists, drain water systems.

2.07 INTERNAL TREATING OF PIPING

- A. This work shall include the internal protective coating of all distribution systems on this construction such as, but not limited to, steam piping, hot water heating and cooling, chilled water and condenser water systems and components. The Rid-Sludge treatment shall be applied by Heating Economy Services Co., Pelham, NY; Sound Water Treatment Center, Mamaroneck, NY; Drew Chemical, NJ; or as approved equal.
- B. This method of treating is to be applied to all piping supply and return and then back to the source of the equipment.
- C. The Contractor shall clean the piping for the purpose of removing lime, oil, grease, oxides and other wastes therefrom. After removal of these impurities, a protective coating shall be applied to all inner surfaces, which will inhibit oxidation as well as protect the metals against impurities that may be present in the water. This coating shall be guaranteed

for five years from the date of completion at no cost to the Owner covering labor and materials. Valve off Heat Exchangers to avoid coating surfaces.

- D. The treating materials used for this purpose must have been in use successfully for at least five years in comparable systems.
- E. It shall be compounded of non-corrosive, non-toxic, non-alkaline and non-injurious ingredients that have been investigated and reported as a "Neutral Compound" by a recognized engineering firm or laboratory, other than the submitting company's own laboratory. Brochures and unbiased test reports shall be submitted to the Architects within ninety (90) days from job acceptance for approval. This treating firm shall show proof that said firm has been established and accepted for this work, for a minimum of ten (10) years. The ingredients used shall have no deleterious effects on seals, "O" rings, glands, packing, etc.
- F. It shall be the sole responsibility of the approved firm for the application of this process. It shall supply all labor, materials, and equipment for this purpose. A competent supervisor and/or equipment operator shall be kept at the site for commencement of his work until completion. None but experienced personnel shall provide treating of piping. Any repairs or servicing of components of these systems shall be done by the Contractor.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install water treatment equipment where shown or specified, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that water treatment systems comply with

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- requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation of water treatment equipment with other components of systems.
 - C. Check alignment and, where necessary, realign shafts of motors and equipment within tolerances recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, and after motors have been energized with normal power source, test equipment to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

END OF SECTION 15815

SECTION 15820
PIPING FOR HVAC

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The Work includes providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all piping as shown on the Drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. "Manufacturers"-Firms regularly engaged in manufacture of pipe whose products have been in satisfactory use in similar service for not less than ten (10) years.
- B. Provide pipe whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000, "Special Requirements for Mechanical and Electrical Work", and submit shop drawings.

1.05 COORDINATION

- A. Refer to Section 15000, "Special Requirements for Mechanical and Electrical Work".

1.06 WARRANTY

- A. Refer to Section 15000, "Special Requirements for Mechanical and Electrical Work".

PART 2 - PRODUCTS**2.01 PIPE**

- A. All pipe shall be new, free from scale or rust, of the material and weight specified under the various services. Each length of pipe shall be properly marked at the mill for proper identification with name or symbol of manufacturer.
- B. All steel piping, except where otherwise rated, shall be standard or extra strong weight, in conformance with the ASTM A-53 Grade A seamless, for piping 2" and larger, as manufactured by National Tube Division, Republic Steel Corp., or approved equal. Piping shall be ASTM A-120 continuous butt weld, for piping less than 2".
- C. All brass piping shall be standard or extra heavy weight 85% red brass semi-annealed seamless-drawn, in conformance with the ASTM B-43, as manufactured by Anaconda, American Brass Co., Chase Brass and Copper Co., or Revere Copper and Brass, Inc.
- D. All copper tubing shall be of weight as required for service specified, with conformance with ASTM B-88 for Types "L" and "K" tubing, as manufactured by Chase, Anaconda, Revere, or approved equal. Tubing and fittings shall be thoroughly cleaned with sand cloth and treated with an approved non-corrosive flux before solder is applied.
- E. All galvanized steel piping shall be standard or extra strong weight, as specified, in conformance with the ASTM A-53 Grade B. Pipe shall be hot-dripped zinc-coated with Prime Western smelter and not wiped.
- F. Generally, unless otherwise specified, joints in steel piping of sizes 2 1/2 inches and under shall be screwed, and all sized 3 inches and over shall be welded or flanged. Piping for 3" sizes may be screwed or welded. Brass pipe shall be screwed 2 inches and smaller and flanged 2 1/2 inches and over. Copper tubing shall be silver-soldered or 95-5 solder as herein specified.
- G. Threaded joints in glycol filled systems shall be made by Radiator Specialty Co. Submit sample and obtain approval.

H. Welding Piping

1. All fittings for welded piping shall be as manufactured by Tube Turn, Grinnell, Bonney Forge or equal as approved by the Architect. The fittings shall be of the same weight and material as the piping to which they are attached.
 2. For piping 2½" or 4" and larger, full size branch connection shall be made with manufactured welding tees, branch connections for less than full size, shall be made with welding tees or with Weldolet forged branch outlet fittings. Fishmounting, shaped nipples, and stubbing not permitted.
- I. Welding outlet fittings shall be Weldolets as manufactured by Bonney Forge, Inc., or approved equal 2 or 3 and smaller branches shall be made with thredolets as made by Bonney Forge or approved equal.
- J. Weld ells shall have a center line radius not less than diameter of the pipes.
- K. All flanges shall be welding neck flanges ANSI B16.5 ASTM 181 Grade I. all systems, except where otherwise noted - 150 lbs. Class, forged steel.
- L. Instrumentation connections ¾" and smaller on all systems shall be provided by welding threaded 2000# forged steel half couplings to the pipe.
- M. All pipe to be welded shall be cut off clean and beveled. All welding shot shall be removed.
- N. Composition of welding electrodes shall be in accordance with manufacturer's recommendations.
- O. Pipe welding shall comply with the provisions of the latest revision of the applicable code, whether ASME Boiler and Pressure Vessel Code, ANSI Code for Pressure Piping B31, or such state or local requirements as may supersede codes mentioned above.
- P. Before any pipe welding is performed, submit a copy of the welding procedure specifications together with proof of its qualification as outlined and required by the most recent issue of the code having jurisdiction.

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- Q. Before any operator shall perform any pipe welding, also submit the operator's qualification record in conformance with provisions of the code having jurisdiction, showing that the operator was tested and certified under the Procedure Specification as before mentioned.
- R. Assume responsibility for the quality of welding done and repair or replace any work not in accordance with these specifications.
- S. In addition, all pipe welding procedures and procedures for qualification of pipe welding operators shall comply with the requirements of the American Welding Society.
- T. Dissimilar Pipe Joints: Provide bronze body gate/ball valve where dissimilar (cooper to steel, etc.) pipes join to prevent galvanic action. Provide di-electric fittings in addition to bronze valves.
- U. Pipe Schedule: Pipe for the various services shall be as follows:

<u>Service</u>	<u>Material</u>	<u>Schedule</u>
Pumped Condensate Returns Above Ground	Steel Copper	40 or standard Type K
Overflow and Drain	Copper	Type K
Cold Water (NYC)	Copper	Type "TP"
Hot Water (Heating)	Steel Copper	40 or standard Type K
Branch runouts to radiation	Steel	40
Gas	Steel	40 or standard
Refrigeration	Copper	Type ACR tubing
Chilled Water	Steel Copper	40 or standard Type K
Hot Water (Heating) Risers, runouts	Copper	Type K
Chilled Water Risers Runouts, Drain Piping	Copper	Type K

2.02 FITTINGS

- A. Fittings shall be specified under "Fitting Schedule" for various services.
- B. Welding fittings shall be of the same material and schedule as the pipe to which they are welded. Welding elbows shall be long radius pattern unless clearance conditions necessitate the use of standard radius pattern. Welding fittings shall be as made by Tube-Turn.
- C. Fittings shall be of material conforming to the following schedule:
- | | |
|-------------------------|------------|
| Steel Welding Fittings | ASTM A-106 |
| Malleable Iron Fittings | ASTM A-197 |
| Cast-Iron Fittings | ASTM A-126 |
| Brass Fittings | ASTM B-62 |
| Solder Fittings | ASTM B-88 |
- D. All fittings used at expansion loops or bends shall be extra heavy.
- E. Cast-iron, malleable-iron and bronze fittings shall be of Crane manufacturer or approved equal.
- F. Flanges shall be raised face, of the same weight as the fittings in each service category. All flanges shall be drilled to "US Standard" hex nuts and washers. Bolting shall conform to ASTM 193 Grade B-7, threads Class 7 fit. Nuts shall be semi-finished hexagonal, ANSI B18.2 ASTM A194 Grade 2H.
- G. Unions - Unions 2 inches and smaller shall be screwed. Unions 2-1/2 inches and larger shall be flanged. Screwed unions on steel pipe, unless otherwise specified, shall be of malleable iron with bronze ground seats suitable for 300 pounds W.S.P. Screwed unions on copper or brass pipe shall be brass, ground joint suitable for 300 pounds W.S.P. Flanged unions shall be malleable iron for steel pipe, and brass for copper or brass pipe, gasket type suitable for 150 pounds W.S.P. Unions shall be as manufactured by Crane or approved equal.
- H. Brass pipe threads shall be cut with special brass threading dies, and the joints shall be made up with lubricant. Strap wrenches, or equivalent, shall be used in making up brass pipe. Wrenches which gouge or scar the pipe will not be used.

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- I. Solder for each solder-type fitting shall be of 95% tin and 5% antimony or silver solder, as specified herein.
- J. Unless otherwise specified, all flanged joints shall be fitted with Manville or equal ring gaskets designed for the intended service.
- K. Fitting Schedule: Fittings for the various services shall be as follows:

<u>Service</u>	<u>Size</u>	<u>Material</u>	<u>Weight</u>	<u>Type</u>
Pumped Condensate Returns (discharge)	ALL	C.I. Wrought Copper	250# 125#	Screwed Solder
Overflow and Drain	ALL	Wrought Copper	125#	Solder
Cold Water	ALL	Wrought Copper	125#	Solder
Refrigeration	ALL	Wrought Copper	125#	Solder
Gas	ALL	Galv. M.I.	150#	Screwed
Hot Water (heating)	2" & below 2 1/2" & above	C.I. Steel	125# Sch. 40	Screwed Welding
Chilled Water	2" & below 2 1/2" & above	C.I. Steel	125# Sch. 40	Screwed Welding
	All Sizes	Wrought Copper	125#	Solder
Vent (water discharge)	ALL	Wrought Copper	125#	Solder
Hot Water, Chilled Water, Drain Riser and Runouts	ALL	Wrought Copper	125#	Solder

2.03 PIPE HANGERS AND SUPPORTS

- A. Provide necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations. In all cases where hangers, brackets, etc., are supported from metal decking and/or concrete

construction, care shall be taken not to weaken decking and/or concrete or penetrate waterproofing. All hangers and supports shall be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets shall be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers shall be finally adjusted, both in the vertical and horizontal direction, when the supported piping is hot, or chilled, as required. Hangers in contact with copper or brass pipe shall be copper plated steel.

- B. Pipe hangers shall be the clevis and pipe roll types, except where otherwise noted.

PIPE HANGER SCHEDULE

<u>Pipe</u>	<u>Type of Hanger</u>	<u>MAKE AND MODEL</u>		
		<u>Grinnell Fig. No.</u>	<u>F & M Fig. No.</u>	<u>Carpenter & Paterson Fig. No.</u>
2" & smaller (steel)	Clevis Hanger	260	239	100
2" & smaller (copper)	Adjustable Wrought Iron	CT-65	364	100 CT
2½" to 4" (steel)	Adjustable Swivel Pipe Roll 16		174	2729
2½" to 4" (copper)	Adjustable Wrought Ring	CT-269		
5" & above	Two Rod Roller Hanger	171	170	142

- C. Beam clamps - Hangers supported from floor steel shall be approved I beam clamps. I beam clamps for hangers supporting piping 2 inches and smaller shall be C & P Fig. No. 148 adjustable beam clamps. For piping 2½ inches and larger, I beam clamps shall be wrought steel. C & P Fig. No. 268 or equal.
- D. Where piping is run near the floor and not hung from the ceiling construction but is supported from the floor, such supports shall be of pipe standards with base flange

and adjustable top yoke similar to C & P Fig. 247 or equal.

- E. All vertical piping shall be anchored by means of heavy steel clamps securely bolted or welded to the piping, and with end extension bearing on the building.
- F. All vertical piping shall be guided at each floor by use of clamps fastened to building structure. Provide 360° protective saddle at guides. Saddles shall be fastened to pipe or insulation.
- G. Vertical runs of pipe not over 15 feet long shall be supported by hangers placed not over one foot from the elbows on the connecting horizontal runs.
- H. Vertical runs of pipe over 15 feet long but not over 60 feet long and not over 6 inches in size, or not over 30 feet long and not over 12 inches in size, shall be supported on heavy steel clamps. Clamps shall be bolted tightly around the pipes and shall reset securely on the building structure without blocking. Clamps shall be welded to the pipes or placed below couplings. Clamps shall be type 8, Federal Specification WW-H-171C, unless other types are approved.
- I. For all chilled water and makeup water and insulated refrigerant piping, provide "Insulshield" as made by Insulcoustic Corp. or pipe covering protection shield C & P Fig. 265P with steel shield min. 9 inches long, with vapor barrier jacket. For hot-water heating piping 2 inches and smaller, same as above. For steam, condensate and hot-water heating piping 2½ inches and larger, provide steel pipe covering protection saddles C & P Fig. 353 series.
- J. Piping in trenches shall reset or hang from angle iron cross supports provided by the Contractor with two coatings of red lead primer and final coat for black asphaltum paint.
- K. Hanger rods shall be of the following diameters:

<u>Pipe Size</u>	<u>Rod Diameter</u>	<u>Max. Spacing</u>
1½ inch & below	¾ inch	6'-0"
1½ and 2 inch	¾ inch	10'-0" (copper 8'-0")

<u>Pipe Size</u>	<u>Rod Diameter</u>	<u>Max. Spacing</u>
2½ inch		10'-0"
3 inch	½ inch	(copper 8'-0")
4 inch		
5 inch	¾ inch	12'-0")
6 inch	¾ inch	14'-0"

- L. Hanger rods shall be attached to preset concrete inserts with steel reinforcing rod through the insert and both ends hooked over the reinforcing mesh. For pipes 4 inches and larger, rods shall extend through concrete slab above where they shall be attached to steel bearing plates 6" x 6" x ¼".
- M. Piping shall not be hung from other piping ducts, conduits or from equipment of other trades and no vertical expansion shields will be permitted. Hanger rods shall not pierce ducts.
- N. All water piping connected to rotating equipment within all mechanical spaces shall be isolated from the building structure by means of vibration hangers inserted in the hanger rods. The vibration hangers shall consist of a steel spring in combination with a double deflection neoprene element within a rectangular steel housing. Combined static deflection shall be 1.375" minimum. Hangers shall have capability of supporting the piping at a fixed elevation during installation and shall incorporate an adjusting device to transfer the load to the spring. Deflection shall be indicated by means of scale. Vibration hangers shall be type PCDNHS made by Mason Industries.
- O. Where additional steel is required for the support of hangers, furnish and install same subject to the approval of the Architect. Piping and ductwork shall not be supported from concrete slab construction at ceiling.
- P. All piping running on walls shall be supported by means of hanger suspended from heavy angle iron wall brackets. No wall hooks will be permitted.
- Q. Lateral bracing of horizontal pipe shall be provided where required to prevent side sway or vibration. The lateral bracing shall be of a type approved by the Architect and shall be installed where directed by the Architect.

- R. All heavy piping, such as:
1. Individual pipes having a nom. dia. greater than 12 inches.
 2. Groups of pipes consisting of more than three 8 inch, or more than two 10 inch nom. 1 dia. pipes,
 3. Any combination of closely spaced pipes weighing more than the equivalent of above or 15 lb. per lin. ft., shall be supported at all cross points with overhead floor beams by fastening to the flange of such beams with steel clamps or other suitable means.
- S. Where such heavy piping runs parallel with the floor beams properly designed auxiliary steel must be provided. The spacing of such auxiliary steel supports shall in no case be greater than the spacing of the floor beams running perpendicular to the corrugations of the permanent slab steel forms.
- T. Assume the responsibility for the proper transfer of the loads of the piping systems to the structure. No additional cost to the owner should be expected for any corrective work during construction.

2.04 ANCHORS

- A. All anchors shall be separate and independent of all hangers, guides, and supports. Anchors shall be of heavy blacksmith construction suitable in every way for the work approved by the Architect. Anchors shall be welded to the pipe and fastened to the structure with bolts.
- B. Anchors shall be fabricated and assembled in such a form as to secure the piping in a fixed position. They shall permit the line to take up its expansion and contraction freely in opposite directions away from the anchored points; and shall be so arranged as to be structurally suitable for particular location, and line loading. Submit details for approval.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where the piping is to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper

and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Coordinate with other work as necessary to interface installation of piping with other components of systems.
- B. Provide and erect in a workmanlike manner, according to the best practices of the trade, all piping shown on the Drawings or required to complete the installation intended by these Specifications.
- C. The Drawings indicate schematically the size and location of piping. Piping shall be set up and down and offset to meet field conditions and to provide adequate maintenance room and headroom in the Mechanical Rooms.
- D. Study the General Construction Specifications and Plans, of the exact dimension of finished work and of the height of finished ceilings in all rooms where radiation, units, equipment or pipes are to be placed and arrange the work in accordance with the Schedule of Interior Finishes, as indicated on the Architectural Drawings.
- E. All exposed piping shall be run perpendicular and/or parallel to floors, interior walls, etc. Piping and valves shall be grouped neatly and shall be run so as to avoid reducing headroom or passage clearance. Provide min. 7'-6" headroom under passageway in mech. equip. room. All valves, controls and accessories concealed in furred spaces and requiring access for operation and maintenance shall be arranged to assure the use of a minimum number of access doors.
- F. All pipe lines made with screwed fittings must be provided with sufficient number of flanges or unions to make possible any taking down of the pipes without breakage of fittings.
- G. All piping shall be erected as to insure a perfect and noiseless circulation throughout the system. No bull head tees will be permitted.
- H. All valves and specialties shall be so placed as to permit easy operation and access.

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- I. Provide proper provision for expansion and contraction in all portions of pipework, to prevent undue strains on piping or apparatus connected therewith. Provide double swings at riser transfers and other offsets wherever possible, to take up expansion. Arrange riser branches to take up motion of riser.
- J. Approved bolted, gasketed, flanges (screwed or welded) shall be installed at all apparatus and appurtenances, and wherever else required to permit easy connection and disconnection. Screwed unions shall be used on piping 2" or less.
- K. All piping connections to coils and equipment shall be made with offsets provided with screwed or welded bolted flanges so arranged that the equipment can be serviced or removed without dismantling the piping.
- L. If, after plant is in operation, any coils or other apparatus are stratified or air bound (by vacuum or pressure), they shall be repiped with new approved and necessary fittings, air vents, or vacuum breakers at no extra cost. If connections are concealed in furring, floors, or ceilings, bear all expenses of tearing up and refinishing construction and finish, leaving same in as good condition as before it was disturbed.
- M. Fittings shall be of the eccentric reducing type, where changes of size occur in horizontal piping to provide for proper drainage or venting. Steel pipe bends shall be made of the very best grade open hearth, low carbon steel, leaving a smooth uniform exterior and interior surface. Pipe bends shall be made with seamless steel pipe, having a minimum radius of not less than five (5) pipe diameters.
- N. Tubing shall be erected neatly in a workmanlike manner. Bends in soft copper tubing benders to prevent deformation of the tubing in the bends. Approved seat-to-pipe threaded adapters shall be provided for junctions with valves and other equipment having threaded connections.
- O. Vertical sections of main risers shall be constructed of pipe lengths welded together. No couplings shall be used.

- P. The ends of all pipe and nipples shall be thoroughly reamed to the full inside diameter of the pipe and all burrs formed in the cutting of the pipes shall be removed.
- Q. Piping shall be installed in accordance with the latest edition of the ASME Code for Pressure Piping.
- R. All piping shall be concealed above furred ceilings in rooms where such ceilings are provided (except where specifically indicated otherwise on the drawings, or in walls or partitions, except as otherwise indicated.
- S. Dissimilar piping shall be connected with bronze body valves and dielectric connector as made by Ebco Company or approved equal.
- T. Piping at all equipment and control valves shall be supported to prevent strains or distortions in the connected equipment and control valves. Piping shall be supported to allow for removal of equipment, valves and accessories with a minimum of dismantling and without requiring additional supports after these items are removed.
- U. Pipe nipples - Any piece of pipe 3" in length and less shall be considered a nipple. All nipples with unthreaded portion 1½" and less shall be extra heavy. Only shoulder nipples shall be used. No close nipples will be permitted.
- V. Screw threads shall be cut clean and true; screw joints made tight without caulking. No caulking will be permitted. A non-hardening lubricant shall be used. No bushings shall be used. Reductions, otherwise causing objectionable water or air pockets, to be made with eccentric reducers or eccentric fittings.
- W. Pitch water piping upward one inch per 100 feet in direction of flow to ensure adequate flow without air binding, and to prevent noise and water hammer. Pitch drain piping ¼ inch per foot in the direction of flow. Branch connections to mains are to be made in such a manner as to prevent air trapping and permit free passage of air. To meet job conditions, mains shall set up to maintain headroom, and clear other trades. Provide oversized float operated automatic air vent (with valve). Avoid 90 deg. lift set-ups in supply lines by using 45 degree ells. Where 90 deg. lifts exceed 12" install automatic air vent in supply lines. All lifts in return

lines shall be installed with automatic air vents. Pipe outlet of all automatic air vents to an open sight drain if the vent is concealed, or to within two feet of the floor within machine rooms. All water piping shall pitch back to low points for drainage. Low points shall be provided with 3/4 inch hose cocks.

- X. Provide drain valves at the heel of all interior main water risers. Provide drain valves at the heel of all perimeter water risers.
- Y. Miscellaneous drains, vents, reliefs, and overflows from tanks, equipment, piping, relief valves, pumps, etc., shall be run to the nearest open sight drain or roof drain. Provide drain valves whenever required for complete drainage of piping, including the system side of all pumps.
- Z. Provide domestic water connections from valved outlets to any equipment requiring same.
- AA. All drain piping from condensate drain pans shall be properly trapped in accordance with the static pressures involved. Condensate drain piping sizes shall be not less than 1½".

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of piping (partial or complete) test piping to demonstrate compliance with requirements. Where possible, field correct malfunctioning piping, then retest to demonstrate compliance. Replace piping which cannot be satisfactorily corrected. Refer to Section - Testing and Balancing.

END OF SECTION 15820

SECTION 15830
VALVES FOR HVAC

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all Valves as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of valves, whose products have been in satisfactory use in similar service for not less than 10 years.
- B. Provide valves produced by the manufacturers, which are listed in Section "Approved Manufacturer's List".
- C. Provide valves whose performance under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 VALVES**

- A. Valves- General: All valves shall be of a design which the manufacturer lists for the service and shall be of materials allowed by the latest edition of the ASME Code for pressure piping for the pressure and temperature contemplated, unless a higher grade or quality is herein specified. All valves shall be of the same manufacturer, except for special applications.
- B. The system shall be supplied with valves in all branch mains and risers, at all pumps, tanks, reducing and control valves, heating and cooling surfaces and at all apparatus; so located, arranged and operated as to give complete shut-off. Except where flanged valves are used, each connection to equipment shall be made with screwed or flanged unions on the equipment or discharge side of the valve.
- C. All valves shall be installed with the best workmanship and are to have neat appearance and be arranged so that they are easily accessible.
- D. Each valve shall have the maker's name or brand, the figure or list number and the guaranteed working pressure cast on the body or stamped on the bonnet, or shall be provided with other means of easy identification.
- E. Check valves installed in the horizontal position shall be swing checks; valves installed in the vertical position shall be silent checks for 2½" and above, and lift check for 2" and smaller, except that all check valves in pump discharges shall be silent checks.
- F. Provide blow-off valves at all strainers, and where shown on the Drawings.
- G. Provide valve operating chain on all gate, globe, butterfly and plug valves in Mechanical Equipment Rooms - 4" and larger, which are more than 7'-0" above the operating floor. Unit shall be complete with adjustable sprocket, chain and guide (Crane "Babbit" type). Provide hook to keep chain out of the way.

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- H. Generally, all valves are to be of the gate type, except that globe valves shall be used for throttling services and on traps, and pressure reducing and control valve bypasses. Globe valves used on bypasses shall have monel metal mountings. Pumps shall have lubricating plug valves on discharge piping.
- I. All valves 2 inches in diameter and smaller shall be all bronze with bronze bodies. Valves 2½ inches in diameter and larger shall have iron bodies with bronze mountings (except where otherwise noted).
- J. All flanged-end valves shall have renewable metal seat rings and discs. On gate valves these parts shall be of bronze, on all globe valves they shall be of bronze and suitable for throttling service.
- K. All screwed-end globe valves shall be of the union bonnet type with renewable teflon discs.
- L. All valves shall have their bonnets back-seated to provide for packing under pressure. All gate valves shall be of the solid tapered wedge type.
- M. Drain valves shall be provided on coils, chillers, heat exchangers, boilers, unit ventilators, tanks, receivers, risers and at all points in water system; where they may be required or necessary, for draining the lines and equipment. Drain valves or plug cocks shall be provided at the low points for proper drainage. Cocks and valves shall be provided with threaded ends for those connections.
- N. All valves up to 2 1/2 inches in diameter shall have screw ends, 4 inches in diameter and over shall have flanged ends. Valves 2½" and larger which are non-rising stem, shall have position indicators.
- O. All bronze and iron valves shall be furnished with Teflon impregnated packing.
- P. All handwheels shall be of malleable iron.
- Q. No Asbestos shall be used in construction of valves including the gaskets.
- R. All valves shall be of type and number as specified below: For all services, except as otherwise noted.

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<u>TYPE</u>	<u>SIZE</u>	<u>CRANE NO.</u>	<u>JENKINS NO.</u>	<u>WALWORTH NO.</u>	<u>REMARKS</u>
Gate Valve	2" & Smaller	428UB	47U	2	150 lb. WSP, Bronze, Rising Stem
	2½" & Larger	465-1/2	651C	726F	125 lb. WSP, Bronze Trimmed, Iron Body, OS&Y
Globe Valve	2" & Smaller	14-1/2P	546P	237P	300 lb. WSP, Bronze.
	2½" & Larger	351	613C	906F	125 lb. WSP, Bronze Trimmed, Iron Body OS&Y
Angle Valve	2" & Smaller	16-1/2	558P	238P	300 lb. WSP, Bronze
	2½" & Larger		353	907F	125 lb. WSP, Bronze Trimmed, Iron Body, OS&Y
Swing Check	2" & Smaller	137	409Z	406	150 lb. WSP, Bronze
	2½" & Larger	373	624	M928F	125 lb. WSP, Bronze Trimmed, Iron Body.
Silent Check	All Sizes	----	-----	-----	Williams-Hager, Fig. 636, 125 WSP, Semi-steel.
Drain Valves	2" & Smaller (2/4" size only)	451	372N	24	200 lb. OWG, non-rising stem, Hose end, Bronze with Bronze Cap & Chain
Blow-Off Valves	2" & Smaller	----	124	----	300 lb. WSP, Bronze Y-Type

S. Valves for radiation & gas service shall be as follows:

T. Hot Water Radiation Shut-off All sizes, 200 psi water, Cerci Fig. 2251

U. Radiation Balancing - See Section 15801 - HVAC Specialties.

V. Gas System

1. 2" & smaller, 125 WOG Crane No. 1228, square head cock

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2. 2½" to 4"; 125 WOG Crane No. 324 Walworth #655

2.02 VALVES IN COPPER TUBING

A. Except where otherwise noted, all valves for use with copper tubing shall be as follows:

<u>TYPE</u>	<u>SIZE</u>	<u>CRANE NO.</u>	<u>JENKINS NO.</u>	<u>WALWORTH NO.</u>	<u>REMARKS</u>
Gate Valve	2" & Smaller	1320			125 lb. WSP, Bronze
	3" & Smaller	----	1240	4-SJ	300 lb. Nonshock CW Bronze with solder joint adapter
	2½" & Larger	428	----	55	
Globe Valve	2" & Smaller	1310	----		125 lb. WSP, bronze
	3" & Smaller	----	1200	95-SJ	300 lb. Nonshock CW Bronze with solder joint adapter
	2½" & Larger	14-1/2P	237P		
Angle Valve	2" & Smaller	1311	----		125 lb. WSP, Bronze
	3" & Smaller	----	1202	----	300 lb. Nonshock CW Bronze with solder joint adapter
	2½" & Larger	16-1/2P			
Swing Check	2" & Smaller	1303	----	406SJ	125 lb. WSP, Bronze
	3" & Smaller	----	1222	406	300 lb. Nonshock CW Bronze with solder joint adapter
	2½" & Larger	34	----		
Balan- cing Valves	All sizes				See Balancing Cocks

2.03 LUBRICATED PLUG VALVES

A. Full port opening tapered plug suitable for lubrication under service pressure with plug in any position.

B. Lubricating Guns:

1. One for every 10 valves.
2. Extra heavy, lever type, hydraulic hand gun.

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3. 15,000 psi gauge and 12" long connection hose.
 4. Similar to Walworth #1699 or approved equal.
- C. Lubricant:
1. Manufacturer's recommendations.
 2. One year supply, each valve.
- D. Operators:
1. 4" to 6", wrench, except as noted.
 2. Wrench set for each size valve.
 3. Wrench for every 10 valves, each size
 4. Permanently installed handwheel.

2.04 VALVE CONSTRUCTION

- A. Piping less than 100 psi: 200# WOG Class, cast iron body.
- B. Piping 100 psi to 250 psi: 500# WOG Class, cast iron body.
1. 4" and larger: flanged, USAS 250#.

2.05 BALANCING COCKS

- A. Square head, similar to Walworth Co.
1. Up to 2"
 - a. Bronze
 - b. Screwed
 - c. 125 psi WSP Class; similar to Fig. 554.
 - d. 250 psi WSP Class; similar to Fig. 576.
 2. 2½" and 3"
 - a. Iron body similar to Walworth Co.
 - b. Screwed
 - c. 125 psi WSP Class; similar to Fig. 651.
 - d. 250 psi WSP Class; similar to Fig. 671.
 3. 4" and above: provide flanged lubricated plug valves.

2.06 BALL VALVES

- A. Ball Valves up to 4" may be used for all water services as an alternate to gate valves, globe valves and balancing cocks.
- B. Ball valves shall be bronze body, chrome plated bronze ball, Teflon seats stainless steel stem, and seals threaded ends, 400 psig cold W.O.G. "APOLLO" 70 - 100 Series, vinyl clad handles, full open port design.
- C. All valves used for throttling, balance shall have retainable memory stop.

2.07 BUTTERFLY VALVES

- A. Butterfly valves may be used for as an alternative to gate valves and balancing valves for sizes 2½" and above for chilled water only.
- B. Valves shall be similar to Keystone Fig. 222 lug type body or approved equal. Butterfly valves shall not be directly connected to equipment without a spool piece. All valves shall be suitable for dead end service. Lug body shall be drilled and tapped for isolation and removal of downstream piping meets ANSI Class 125/150 flange standards.
- C. Design working pressure: 175 psi.
- D. Valves in insulated piping: necks to extend 2 inches above outside diameter of flanges to accommodate full thickness of insulation.
- E. Operators:
 - 1. Valves to 8": handles wiht spring loaded lever, with minimum of 10 locking positions and adjustable memory stop.
- F. Body: Cast iron or malleable iron.
- G. Flanges: Wafer type bodies are not acceptable.
- H. Valves in piping that may be removed up to valve: bodies flanged.

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- I. Stems: 304, 316 or 17-4PH stainless steel with EPDM ring slabs or V-packing: Phosphate coated alloy steel accepted if stem does not come in contact with water.
- J. Discs: aluminum bronze
- K. Seats: replaceable EPDM
- L. Design working pressure: 175 psi.
- M. Factory test: bubble tight at 190 psi.
- N. Dead end test: 100 psi.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where valves are to be installed and determine space conditions and notify architect in writing of conditions determined to proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install valves where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that valves comply with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interfere installation of valves other components of systems.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of valves, test valves to demonstrate compliance with requirements. When possible, field correct malfunctioning valves, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

END OF SECTION 15830

SECTION 15840
SHEET METAL DUCTWORK

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all Sheet Metal Ductwork as shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Fabrication and installation shall be by a single firm specializing and experience in metal ductwork for not less than 10 years.
- B. Comply with SMACNA (Sheet Metal and Air Conditioning Contractors National Association) recommendations for fabrication, construction and details and installation procedures, except as otherwise indicated.
- C. Comply with ASHRAE (American Society of Heating Refrigeration and Air Conditioning Engineers) recommendations, except as otherwise indicated.
- D. Compliance to SMACNA and ASHRAE is a minimum requirement. In case of disagreement between sheet metal work described in this Section and SMACNA or ASHRAE, the specification shall govern.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical work and submit shop drawings and coordinate drawings.

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1.05 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical work.

1.06 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical work.

1.07 PRODUCT HANDLING

- A. Protect shop fabricated ductwork, accessories and purchased products from damage during shipping, storage and handling. Protect ends of ductwork and prevent dirt and moisture from entering ducts and fittings.
- B. Where possible, store ductwork inside and protect from weather. Where necessary to store outside, store above grade and enclosed with waterproof wrapping.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR DUCTWORK

- A. Furnish and install the size, connections and run of ducts as indicated on the drawings.
- B. While the Drawings shall be adhered to as closely as possible, the Architect's right is reserved to vary the run and size of ducts during the progress of the work if required to meet structural conditions.
- C. Install all ductwork in strict adherence to the ceiling height schedule indicated on the Architect's Drawings. Consult with the Electric and Plumbing Contractors, and in conjunction with the above Contractors, establish the necessary space requirements for each trade.
- D. The sheet metal ductwork shall, whether indicated or not, rise and/or drop and/or change in shape to clear any and all conduits, lighting fixtures, plumbing and heating mains to maintain the desired ceiling heights. And to provide adequate maintenance room and headroom in mechanical equipment rooms.
- E. The ductwork shall be continuous, with airtight joints and seams presenting a smooth surface on the inside and neatly finished on the outside. Ducts shall be

constructed with curves and bends so as to effect an easy flow of air. Unless otherwise shown on the Drawings, the inside radius of all curves and bends shall be not less than width of ducts in plane of bend.

- F. All rectangular ductwork, unless otherwise noted, shall be built from galvanized sheet steel and thoroughly braced and stiffened.
- G. All air ducts exposed to the weather and not insulated shall be constructed of aluminum and shall be properly braced and supported and secured to the building construction. (Aluminum) All seams shall be sealed with 3M EC-800 sealer. All exhaust ducts on roof shall be aluminum with 1 inch thick acoustic lining.
 - 1. The construction of ductwork shall be same as conventional ductwork except where transverse reinforcing angles not required, provide 1" x 1" x 1/8" black iron bracing angles matched angles at joint and 1" x 1" x 1/8" black iron between joints 4'-0" from joints.
 - 2. Provide 1/8" thick gasket (3M EC-1202 or equal) for all matched angles.
 - 3. Edge of ducts shall be bent 1/2" over matched angles to obtain watertight seal.
 - 4. (Aluminum) Rivet angles to duct and seal with 3M EC-800 sealer.
 - 5. Paint black iron angles after installation.

2.02 DUCT PENETRATION THRU FLOOR

- A. Provide 4" high and 4" wide concrete pad all around opening at duct penetration thru floors. Fill in space between duct and floor construction with mineral wool.

2.03 DRIP PANS

- A. Provide copper pans and gutters under all equipment subject to leaks mounted above electrical equipment. Each copper pan shall be properly pitched and a drain outlet provided and piped to drain. See "Drip Pans" under Section Special Requirements for Mechanical and Electrical Work.

2.04 KITCHEN HOOD EXHAUST DUCTWORK

- A. All kitchen hood exhaust ductwork shall be constructed of 10 gauge in black iron with continuously welded seams and continuously welded joint connections as per NFPA Bul. 96. The exterior of all kitchen hood exhaust ducts shall have 1½" x 1½" x ⅛" welded angles, punched for securing block insulation. Where kitchen hood exhaust duct risers pass vertically through floors of the building, provide angle clips welded to the duct of required sizes to support the weight of the riser sections on the building's structure at each of the floor levels. Provide and install all supplementary structural steel in shafts to properly support exhaust ductwork from building construction. Provide 18" x 12" insulated double wall access doors on side of duct at 15' spacing and at each change in direction and elevation. Pitch ductwork down to hood. The portion for ductwork exposed to view in the kitchen shall be of same gauge and material as the hood. Hood ducts shall conform to NFPA #96.
- B. Kitchen exhaust duct shall be insulated throughout including exterior ductwork.

2.05 MISCELLANEOUS DUCTWORK

- A. All ductwork from all laboratory fume hoods shall be stainless steel 18 gage type 316 construction. All joints shall be sealed tight with 3M EC-800 or approved equal sealer. Connections from fume hood ductwork to fans shall be thru acid resistant rubber, not less than 6" long, fume tight and securely fastened with copper metal bands.
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B. All supply, return air ductwork, exposed on roof shall be solid, double wall, aluminum or stainless steel, welded, air and water tight, with 2 inch thick, 3 pound density insulation in between, braced and reinforced, minimum 18 gauge thick. Support on curbs. Prime and paint of color as directed by Architect.
- C. All uninsulated ducts, outdoors shall be aluminum unless otherwise specified.

2.06 INSTALLATION OF HVAC DEVICES

- A. Installation of Smoke Detectors: Smoke detectors shall be furnished by the Electrical Sub-Contractor and shall

be installed in ductwork under this Section. Provide access door to each smoke detector.

- B. Installation of Dampers: Refer to Drawings and temperature control specification for smoke dampers and other automatic dampers and install them in ductwork.

2.07 DUCT FABRICATION

- A. Ducts shall be neatly finished on the outside with all sharp edges removed.
- B. Inside surfaces shall be smooth with no projections into the air stream except where otherwise indicated.
- C. Longitudinal joints shall be Pittsburgh lock at corners or Acme lock on flat surfaces double seams hammered tight and shall be located above the horizontal axis of the duct. A snap lock seam shall not be permitted as a substitute for the Pittsburgh lock at corners of ducts.
- D. Transverse joints shall be made airtight with all laps in the directions of air flow.
- E. All fasteners and attachments shall be made of the same material as the ducts.
- F. Furnish test wells 12" on the center horizontally and vertically in the suction and discharge duct of each fan. Test wells shall consist of a 1" x $\frac{3}{4}$ ", 125 lb., bronze, screwed hex bushing, secured to the duct with a bronze hex locknut on the inside of the duct. A $\frac{3}{4}$ " x 2" long standard weight bronze, screwed nipple and cap shall be fitted to the housing on the outside of the duct. Test wells shall be No. 699 as made by Ventlok or approved equal.
- G. All radius elbows shall have a minimum centerline radius of $1\frac{1}{2}$ times the width of the duct.
- H. All square elbows shall have factory-designed and built single thick turning vanes. Shop fabrication vanes will not be approved. Where turning vanes are in conflict with the access doors to fire dampers. They shall be made movable, so that fire dampers, shall be accessible.
- I. Dissimilar metals shall be connected with flanged joints made up with fiber or neoprene gaskets to prevent contact between dissimilar metals. Flanges shall be fastened

with bolts protected by ferrules and washers made of the same materials as the gaskets. Where an aluminum duct is to be connected to a galvanized steel duct, the end of the galvanized steel duct shall be coated with heavy black asphaltum paint before connecting it to the aluminum duct.

- J. Changes in shape and dimension shall conform to the following: Except where otherwise noted, for increases in cross-sectional area, the shape of the transformation shall not exceed 1" in 7". Except where otherwise noted, for reductions in area, the slope shall not be less than 1" in 4" but 1" in 7" preferred.
- K. Wherever it may be necessary to make provisions for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers as to fully protect the duct from being punched with holes for the passage of such hangers. Any such streamlined sleeves shall be made air tight at top and bottom of ducts. In no case shall there be more than two rods in any 9 sq. ft. area. No rods shall pierce ducts smaller than 12" in horizontal area.
- L. The construction for low pressure rectangular sheet metal ducts shall be made in accordance with recommendations of ASHRAE Guide, Latest Edition, or as per SMACNA Manual but not less than the following weights and construction:
1. Minimum duct gauge shall be 24. Ducts constructed of 26 gauges are not acceptable.
 2. All duct joints, seams shall be sealed airtight with approved mastic regardless of pressure classifications or duct.

LOW PRESSURE - RECTANGULAR DUCTWORK (2 inch S.P.)

Dimension Longest Side, Inches	Sheet Metal Gauge (All Four Sides)			Transverse Reinforcing At Joints and Between Joints
	Steel Gauge	Aluminum Thickness In.	Copper Oz. Per Sq. Ft.	
Up thru 12	24	0.020	16	1" pocket lock 24 gauge, standing seam joint 24 gauge, 1" standing S slip 24 gauge. Joint max. on 8 ft. centers.
13 thru 18	24	0.025	24	Same as for up thru 12.

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19 thru 30	24	0.025	24	1" pocket lock 22 gauge. Joints max, on 8 ft. centers with 1 x 1 x 1/8 in. angles 4 feet from joint.
31 thru 42	22	0.032	32	Same as for 19 thru 30.
43 thru 54	22	0.032	32	1" standing S slip 22 gauge with 1 1/2" x 1 1/2" x 1/8 in. angles, 1 1/2" standing seam joint, 1 1/2" pocket lock 22 gauge. Joints on 8 ft. centers with 1 1/2 x 1 1/2 x 1/8 in. angles max. 4 feet from joint.
55 thru 60	20	0.040	36	Same as for 43 thru 54.
61 thru 84	20	0.040	36	1" standing S slip gauge with 1 1/2 x 1 1/2 x 1/8 in. angles, 1 1/2 standing seam joint, with 1 1/2 x 1 1/2 x 1/8 in. angles, 1 1/2 in. pocket lock 22 gauge with 1 1/2 x 1 1/2 x 1/8 in. angles. Joints max. on 8 ft. centers with 1 1/2 x 1 1/2 x 1/8 in. angles max on 2 ft. centers.
85 thru 96	18	0.050	48	Same as for 61 thru 84 except all angles shall be 1 1/2 x 1 1/2 x 3/16 in.
over 96	18	0.050	48	Same as for 61 thru 84 except all angles shall be 2 x 2 x 1/4 in.

3. Flat areas of duct over 18 in. wide shall be stiffened by cross breaking of beading.
4. All joints to have corner closures.
5. All joints shall be sealed with 3M EC-800 mastic.

M. The construction for low pressure round sheet metal ducts and fittings shall be as follows:

Duct Diameter Inches	Steel-Galv. Sheet Gage	Girth Reinforcing		Girth Joints (Continuously Welded or as Below)
		Minimum Reinforcing Angle Size and Maximum Longitudinal Spacing		
Up thru 8	26	None required		Crimped and beaded joint
9 thru 13	26	None required		Crimped and beaded joint
14 thru 22	24	None required		Crimped and beaded joint
23 thru 36	22	None required		--
37 thru 50	20	1 1/4 x 1 1/4 x 1/8 @ 72 in.		--
51 thru 60	18	1 1/4 x 1 1/4 x 1/8 @ 72 in.		--

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61 thru 84

16

1½ x 1½ x ¼
Ø 72 in.

--

NOTE: Flanged joints may be considered as girth reinforcing.

1. Ductwork up to 36 in. diameter shall be spiral lockseam construction and it shall be assembled with prefabricated fittings made up of 20 gauge galvanized iron.
2. All joints shall be sealed tight with EC-800. Joints shall, in addition, be fastened with selftapping screws.

2.08 DAMPERS

- A. At each main branch take-off and in such other locations where required to properly balance the low pressure system, furnish and install volume dampers of the opposed blade, multi-louvered type, which shall be operated by indicating quadrants and set screws, for adjusting the system.
- B. Volume dampers shall be constructed as follows: Damper blades shall not be wider than 12", shall be complete with heavy angle iron frames, connecting and operating links, brass trunnions, and bronze bearings. Dampers, unless otherwise noted, shall be fabricated with not less than No. 16 gauge sheet steel. Blades shall overlap and shall be provided with continuous stops on all four sides of dampers to prevent leakage. Blades shall be galvanized. Blades of dampers shall be set into a flat steel frame with frame securely bolted to the duct. All dampers shall be fitted with a hexagonal brass spindle which shall extend through the exterior of duct and be fitted with an indicating self-locking regulator. Regulator shall be similar to Ventlok 641 or approved equal. All hardware shall be Ventlock or approved equal. For insulated ductwork provide No. 644 self-locking regulator as made by Ventlok or approved equal.
- C. All automatic dampers shall be furnished as a part of the automatic temperature control system by the automatic temperature control manufacturer. Install dampers and provide safing in ductwork for automatic dampers smaller than duct size.
- D. For stainless steel and aluminum ductwork provide dampers of same material as ductwork.

- E. All dampers shall be made accessible from building construction. Access doors in building structure shall be furnished or provided as herein before specified.
- F. Smoke dampers shall be installed at all smoke barriers within 2 ft. of the barrier and between any branch take off or duct outlet or inlet and the barrier.

2.09 FIRE DAMPERS

- A. Fire dampers and sleeve installation shall be in accordance with NFPA-90A recommendations and shall bear U.L. Label in compliance with U.L. 555.
- B. Clearly indicate fire damper location on shop drawings. Provide access doors in the ducts and furnish access doors or panels at building construction at each damper of sufficient size and type to permit inspection and replacement of linkage. Assume responsibility to coordinate all locations of duct access doors with the General Contractor to conform with whatever architectural access openings may be necessary and furnish access doors or panels in building construction. Provide shop drawings indicating location of access panels or doors for Architect's approval.
- C. It is the intention of these plans and specifications to be complete. However, it is the responsibility of this Section, as being completely cognizant of local regulations, to determine where fire dampers are required and to advise the Architect prior to construction as to any discrepancies or questions in the plans or specifications.
- D. Fire dampers shall be enclosed in sleeve of twelve gage metal set and grouted into fire partitions. Sleeve shall be secured at both sides of fire partitions with 1½ x 1½ x ¼ ga. mounting angles secured to sleeves only. Provide duct breakaway connections, see detail on drawings.
 - 1. Fire dampers shall be "Fire Seal" as made by Air Balance, Inc. or approved equal, U.L. labeled, linkage out of air stream. Provide duct transitions, access doors at each damper.

Used For

Rectangular Square

Fire Damper

Type B

Low Pressure Ductwork	Model 119BL Model 119ML*
Medium Pressure Rectangular or Square Ductwork	Type C Model 119-CL or as detailed on the drawings
Low, Medium Pressure Round Duct.	Typc C Model 119-CL or as detailed on the drawings.

In aluminum, stainless steel ductwork, provide stainless steel construction fire dampers similar to Fire Seal Model 119D.

2.10 AUTOMATIC DAMPERS, AND SMOKE DAMPERS

- A. Dampers shall have 16 gauge galvanized frames of not less than 3" in width and blades of 16 gauge, or double 22 gauge, galvanized steel, and shall be adequately braced to form a rigid assembly, where required in galvanized ductwork. Dampers shall have blades not more than 8" wide. Linkage and hardware shall be zinc plated steel. Damper blades and rods shall be installed in horizontal position.
- B. In aluminum and stainless steel ductwork, damper material shall match the ductwork, with 16 gauge aluminum, or 16 gauge stainless steel.
- C. All dampers shall be of the proportioning or opposed blade type and shall be motor operated. Dampers shall have continuous elastomer or stainless steel stops to avoid leakage. Bearings shall be oilite nonferrous sleeve type. All dampers shall be provided with continuous $\frac{3}{16}$ " x $\frac{1}{2}$ " closed cell neoprene gasketing around perimeter of the frame and at interlocking blade edges, to form an airtight seal.
- D. All dampers shall be constructed to provide a maximum leakage of 3%, with an approach velocity of 1500 fpm flow, when closed against 4 inches of water. Submit leakage and flow characteristic data for all dampers.
- E. All outside air dampers shall automatically return to closed position in the event of loss of electricity or air.

- F. All smoke dampers shall be UL-555S listed, Class I leakage, complete with sleeves, linkage, motor, Ruskin SD-60 or approved equal.

2.11 ACCESS DOORS IN SHEET METAL WORK

- A. Wherever necessary in ductwork, casings or sheet metal partitions, provide suitable access doors and frames to permit inspections, operation and maintenance of all valves, coils, humidifiers, controls, smoke dampers, smoke detectors, fire dampers, filters, bearings, traps, or other apparatus concealed behind the sheet metal work. All such doors shall be of double construction of not less than No. 20 gauge sheet metal and shall have sponge rubbergaskets around their entire perimeter. Doors in insulated ducts of insulated casings shall have rigid fiberglass insulation between the metal panels.
- B. All access doors in sheet metal ducts shall be hung on heavy flat hinges and shall be secured in the closed position by means of cast zinc clinching type latches. Where space conditions preclude hinges, use four heavy window type latches. Doors into ducts shall in general not be smaller than 18" x 18" except for access door to fire dampers which will depend on size of fire damper.
- C. In no case shall access to any items of equipment requiring inspection, adjustment, or servicing require the removal of nuts, bolts, screws, wing nuts, wedges, or any other screwed or loose device.
- D. Each sheet metal chamber shall have access doors for access to all parts of the system. Doors shall be fitted with cast zinc door latches, two per door. Latches shall be operable from both sides of casing. Hinges shall be extra heavy, zinc plated hinges, minimum of two per door. The doors shall be felted or provided with rubber gaskets so as to make them airtight. The doors shall be made with inner and outer shells 2 inches apart so that they may be properly insulated and properly operated. Doors shall be a minimum size of 20" x 48".
- E. Hinges shall be Ventlok No. 150 or 260 with or without screw holes or approved equal. Latch for walk-in access doors shall be No. 260 as made by Ventolk Co. or approved equal. Latch for access door in ductwork shall be Ventlok No. 100 or approved equal.

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- F. Where reheat coils installed in ductwork, provide access doors on upstream side of coils within 3'-0" of coil.
- G. Access doors at humidifier locations shall be provided on both sides of duct.

2.12 FLEXIBLE CONNECTIONS

- A. All fan and air supply unit connections, both at inlet and discharge shall be made with material as hereinafter specified, so as to prohibit the transfer of vibration from fans to ductwork connecting thereto.
- B. The flexible connections shall be a minimum of 12" long including bands using extra wide fabric as specified and held in place with heavy metal bands, securely attached, to prevent any leakage at the connection points.
- C. Flexible connections shall be fabricated from the following materials unless otherwise required by Local Authorities.
 - 1. Low Pressure Systems - neoprene coated glass fabric
- 30 ounce/sq. yd.
 - 2. Medium & High Pressure Systems - neoprene coated glass fabric
- 30 ounce/sq. yd.
- D. Flexible connections shall not be painted.

2.13 AIR INTAKE AND DISCHARGES

- A. Air intake and discharge louvers and screens in the facade of the building shall be furnished and installed under another contract.

2.14 GRILLES, REGISTERS AND DIFFUSERS

- A. Furnish and install where shown on the drawings all metal diffusers, grilles and registers of the sizes and capacities indicated.
- B. Ceiling diffusers shall be selected to diffuse the air uniformly throughout the occupied space. The air shall be introduced at a temperature differential of 20°F and shall be diffused at the five (5) foot level to a velocity of not greater than 50 FPM and a temperature differential of not greater than 2°F when compared with

mean room temperature. The sound power level of air distribution equipment devices shall not exceed ratings as shown by Anemostat Corp. data.

- C. Equipment manufacturer shall submit engineering data in a manner to facilitate convenient review of the following factors:
 - 1. Aspiration ability, including temperature and velocity traverses, throw and drop of each unit, noise criteria ratings for each unit, sizes, free area and quality of construction.
- D. All air distribution equipment shall be as manufactured by Anemostat Corp., or approved, as scheduled on plans. Outlets shall have fire-dampers, where fire dampers are required or indicated.
- E. All ceiling diffusers shall be furnished with a device or devices equalize the air flow and control the volume.
- F. Location of ceiling diffusers and registers shown on the drawings are approximate. Coordinate with the acoustic tile ceiling Sub-Contractor for exact locations of ceiling diffusers and registers. They shall be in accordance with approved ceiling layout shop drawings.
- G. Return grilles shall match return registers with the damper omitted. Anemostat Corp. Type SS-3HD or approved equal.
- H. All registers, grilles and diffusers shall be coated with baked aluminum enamel, baked flat white (W-1), or baked gloss white (W-4) as supplied by Anemostat Corp. unless otherwise indicated. All supply registers and grilles shall have a 1/4" sponge rubber gasket around the grille frame.
- I. Exceptions to foregoing types of grilles, registers and diffusers shall be as indicated on the plans.
- J. Each air supply outlet shall have the required capacity and shall be guaranteed to give the required draft with draftless diffusion. Where manufacturer's recommendations require duct sizes differing from those on the drawings, the same shall be provided at no additional cost to the Owner.
- K. All grilles, registers and diffusers must be tested under ADC standards and carry and ADC seal of approval.

- L. All registers and grilles located at face of partitions or plaster line of ceilings or soffits, etc. shall have plaster frames, Anemostat or approved equal.
- M. Relocations of ceiling diffusers or registers in order to match the ceiling tile layout shall be made at no additional cost to Owner.
- N. All linear grilles shall be Anemostat, type AL, with minimum 12" x 12" plenum extending length of grilles.

2.15 SOUND REDUCTION

- A. Furnish and install all soundproofing material specified, indicated or necessary to that all systems will comply with requirement of quiet operation. In general, noise level in any part of building (except in machinery rooms), due to air conditioning or ventilating equipment, ducts, and outlets, shall not exceed 40 decibels at 1200-2400 cycles per second, except as otherwise hereinafter specified.
- B. Furnish and install sound-absorptive lining in ductwork for locations and lengths as indicated and/or hereinafter specified. All soundproofing material, installation and arrangement, shall be as approved. Where ducts are acoustically lined, insulation shall be omitted for extent of acoustic lining inside building. Dimensions noted for lined ducts are inside clear dimensions. Duct sizes shall be increased for liner.
- C. Sound Absorbent Duct Lining for Low Pressure Ductwork - Furnish and install as herein specified and/or shown on the drawings (except where otherwise noted) 1" thick, 1½ lb. density, fibrous glass duct lining meeting the requirements of NFPA 90A.
- D. Liner shall be adhered to all interior sides of duct with minimum 100% coverage of fire-retardant adhesive and with weld pins and washers or equivalent mechanical fastening starting 3" from edges and sides, 12" on center all sides. Minimum one row per side for duct size of 12" or less. Mechanical fasteners shall cause quilting of surface. Neoprene coated surface shall be toward air stream. Before installing liner, seal all butting edges and final edges with heavy coat of adhesive to seal off air between lining and duct. All exposed edges of lining shall be installed with sheet metal nosing 1½" wide, two gauges heavier than duct. Installation shall be suitable

for duct velocities up to 3,000 fpm. Low pressure duct lining shall be provided where specified and/or where shown and noted on the drawings.

- E. Duct sizes indicated on drawings are clear inside dimensions. Increase sheet metal sizes as required to install acoustic lining.
- F. The following ductwork shall be acoustically lined whether or not shown on Drawings.
 - 1. Exhaust ductwork on suction side of all exhaust fans (except kitchen exhaust, MER exhaust) for minimum of 50 feet distance from fan inlet in all directions, this insulation shall be in addition to sound traps.

2.16 SOUND TRAPS

- A. Furnish and install sound traps for each supply, return, exhaust duct (except kitchen exhaust and MER exhaust systems) penetrating exterior wall or roof, at locations of penetrations into building.
- B. Outer casings of rectangular sound traps shall be made of heavy, 20 gauge steel in accordance with ASHRAE Guide recommended construction for high pressure rectangular ductwork. Sound traps in aluminum or stainless steel ducts shall be stainless steel. Seams shall be lock formed and mastic filled.
 - 1. Provide 18 gauge, "elbow" silences, where shown and where constraints and field conditions do not permit installation of conventional, straight sound trap.
 - 2. Support, insulate each sound trap similar to sound trap. Weatherproof exterior, exposed sound trap.
 - 3. Sound traps shall be in addition to acoustic lining.
- C. Interior partitions for rectangular sound traps shall be made of 24 gauge galvanized perforated steel or stainless steel.
- D. Packless type to be provided for exhaust. "Hospital grade" for supply fans.

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- E. Combustion rating for the sound trap acoustic fill shall be not less than the following, when tested in accordance with ASTM E84, NFPA Standard 255 or UL NO. 723:
- | | |
|---------------------------|---------|
| Flamspread Classification | 20 |
| Smoke Development Rating | 20 |
| Fuel Contributed | 15 - 30 |
- F. Airtight construction shall be used, and sound traps shall be leakproof when subjected to a differential air pressure of 8" w.g. inside to outside of the sound trap casing.
- G. Sound trap ratings shall be determined in a duct-to-reverberant room test facility which provides for air flow through the sound trap during rating. The test setup and procedure shall be such that all effects due to end reflection, directivity, flanking transmission, standing waves, and test chamber sound absorption are eliminated. Acoustic ratings shall include dynamic insertion loss and self-noise power levels both at 2,000 fpm face velocity as per schedule on the Drawings.
- H. Static pressure loss of sound traps shall not exceed those listed in the schedule at the air flow indicated. Air flow measurements shall be made in accordance with applicable portions of ASME, AMCA and ADC air flow test codes.
- I. The manufacturer shall supply with submittals certified test data on dynamic insertion loss, self-noise power levels, and aerodynamic performance. Test data shall be for a standard product having not less than 24" x 24" cross section. All rating tests shall be conducted in the same facility, shall utilize the same sound traps and shall be conducted sequentially. The certifying laboratory shall be open to inspection upon request from the architect. Provide flanges at both ends of sound traps 1½" x 1½" x ½" thick.
- J. Sound traps lining shall meet with erosion test method described in U.L. No. 181 and shall be suitable for Hospital use.

2.17 ACOUSTICAL PERFORMANCE SPECIFICATIONS - GENERAL

- A. It is the intent of this Specification that noise levels due to air conditioning and/or ventilating equipment, ducts, grilles and registers, diffusers and air light

fixtures, will permit attaining sound pressure levels in occupied spaces conforming to the following NC curves as explained in the ASHRAE Guide and Data Book.

Office and Class Rooms	NC-35
Labs, Multi-Purpose Room	NC-40
Corridors, Halls	NC-45

B. Grilles, Registers, Diffusers

1. Grilles, registers and diffusers to be selected for maximum 5 NC points below space NC criteria.

2.18 ACOUSTICAL PERFORMANCE WITHIN EQUIPMENT SPACES

- A. Equipment room noise levels and noise transmission to adjacent buildings shall comply with all Federal, State, and City Noise Ordinances.
- B. Motor Acoustical Performance:
 1. Motor drives for pumps and refrigerator machine when installed per plans and specifications shall operate with noise levels not to exceed 80 dbA.
 2. Noise levels shall be determined in accordance with IEEE Standard #85 test "procedure for Air-Borne Noise Measurements on Rotating Electric Equipment".

2.19 COMBINATION FIRE/SMOKE DAMPERS

- A. Smoke and fire/smoke dampers shall be construed in accordance with NFPA-90A, UL labeled in accordance with the most current edition of UL555 & UL555S, and BSA approved.
- B. Combination fire and smoke dampers shall be 1½ hour rated as a primary fire damper. They shall be UL Class I Leakage Rated (maximum leakage of 4 CFM/sq. ft. at 1" w.g.) as manufactured by Ruskin Mfg. Co., Imperial Damper and Louver, or approved equal.
 1. Combination fire and smoke dampers shall be Ruskin Mfg. Co. Model FSD60 (BSA #176-82-SM) with factory standard sleeve for installation in two hour building structure as required. For three hour rating provide Ruskin combination damper FSD 60-3.

2. Provide electric operator Model MA-418 (120V) and 24 volt transformer (if required).
3. Provide UL listed firestat with temperature rating not greater than 212°F or 50°F above highest air temperature in duct.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where ductwork is to be installed and determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION OF DUCTWORK

- A. Install ductwork in accordance with recognized industry practices, to ensure that ductwork complies with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to interface installation or ductwork with other components of systems.
- C. Duct sizes shown on the drawings at connection to fans or other equipment may vary in actual installation. Contractor shall provide transition pieces as required.
- D. Ducts, casings and hangers shall be installed straight and level and shall be free of vibration and noise when fans are operating.
- E. Ducts at ceilings shall be suspended from inserts in concrete slabs except where otherwise indicated. Inserts shall be Grinnel Fig. 279, 282, or 152 as required. Ducts at floor shall be supported by steel angles suitably anchored to floor construction. Each duct shall be independently supported and shall not be hung from or supported by another duct, pipe, conduit or equipment of any trade.
- F. Supports shall be placed at each joint and change in direction up to a maximum spacing of 8 feet on centers. Prevent buckling of ductwork.

- G. All fastenings to building structure shall be adequate to insure permanent stability of sheet metal work and shall be capable of resisting all applied forces.
- H. Vertical ducts in shafts or passing through floors shall be supported by steel angles or channels, welded, riveted, screwed or bolted to ducts and fastened to building structural members at each floor level. Provide safing to close all floor openings around ductwork - pack annular space with rockwool and 18 gauge sheet metal safing. Floor openings in plenums shall have ½ inch diameter steel bars.
- I. Rigid connections between ductwork and non-rotating equipment shall be made with flanged joints, sealed with fireproof material (Fiber or Neoprene gaskets).
- J. It is the intent to obtain low pressure ductwork construction with minimum leakage. The construction noted in Specifications can produce low or high leakage rates, depending upon the workmanship, particularly with regard to the connection at the top of the ducts. Guarantee that total diffuser volume, measured by means of velometer, shall be at least 95% of actual fan supply (measured by means of a duct traverse taken with a Pitot tube and water manometer). Seal the ductwork at joints with suitable sealers 3M EC-800 and tape. Use of "HARDCAST" or any other material is subject to Architect's approval.

3.03 DUCT HANGERS

- A. Low pressure ducts up to 24" on a side or up to 20" diameter shall be suspended with 16 gauge, galvanized strap hangers, 1" wide.
- B. Low pressure ducts 25" to 40" on a side or 21" to 40" diameter shall be suspended with galvanized strap hangers 1" wide by ⅛" thick.
- C. Strap hangers shall be bent 90°, extended down sides of ducts and turned under bottom of ducts a minimum of 2". Strap hangers shall be fastened at ceiling with nuts, bolts and lock washers and to sides and bottom of ducts with sheet metal screws.
- D. All medium and high pressure ductwork and low pressure. Ducts 41" and larger on a side or diameter shall be

suspended with eighter rod or angle type hangers. No screws shall penetrate medium and high pressure ductwork.

- E. Rod type hangers shall be 3/8" diameter black steel rods threaded at both ends and bottom bracing angles on ducts, with nuts and lock washers.
- F. Angle type hangers shall be extensions of side bracing angles on ducts, bent 90° at ceiling and fastened with nuts, bolts and lock washers.
- G. Hangers for vertical ducts shall be as per SMACNA Duct Manual.
- H. Stainless steel ductwork shall be supported with aluminum rod or aluminum angle type hangers, so that there will be no penetration of the stainless steel ducts.
- I. Hangers for multi-purpose room (Gymnasium) shall be with vibration isolators. Coordinate with details.

3.04 CLEANING AND PROTECTION

- A. Clean ductwork internally, unit by unit as it is installed of dust and debris. Clean external surfaces of foreign substances, which might cause corrosion, deterioration of metal or interfere with painting.
- B. At end of ducts which are not connected to equipment or air distribution devices at the time of ductwork installation, provide temporary closure of polyethylene film or other covering.
- C. Cleaning of new and existing supply ductwork in existing buildings. After completion of ductwork installation clean ductwork as follows:
 - 1. Cover all supply registers and diffusers with oil cheese cloth.
 - 2. Use supply fan or install temporary fan to provide air to the system for four (4) hours.
 - 3. Remove oil cheese cloth.

END OF SECTION 15840

SECTION 15850
INSULATION FOR HVAC WORK

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes furnishing and installing all labor, materials, equipment, accessories and services necessary to provide Piping, Ductwork and Equipment Insulation installation, which is complete in every respect and of the composition and quality as shown on the Drawings and hereinafter specified.

1.03 PIPE INSULATION

- A. The following pipes shall not be insulated. Insulate all other piping:
 - 1. Automatic air vent drain pipes.
 - 2. Gas and gas vent piping.
 - 3. Drain pipes embedded in concrete.
 - 4. Vent piping from duplex condensate pumps.
 - 5. Piping under radiation cover.

1.04 DUCTWORK INSULATION

- A. Insulate all ductwork except the following portions of ductwork:
 - 1. Ducts and casings internally insulated or provided with sound absorptive lining inside building.

1.05 QUALITY ASSURANCE

- A. "Installer": A firm with at least ten 10 years successful installation experience on projects with piping and ductwork insulation similar to that required for this project.
- B. All insulation shall have composite (including insulation jacket or facing and adhesive) fire and smoke hazard ratings as tested by procedure ASTM E-84, NFPA 255 and UL 723 not exceeding:
 - 1. Flame Spread 25
 - 2. Smoke Developed 50
 - 3. Fuel Contributed 50
- C. Accessories such as adhesives, mastics, cements, tapes and cloths for fittings shall have component ratings as listed above. All products shall bear UL labels indicating the above are not exceeded.
- D. Provide certifications or other data as necessary to show compliance with these Specifications and governing regulations. Include proof of compliance for test of products for fire rating, corrosiveness, and compressive strength.
- E. Provide products produced by the manufacturers which are listed in Section "Approved Manufacturers List".

1.06 SUBMITTALS

- A. Refer to Section 15000 - "Special Requirements for Mechanical and Electrical Work", and submit shop drawings and samples.

1.07 GUARANTEE

- A. Refer to Section 15000 - "Special Requirements for Mechanical and Electrical Work".

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect insulation against dirt, water, chemical and mechanical damage. Do not install damaged insulation; remove from project site.
- B. Deliver insulation, coverings, cements, adhesives and coatings to the site in factory-fabricated containers

with the manufacturer's stamp, or label, affixed showing fire hazard ratings of the products.

- C. Store insulation in original wrappings and protect from weather and construction traffic.

PART 2 - PRODUCTS

2.01 COLD TEMPERATURE PIPING INSULATION

- A. The following piping shall be covered with fiberglass insulation with vapor barrier of following thickness:

<u>Service</u>	<u>Thickness</u>
Chilled Water Supply & Return	
Up to 4"	1½"
5" and above	1½"
Chemical Treatment (Hot Water, Chilled Water)	1"
Cold Water Make-Up and Air Conditioning Unit Drains, Pumped Drains	
Up to 2" pipe	½"
Above 2½"	1"

- B. Insulation shall be glass fiber with a maximum K factor of 0.23 at 75°F mean temperature with factory-applied all service vapor barrier jacket. Density shall be not less than 3 lbs. per cubic foot.
- C. Insulation shall be heavy density fiberglass sectional pipe insulation as made by Owens-Corning Fiberglas Corp. or CSG's "Snap-On" or Manville "Flame-Safe" fiberglass insulation.
- D. ASJ longitudinal lap and 4 inch wide vapor barrier joint sealing strips shall be adhered with Benjamin Foster fire-resistant vapor barrier lap adhesive BF 85-75, or equal. Ends of pipe insulation shall be sealed off at all flanges, fittings, valves and at intervals of 21 feet on continuous runs of pipe, with Benjamin Foster fire-resistant vapor barrier coating BF-30-35 or equal.
- E. All fittings, valves and flanges for pipe sizes smaller than 4" shall be insulated with molded fiberglass fittings of same thickness as the adjoining pipe

- insulation, finished with Zeston 25/50 PVC outer jacketing as made by Manville.
- F. All fittings, valves and flanges for pipe sizes 4" and larger shall be insulated with fabricated mitered segments of pipe insulation of same thickness as the adjoining pipe insulation, finished with Zeston 25/50 PVC fitting covers as made by Manville.
- G. All coated molded fittings and mitered segments shall be vapor sealed with a layer of J-M Duramesh 207, or equal, open weave glass fabric embedded between two $\frac{1}{16}$ " thick coats of Benjamin Foster 30-35 and lap seal at least 1" for molded type and 2" for mitered type on itself and adjoining insulation.
- H. All fittings, valves and flanges exposed to view shall be additionally finished with J-M A-2070 fitting cloth or equal, smoothly adhered and coated with Benjamin Foster 30-36 and lap as described above.
- I. Direct contact between pipe and hanger shall be avoided. Hanger shall pass outside of a metal saddle which shall cover a section of high density insulation (such as calcium silicate) of sufficient length to support pipe without crushing insulation. Hangers shall not pierce insulation and all vapor barriers shall be unbroken and continuous.
- J. At pipe supports insulation shield protection saddles and matching hanger shall be used.
- K. All strainers for chilled water piping shall be insulated and boxed in with galvanized sheet metal cover, and insulation shall be made removable.

2.02 HOT PIPE INSULATION

- A. The following piping shall be covered with fiberglass insulation:

<u>Service</u>	<u>Thickness</u>
Hot Water Supply and Return (Below 249°F)	
Up to 2"	1½"
2½" and above	2"

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- B. Insulation shall be glass fiber with a maximum K factor of 0.23 at 75° F mean temperature. Density shall be not less than 3 lbs. per cubic foot. Insulation shall be suitable for 650°F (2" minimum thickness above 450°F).
- C. Insulation shall be heavy density sectional pipe insulation as made by Owens-Corning Fiberglas Corp., or CSG's "Snap-On" or Manville "Flame-Safe" Fiberglass insulation.
- D. Longitudinal jacket laps and butt strips shall be smoothly secured with Benjamin Foster 25-20 adhesive or equal.
- E. All fittings, valves and flanges for pipe sizes smaller than 4" shall be insulated with molded fiberglass fittings of same thickness as the adjoining pipe insulation, finished with Zeston 25/50 PVC fittings as made by Manville.
- F. All fittings, valves and flanges for pipe sizes 4" and larger shall be insulated with fabricated mitered segments of pipe insulation of same thickness as the adjoining pipe insulation, finished with Zeston 25/50 PVC jacketing.
- G. All fittings, valves and flanges exposed to view shall be additionally finished with J-M A-2070 insulating fitting cloth or equal smoothly adhered and coated with Benjamin Foster 30-36. Lap to be at least 1" on pipe insulation below 4" and 2" on sizes 4" and above.
- H. Insulation shall be protected by saddles from hangers, guides and rollers.
- I. Strainers on hot pipes shall not be insulated.

2.03 PVC INSULATED FITTING COVERS

- A. The Contractor shall provide Zeston 25/50 rated PVC covers as made by Manville or approved equal.
- B. Hot Systems: Fittings shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting and the edges adjacent to the pipe covering tufted and tucked in, fully insulating the pipe fitting. PVC fitting cover is then applied and shall be

- secured by tack fastening, banding or taping the ends to the adjacent pipe covering.
- C. On fittings where the operating temperature exceeds 250°, 2 or more layers of the Hi-Lo Temp insulation inserts shall be applied prior to the installation of the PVC fitting cover. The first layer shall be applied with a few wrappings of fiber glass yarn to eliminate voids or hot spots.
 - D. Cold Systems: Fittings shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting and the edges adjacent to the pipe covering tufted and tucked in, fully insulating the pipe fitting.
 - E. A vapor barrier mastic compatible with the PVC shall be applied around the edges of the adjoining pipe insulation and on the fitting cover throat overlap seam. The PVC fitting cover is then applied and shall be secured with pressure sensitive pearl gray Z-Tape along the circumferential edges. The tape shall extend over the adjacent pipe insulation and have an overlap on itself at least 2" on the downward side.
 - F. 2 or more layers of the Hi-Lo Temp insulation inserts shall be applied with the first layer being secured with a few wrappings of fiberglass yarn.
 - G. Refrigerant systems and cold systems in severe ambient conditions: Fittings shall be insulated to a full thickness the same as the adjacent pipe insulation, with insulation which has been mitered to conform to the PVC fitting cover. An intermediate vapor barrier compatible with the PVC shall be applied, completely sealing the insulation and on the fitting cover overlap seam. The PVC fitting cover is then applied and shall be secured with pressure sensitive pearl gray Z-Tape along the throat seam and the circumferential edges overlapping itself 2" on the downward side.
 - H. Qualifications for Using Insulation: When the pipe insulation thickness is greater than 1½" or the pipe temperature is greater than 250°F or less than 45°F, additional insulation inserts should be used. Use one Hi-Lo Temp insert for each additional 1" of pipe insulation.

- I. Fitting cover: The temperature of the PVC fitting cover must be kept below 150°F by the use of proper thickness of insulation and by keeping the PVC cover away from contact with, or exposure to, sources of direct or radiant heat.

2.04 INSULATION OF PIPING IN UNIT VENTILATOR UNITS

- A. The Contractor shall have the option to use ¾" thick Armaflex II as made by Armstrong Co. pipe insulation in lieu of fiberglass hereinbefore specified for chilled and hot water piping insulation in unit ventilator and fan coil units cabinets. Pipe insulation shall meet flame spread index of 25 and smoke density of 100 when tested in accordance with ASTM-E-84.

2.05 PIPING EXPOSED TO FREEZING

- A. Insulation on any piping, fitting, flange and valve located in areas exposed to freezing (in unheated areas, and where noted on the Drawings as to provide "Frost Insulation") shall, in addition to above covering, be increased by one inch with the same finish as specified for the particular service when not subject to freezing. Insulation shall always be a minimum of 2½" inches in thickness.
- B. Weatherproofing of Piping:
1. Weatherproofing all insulated outdoor piping.
 2. Where weatherproofing is required, in addition to insulation and finishes specified for frostproofing, cover with Tedlar Film Jackets as made by ALPHA Assoc, Inc. (Woodbridge N.J.).
 3. Fittings insulation shall be heavily coat with weatherproof mastic. Embed into the wet coat a layer of open weave glass cloth and finish with a second coat of same mastic over entire surface.
 4. Where weatherproofing is required, in addition to insulation and finishes specified for frostproof, cover with crimped aluminum sheet .016 inch thick with lock seams at longitudinal seams, and preformed straps at transverse joints. Joints and jacket shall provide complete weatherproof protection either by mechanical contact or by use of a permanently plastic weatherproof sealant.

2.06 FIRE STOPPING

- A. Packing of openings, where ducts and pipes penetrate fire barriers, shall be done with Rockwool insulation as made by United States Gypsum, Co.
- B. Insulation shall comply with Fed. Spec. HH-1-558, Form A, Class 4, K=0.24, melting point 2000°F.

2.07 DUCTWORK INSULATION

- A. Insulation for Concealed Duct
 - 1. Except where otherwise noted, all concealed rectangular and round ductwork shall be covered with flexible duct insulation with or without vapor barrier and of the thickness indicated below.

<u>Service</u>	<u>Thickness</u>	<u>With</u>
Cold and Hot Air Supply Ducts	1½"	Vapor Barrier
Return Air Ducts	1½"	Vapor Barrier
Hot Supply Ducts	1½"	Vapor Barrier
Outside Air Duct	1½"	Vapor Barrier
Sound traps	1½"	Vapor Barrier

- B. Flexible duct insulation with vapor barrier shall be 1 lb. per cu. ft. density glass fiber with a maximum K factor of 0.29 at 75°F mean temperature, with reinforced foil-faced, flame resistant reinforced aluminum foil vapor barrier.
- C. Insulation with vapor barrier shall be duct wrap insulation FRK-25, type 100 as made by Owens-Corning or Manville Microlite with FRK vapor barrier facing or standard duct insulation as made by CGG with FRK facing.
- D. Flexible duct insulation without vapor barrier shall be 1lb. per cu. ft. density glass fiber with a maximum K factor of 0.29 at 75°F mean temperature and shall be Owens Corning Fiberglass Type 75P, Manville Microlite or approved equal.
- E. Adhere insulation to duct with Foster fire resistant adhesive 30-20 or equal, applied in 4 inch wide transverse strips at 8 inch intervals. Insulation shall be butted with facing overlapping all joints at least 2 inches and sealed with Foster fire resistant adhesive 30-20 or equal. For insulation with vapor barrier use

Foster fire resistant vapor barrier adhesive or approved equal and joints without tabs shall be firmly sealed with aluminum foil tape adhered with same adhesive. Secure insulation with 18 gauge corrosion resistant annealed wire spaced not more than 18 inches on center.

F. Additionally, secure insulation to bottom of rectangular ducts over 24" wide with welded pins or stick clips on 18" centers.

G. Insulation for Exposed Rectangular Duct (exposed to view)

1. Except where otherwise noted, all exposed rectangular ductwork including supply, return air ducts for Gymnasium/Multi-purpose room, shall be covered with rigid duct insulation with and of the thickness indicated below.

<u>Service</u>	<u>Thickness</u>	<u>With</u>
Cold and Hot Air Supply Ducts in Mechanical Equipment Rooms	1½"	Vapor Barrier
Return Air Ducts in Mechanical Equipment Room	1½"	Vapor Barrier
Cold and Hot Air Supply Ducts Except where otherwise noted	1½"	Vapor Barrier
Cold and Hot Air Return Air Ducts Except where otherwise noted	1½"	Vapor Barrier
Outside Air Intake Ducts	2"	Vapor Barrier
Sound Traps	1½"	Vapor Barrier
Outside and Return Mixed Air Duct	1½"	Vapor Barrier
Hot Supply Duct	1½"	Vapor Barrier
Exhaust Air Plenum or Duct Behind Louver up to Automatic damper	1½"	Vapor Barrier
Exhaust Ducts connected to penthouse louvers or goosenecks up to damper	1½"	Vapor Barrier

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Unused portion of Louvers

2" in 20 gauge sheetmetal sandwich.

2. Rigid duct insulation with vapor barrier shall be 6 lbs. per cu. ft. density glass fiber with maximum K factor of 0.22 at 75°F mean temperature with fire retardant vapor barrier facing with reinforced aluminum foil and all service jacket (white finish).
3. Rigid duct insulation with vapor barrier shall be Fiberglass Type 705 by Owens-Corning or Manville, No. 817 w/ASJ or approved equal.
4. Rigid duct insulation without vapor barrier shall be 6 lbs. per. cu. ft. density glass fiber with maximum K factor of 0.22 at 75°F mean temperature. With fire retardant facing foil reinforced draft. (all service jacket).
5. Rigid duct insulation without vapor barrier shall be Fiberglass type 705 by Owens-Corning, Manville, No. 817 w/ASJ or approved equal.
6. Insulation shall be fastened to duct with 12 gauge welded pins and washers, or equivalent as approved. Fasteners shall be spaced 12 to 18 inches on center, a minimum of two rows per side of duct. Secure insulation in place with washers firmly embedded in insulation, or push a self-locking cap over pin after coating with fitting mastic type C by Owens-Corning or approved equal.
7. Seal all joints, breaks and impressions with Foster fire resistant vapor barrier adhesive Benjamin Foster 82-07, or equal, and apply 5" wide joint sealing tape to all joints. All surface must be clean and dry before applying tape.

H. Insulation for Exposed Round Duct

1. Insulation for exposed round ductwork shall be of material as specified for concealed ductwork and shall be covered with glass cloth or all service jacket smoothly adhered with Benjamin Foster 85-20 adhesive. Seal joints with 5" wide tape.

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<u>Service</u>	<u>Thickness</u>
Cold and Hot Air Supply Ducts in Mechanical Equipment Rooms	1½" with vapor barrier
Air Conditioning Return Air Ducts in Mechanical Equipment Rooms	1½" with vapor barrier
Cold and Hot Air Supply Ducts Except where otherwise noted	1" with vapor barrier
Hot Supply Duct	1"
Return Air Fan for Air Conditioning Units.	1½" with vapor barrier

2. The Contractor shall have the option to use the following material: Insulation for round ducts shall be of thickness noted above and shall be fiberglass Bend-a-Board having a factory applied ASJ vapor barrier jacket secured with staples and ASJ pressure sensitive tape. Bend-a-Board is a 3.00 p.c.f. board cut into strips, adhered to jacketing it must have a UL label.
3. Transition ductwork at sound traps shall be insulated with 1" thickness, 6 lb. density, fibrous glass board with reinforced aluminum vapor barrier, Owens-Corning Series 705, or approved equal. Fasten insulation in place with welded pins and washers or equivalent mechanical fastening method, as approved. Seal all joints with vapor barrier adhesive to provide continuous vapor barrier. All edges, corners and joints, reinforced with 4" wide tape. Tape, of type, and applied in strict conformance with manufacturer's recommendations. Over the insulation apply a flood coat of Benjamin Foster 30-36 or equal vapor seal coating. Provide fiberglass fitting tape or glass cloth smoothly adhered with Benjamin Foster 85-20 adhesive.

I. Weatherproofing Finishes for Outdoor Insulation

1. Outdoor round duct shall be finished with Aluminum Jacketing with factory applied moisture barrier as manufactured by the Premetco Aluminum Jacket, or approved.

2. Jacketing shall be applied with minimum 2 inch overlaps facing down from the weather and the jacketing shall be secured with aluminum bands $\frac{1}{2}$ inch by 0.020 inches and aluminum wing seals applied on 12 inch centers, with bands applied directly over butt overlaps or with Pli-Grip Rivets. Where jacketing is cut out or aduts an uninsulated surfaces, the joint shall be sealed with Insul-Cooustic Sure-Joint 405.
3. Fittings, valves and other irregular surfaces shall be protected with two coats of Marathon Vi-AC Mastic, I-C 551, with Vi-AC open weave glass cloth membrane between the coats. The total thickness of the coats shall be $\frac{1}{8}$ inch when dry.
4. Outdoor rectangular ductwork shall be finished with Marathon Vi-AC Mastic, I-C 551, Gray (or color as selected by Architect). Over the insulated surface apply a tack coat of Vi-AC Mastic and embed in it a layer of Vi-AC, glass cloth. A smooth finish coat of Vi-AC Mastic shall be applied to the entire area so that the total film thickness is a minimum of $\frac{1}{8}$ inch. Provide high point at center, so that no water accumulation will occur. Insulation shall be minimum 3 inch thick, in two overlapping layers; shall extend beyond support angles.

2.08 EQUIPMENT INSULATION

- A. Heating and cooling system expansion tanks, chemical treatment tanks, accessories, in-line air separators, heat exchangers, condensate return unit receivers, accessories shall be insulated with 2" thick calcium silicate, 85% magnesium or Kaylo blocks or N-1200 Block as made by Forty-Eight Insulations Inc., laid with staggered joints and secured in place with No. 16 gauge galvanized annealed steel wire for small areas and No. 12 gauge galvanized annealed steel wire or $\frac{1}{2}$ " x 0.015" galvanized steel bands on 12" maximum centers for large areas. Where required, welded studs, clips or angles shall be provided as anchors for wires and bands.
- B. Over the insulation, 2" hexagonal mesh wire shall be tightly stretched in place and secured by wiring to anchors with edges tied together.
- C. Finish shall be insulating and finishing cement J-M NO. 301 or approved equal applied $\frac{1}{2}$ " thick in one coat,

troweled to a smooth finish. Provide presized glass cloth, smoothly adhered with B-F 85-20 adhesive over cement. Provide 18 gauge jacketing all around.

- D. Heat exchanger insulation shall be finished with .016" aluminum jacketing banded in place with ½" aluminum bands 12" on center.
- E. Hot water and chilled water pump casings shall be encased in 20 oz. copper casings, gasketed and bolted together with brass bolts, washers and nuts, removable in two sections and packed with 3" thick dry granulated cork, or 2" thick 1 lb. density fiberglass blanket insulation.
- F. The Contractor shall have the option to use 2" thick fiberglass Bend-a-Board insulation with ASJ. Vapor barrier for expansion tank and air separator insulation.
- G. Sound traps shall be insulated same as the connecting ductwork.
- H. Kitchen hood exhaust ductwork: Insulate with calcium silicate 2" thick, wired on, finished with ¼" hard coat of fire retardant cement applied over 1 inch hexagonal mesh wire. Provide 0.016" gauge aluminum jacketing and secure watertight. Insulated ductwork throughout including exterior ductwork. Exterior insulation to be weatherproofed, with mastic, jacketed, watertight with 16 gauge aluminum jacketing and stainless steel bands every 12 inches center.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this insulation is to be installed and determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install insulation in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that insulation complies with requirements and serves intended purposes.

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- B. Coordinate with other work as necessary to interface installation of insulation with other components of systems.
- C. All insulating materials shall be applied only by experienced workmen, in accordance with the best covering practice. All piping, duct or equipment shall be blown out, cleaned, tested and painted prior to the application of any covering. Adhesives, sealers and mastics shall not be applied, when the ambient temperature is below 40°F., or surfaces are wet.
- D. Insulation for factory-fabricated air handling units, furnished as part of units.
- E. At all openings in insulation, insulate edges neatly and protect with sheet metal frames.
- F. All items described in general indicate the type of covering required, however, all piping, ductwork or equipment that transmits heat or will form condensation shall be insulated.
 - 1. All piping and ductwork insulation shall be continuous through non-fire rated ceiling openings and sleeves passing through non-fire rated walls or floors. Sleeves shall be packed with mineral wool or thermofiber. Discontinue insulation as it passes through fire-rated wall or floor and use mineral wool or thermofiber packing instead. Specific mastics, adhesives and coating shall be applied in strict accordance with Manufacturer's instruction, including recommended coverages.
 - 2. Where packaged type units are called for in the Specifications, or as scheduled on the Drawings, the insulation shall be as herein specified for the specific system.
 - 3. All valved and capped outlets left for future work shall be insulated as herein specified for the specific systems with a removable section of insulation over caps.
 - 4. Where insulation on existing piping, equipment, etc., has been cut, removed or damaged, this Contractor shall reinsulate as herein specified.
 - 5. All insulation of access doors shall be set in sheet metal double-pan construction.

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3.03 PROTECTION

- A. The installer of the ductwork insulation shall advise the Contractor of required protection for the insulation work during the remainder of the construction period, to avoid damage and deterioration.

END OF SECTION 15850

SECTION 15900
TESTING AND BALANCING

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinate with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. All piping and equipment shall be tested. Labor including standby electrician, materials, instruments and power required for testing shall be furnished unless otherwise indicated under the particular Section of the Specification.
- B. Tests shall be performed in the presence of and to the satisfaction of the Architect and such other parties as may have legal jurisdiction.
- C. In no case shall piping, equipment, or accessories be subjected to pressure exceeding their ratings.
- D. All defective work shall be promptly repaired or replaced and the tests shall be repeated until the particular system and component parts thereof receive the approval of the Architects.
- E. Any damage resulting from tests to any and all trades shall be repaired and damaged materials replaced, all to the satisfaction of the Architect.
- F. The duration of tests shall be as determined by all authorities having jurisdiction, but in no case less than the time prescribed below.
- G. Equipment and systems which normally operate during certain seasons of the year shall be tested during the appropriate season. Tests shall be performed on individual equipment, systems, and their controls. Whenever the equipment or system under test is interrelated and depends upon the operation of other equipment, systems and controls for proper operation,

functioning and performance, the latter shall be operated simultaneously with the equipment or system being tested.

- H. All fans and duct systems shall be completely balanced by the adjustment of sheaves, dampers, registers and other volume and diverting control devices, to obtain the air quantities indicated on the design drawings. Replace sheaves if required to meet design conditions.
- I. All pumps and piping systems shall be completely balanced by the adjustment of plug cocks, globe valves or other control devices, to obtain flow quantities indicated on the design drawings.
- J. Tests shall be performed in presence and to satisfaction of Architect, and such other parties as may have legal jurisdiction. Submit completed reports for approval.

1.03 QUALITY ASSURANCE

- A. Prior to installation of the mechanical systems, engage the services of an independent air and water balancing firm that shall be subject to the approval of the Architect. The firm shall have no affiliation with a mechanical contracting or sheetmetal company. Balancing and testing company shall be a member of the Associated Air Balance Council. The balancing firm shall have at least one member of its full time staff who is a licensed professional engineer who shall supervise the balancing work. Prior to balancing, a list of instruments to be used shall be submitted to the Architect. All instruments shall be calibrated within six months before tests.

1.04 SUBMITTALS

- A. Refer to Section 15000 "Special Requirements for Mechanical and Electrical Work". Submit all test and balancing reports as described hereinafter.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 FIELD TEST OF PIPING

- A. During construction properly cap or plug all lines to prevent the entrance of sand, dirt, etc. The system of piping shall be blown through wherever necessary after

completion (for the purpose of removing grit, dirt, sand, etc., from all equipment and piping), for as long a time as is required to thoroughly clean the apparatus.

- B. Use anti-freeze solution for piping to be tested in winter.
- C. All piping shall be tested as hereinafter specified. Tests shall be made after erection and before covering is applied or piping painted or concealed, and as sections of mains and groups of risers are completed. The extent of the work completed before pressure tests are made shall be determined by the Architect. Test existing and new hot water piping throughout.
- D. All piping, unless otherwise specified, shall be tested to a hydrostatic pressure at least 1-1/2 times the maximum designed working pressure (but not less than 50 lbs. per square inch) for a sufficiently long time to detect all leaks and defects; and after testing shall be made tight in the most approved manner. Tests shall be repeated once after leaks and defects have been repaired. When automatic control valves, equipment and similar devices which are incapable of withstanding test pressures applied to piping, such devices shall be removed, or otherwise protected during tests. After approval of such tests, devices shall be installed and tested with medium operating pressures. The following shall be tested for four consecutive hours and proved tight. Leaks shall be remedied by replacing defective work.

Hydrostatic Item	Field Test
Overflow and drain	50 psi
Cold Water (domestic)	100 psi
Hot water heating	100 psi
Gas	50 psi
Gas Vent	50 psi
Chilled water	100 psi
Chemical Treatment -Chilled water	100 psi
-Hot water	100 psi
Vent -Water discharge	100 psi

- E. Leaks appearing during the various pressure tests shall be corrected by replacing all defective materials or welds and subsequent tests shall be made until the piping is found perfect. Caulking of screwed joints or pending of welds is prohibited. Wherever it is necessary to cut out a weld and the ends of the pipe cannot be

conveniently brought together, then a short piece of pipe shall be fitted in and welded as approved by the Architect.

- F. Provide all other tests required by the Building Department, Fire Department and all other authorities having jurisdiction.

3.02 RUNNING TEST OF PIPING SYSTEMS

- A. When directed, any section of the work, after it has been completed and otherwise satisfactorily tested, shall be put in actual operation and operated for a period of one (1) day of 24 hours each, during which time any defects which may appear shall be remedied and any adjustment which may be necessary shall be made.
- B. During the time of the tests, repack all valves, make all adjustments and otherwise put the apparatus in perfect condition for operation, and instruct the Owner's representative in the use and management of the apparatus.

3.03 RUNNING TEST OF AIR COOLED CHILLER

- A. After the refrigeration equipment, piping and accessories have been tested and insulation applied, run the entire system for an 8-hour period. During this time, introduce upsets in all control devices to check their operation. After all devices have been tested and control system proved to function satisfactorily, reset the controls to the proper settings as directed by the Architect. The test of the overall performance shall be done in the presence of the chiller manufacturer and the Owner's representatives. After the controls have been tested and proved satisfactory, the system shall be run under automatic control and the following data shall be logged:
 - 1. Outside wet bulb temperature.
 - 2. Chilled water supply and return temperatures set points.
 - 3. Ampere nameplate rating of each motor.
 - 4. Actual ampere reading and voltage for each motor.
 - 5. Actual Chilled water supply and return temperatures.
 - 6. Compressor suction pressure and temperatures.
 - 7. Compressor discharge pressure and temperatures.
 - 8. Suction and discharge pressure at each pump.
 - 9. Water pressure drop across chiller.

10. Water pressure drop across water strainers when the strainers are clean.

3.04 EQUIPMENT TEST

- A. Demonstrate that all equipment and apparatus fulfill the requirements of the Specifications and that all equipment shall be operated and tested for rated capacities and specified characteristics. Voltage and amperage readings shall be taken on all electric motors.
- B. Set the system up to operate with maximum return air and minimum outside air.
- C. The following preliminary data should be obtained and recorded at the supply and return fans:
 1. Fan and motor RPM.
 2. Motor and current voltage.
 3. Fan, coils and filter statics.
 4. Nameplate data on the fans and motors.
 5. Motor sheave, fan pulley and belt sizes.
- D. Traverse the main supply ducts and return ducts to determine CFM deliveries of the fans.
- E. Set the system to operate at 100% outside air and check the motor amperage. The motor amperage should remain relatively constant indicating no change in total air flow. If a change in flow does occur, adjust outside air, return air, and relief air dampers accordingly.
- F. Measure the system duct static pressure at selected points throughout the system. Monitoring points shall be in those duct runs which are of the longest equivalent length (greatest friction loss). Monitor these points during the adjusting and balancing procedures to assure proper inlet static pressure is being maintained.
- G. Adjust the return fan to approximately 5% above design CFM and the supply fan to either 5% above design or to the point where the static pressure at the end of each branch is at required static pressure, whichever condition is reached first.
 1. If the fan is adjusted to obtain the minimum static pressure, then it may be necessary to readjust the fan during the balancing as the static pressure

will decrease as the constant volume controller deliveries are increased.

- H. Make preliminary outlet readings and balance the outlets to design CFM and record all readings.
- I. Provide two sets of belts, pulley, drives for each fan. One set for initial balancing, second set for final balancing.
- J. Adjust the damper minimum position so the outlet total CFM is at the design minimum delivery. At the minimum delivery rate, the balance between the outlets may not hold, but no outlet adjustments should be made.
- K. Adjust the outlets for design delivery.
- L. The following final data should be obtained and recorded at the supply and return fans:
 - 1. Fan and motor RPM.
 - 2. Motor current and voltage.
 - 3. Fans, coils and filter statics
 - 4. Approximate motor sheave setting
- M. Check the following controls:
 - 1. Economizer system function, calibration, etc. All improperly operating items shall be promptly repaired or replaced and the tests shall be repeated until the particular system and component parts thereof receive the approval of the Architects.
- N. Test heat exchangers for capacity required, GPM, water temperature in and out and provide reports recording all data, test, adjust, balance water for existing boilers. Test existing boilers to provide required GPM flow, water temperature, proper firing in sequence. Adjust controls for proper operation.

3.05 TEST PREPARATION AND PROCEDURE

- A. On initial startup, prior to any tests, check the rotation and running amperage of all fan and pump motors to prevent damage to equipment by overload.

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- B. Final balancing must be done with all systems completely installed and operating, and after the automatic temperature controls have had their final adjustment.
- C. New, clean filters must be installed in all supply systems prior to balancing.
- D. All water systems shall be completely filled and vented, and all strainers cleaned prior to balancing. Inspect expansion tanks for proper water level and operating of makeup water valves.
- E. All main supply air ducts shall be traversed, using a pitot tube and manometer. The manometer shall be calibrated to read two significant figures in all velocity pressure ranges.
- F. A main duct is defined as either of the following:
 - 1. A duct serving five or more outlets.
 - 2. A duct serving two or more branch ducts.
 - 3. A duct serving a reheat coil.
 - 4. A zone duct from a multizone unit.
 - 5. A duct emanating from a fan discharge or plenum and terminating at one or more outlets.
- G. The intent of this operation is to measure by traverse the total air quantity supplied by the fan and to verify the distribution of air to zones.
- H. Submit data in support of all supply fan deliveries by the following four methods:
 - 1. By summation of the air quantity readings at all outlets.
 - 2. By duct traverse of main supply ducts.
 - 3. By a rotating vane traverse across a filter or coil bank.
 - 4. By plotting RPM and static pressure readings on the fan curve. Air density corrections must be indicated.

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- I. For return air and exhaust fans, summation and duct traversing shall be sufficient.
- J. Inspect all fan scrolls and remove objects or debris. Inspect all coils and remove debris or obstructions. Verify that all fire dampers are open.
- K. The supply air systems shall be completely balanced prior to the final balancing of the water systems.
- L. Upon completion of all air and water balancing, all duct dampers, plug valves and other throttling devices shall be marked in the final adjusted position.

3.06 AIR BALANCE

- A. Record the following design requirements for all fans and fan motors from the approved shop drawings.
 - 1. Air quantities - CFM
 - 2. Approximate fan speed - RPM
 - 3. Fan static pressure (total or external) - inches of water.
 - 4. Maximum tip speed - FPM
 - 5. Outlet velocity - FPM
 - 6. Fan brake horsepower
 - 7. Motor horsepower
 - 8. Volts, phases, cycles and amps at design conditions.
- B. Record the following data from all fans and fan motors installed at the project:
 - 1. Manufacturer, model and size
 - 2. Motor horsepower, service factor and RPM
 - 3. Volts, phases, cycles and full load amps
 - 4. Motor starter and heaters size
 - 5. Equipment location
- C. All fans and duct systems shall be completely balanced by the adjustment of sheaves, dampers, registers and other volume and diverting control devices, to obtain the air quantities indicated on the Drawings. Outside air and return air modulating dampers shall be adjusted to admit the specified quantities of air under all cycles of operation. All final adjusted air quantities shall be within 10% of the design requirements. Replace sheaves, belts, drives if required to meet design conditions.

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- D. Record the following test data for all fans and motors installed at the Project at final balanced conditions:
 - 1. Fan speed RPM.
 - 2. Fan static pressure (external and total) inches of water.
 - 3. Static pressure drop across all filters, dampers, coils and other items in the supply fan casings.
 - 4. Motor operating amps.
 - 5. Actual voltage
 - 6. Fan CFM
 - 7. Calculated brake horsepower.
- E. Submit single line diagrams of all duct systems indicating all terminal outlets identified by number. Data sheets shall list all such outlets denoted by the same numbers, including the outlet's size, "K" factor, location, CFM and jet velocity.
- F. Submit this data for all supply, return and exhaust air systems.
- G. Adjust the outside air and return air dampers to admit the required amounts of air under both summer and winter cycles. Record and submit the outside, return and mixed air temperatures for both cycles after final adjustments.
- H. Air balancing shall be performed with filters partially blocked to simulate a pressure drop across the filters equal to that midway between the clean and the dirty condition.
- I. Operate air conditioning systems in summer, winter mode of operations, economizer operations. Calibrate, adjust minimum, maximum positions of dampers. Calibrate, adjust valves, sensors for proper operations. Verify noise. Correct all deficiencies.
- J. Test, adjust each fan coil, unit ventilator. Verify operation of valves, dampers. Verify noise. Correct all deficiencies.

3.07 WATER BALANCE

- A. Record the following design requirements for all pumps and pump motors from the approved shop drawings:
1. Water quantity - GPM
 2. Total head - feet of water
 3. Pump speed - RPM
 4. Impeller size
 5. NPSH (if required)
 6. Motor horsepower
 7. Volts, phases, cycles and amps at design conditions
- B. Record the following data from all pumps motors installed at the project:
1. Manufacturer, model and size.
 2. Impeller size
 3. Motor horsepower, service factor and RPM
 4. Volts, phases, cycles and full load amps
 5. Motor starter and heaters size
 6. Equipment location
- C. All pumps and piping systems shall be completely balanced by the adjustment of plug cocks, globe valves or other control devices, to obtain the flow quantities indicated on the Drawings. Balancing shall be done with all controls set for full flow through coils. All automatic throttling valves shall be in the full-open position. All automatic three-way valves shall have the bypass port closed.
- D. Record the following test data for all pumps and pump motors installed at the Project:
1. Pump speed - RPM
 2. Total head at shut-off or dead-end discharge - feet of water. (Plot this value on pump curve as a verification of impeller size.)
 3. Suction, discharge and total head at final adjusted flow - feet of water.
 4. Volts, phase, amps at test conditions.
- E. Balance the water flow through all chillers, coils, convertors, cabinet heaters, heat exchangers, unit

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heaters, unit ventilators, etc., in accordance with design requirements.

- F. For all calibrated type balancing valves, or other flow measuring devices record the pipe size, manufacturer and size of device, and the direct reading or the differential pressure, and calculated final flow.
- G. Upon completion of the water balance, reconcile the total heat transfer through all coils by recording the entering and leaving water temperatures and the entering and leaving air dry bulb and wet bulb temperatures.
- H. Upon completion of balancing adjust all differential bypasses and three-way valve bypasses for the same pressure drop or full bypass as on full flow.

END OF SECTION 15900

SECTION 15950
AUTOMATIC TEMPERATURE CONTROLS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is coordinated with and complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and place into satisfactory operation a complete system of DDC automatic temperature controls and Building Automation System (BAS) as shown on the drawings and hereinafter specified. Word DDC and BAS means same for this project.
- B. The control system shall be of the "electric/electronic", microprocessor based, unless otherwise indicated, all as hereinafter specified. Control equipment shall be as manufactured by Trane Co., Johnson Controls, Siemens. All controls shall be the product of one manufacturer. The temperature control manufacturer shall be responsible for the quality and satisfactory operation of material provided but not actually manufactured by him.
- C. The control system shall include all control and interlock wiring to and from devices, valves, panels, controllers, dampers, sensors, relays, to motor controllers, contactors, etc. All control circuits shall be 120 volts.
- D. Provide nameplates on all devices, whether or not mounted on the face of local control panels. In occupied areas, nameplates shall be concealed beneath covers of room type instruments, to describe functions.
- E. System shall be DDC unless noted otherwise, complete with local controllers, master panels, software, workstation, system graphics, communication loop.

- F. Any deviations and/or substitutions to this specification shall be identified in writing prior to field installation and shall be identified sufficiently early enough in the submittal process to allow the Engineer to properly review and act upon such a deviation/substitution from the specification. Any incidental or consequential costs arising out of the proposed deviation or substitution, including engineer's review costs, schedule impacts, or additional installation expense to any of the project team shall be borne solely by the contractor initiating such a deviation.
- G. The DDC system shall be a BacNet compliant system, which shall communicate to all primary level DDC controllers. This contractor shall be fully responsible for the implementation of this BacNet interface, which shall include the software, gateways, routers, repeaters, vendor specific devices and technical support labor from the equipment manufacturer. Non-BacNet compliant DDC systems or systems which fail to implement this interface, shall have all the specified DDC points hardwired to the DDC system at no additional cost to the owner.
- H. Direct Digital Control (DDC) technology shall be used to provide the functions necessary for control of mechanical systems on this project.
- I. The control system shall accommodate simultaneous multiple user operation. Access to the control system data should be limited only by operator password. Multiple users shall have access to all valid system data. An operator shall be able to log onto any workstation on the control system and have access to all appropriate data.
- J. The control system shall be designed such that each mechanical system will be able to operate under stand-alone control. As such, in the event of a network communication failure, or the loss of any other controller, the control system shall continue to independently operate under control.
- K. Communication between the control panels and all workstations shall be over a high-speed network. All nodes on this network shall be peers. The operator shall not have to know the panel identifier or location to view or control an object. Application Specific Controllers

shall be constantly scanned by the network controllers to update point information and alarm information.

- L. Provide all points as listed on the equipment specifications, sequence of operation and DDC Point List. These points lists shall define the minimum point requirements of the DDC system. The DDC system shall be capable of displaying each point and controlling each point from the associated system graphics on the PCWS.
- M. The documentation is schematic in nature. The Contractor shall provide hardware and software necessary to implement the functions and sequences shown.

1.03 QUALITY ASSURANCE

- A. Only firms regularly engaged in manufacture and installation of this equipment with characteristics and capacities required and whose products have been installed by them and are in satisfactory use in similar service for not less than 10 years will be acceptable.
- B. All control equipment used in this project shall have been successfully proven in actual field installations for a period of two (2) years prior to the date of submittal of said equipment to the Architect for approval.
- C. The control system shall be installed, integrated, commissioned, complete in all respects by competent factory trained mechanics, regularly employed by the manufacturer of the control system.
- D. Provide system flow diagrams with devices, valves, dampers, with tag for each equipment, system, operating points, min./max. set points, limits. Provide system architecture with all component panels, controllers.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.
- B. Complete shop drawings shall be submitted to the Architect for approval before any field installation is started. Such drawings shall give a complete description of all control elements and shall show completed schematic piping and wiring diagrams, including

functional description. Valve and damper schedules shall be included.

- C. Floor plans indicating all room thermostat locations not shown on the Drawings, and samples of each type, shall be prepared and submitted to the Architect for approval before installation. Samples of unitary controls shall also be submitted for approval, and a typical assembly shall be field erected, before installation. All room controls shall be mounted five feet above finished floor.

1.05 RELATED WORK UNDER ELECTRICAL WORK

- A. All power wiring for pumps, fans, unit heaters, clocks, air compressors, aftercooler, etc. See Special Requirements for Mechanical and Electrical Work.

1.06 COORDINATION

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

1.07 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.
- B. The control system herein specified shall be free from defects in workmanship and material under normal use and service. If, within one year from date of acceptance by the Architect, any equipment herein described is proved to be defective in workmanship or material, it shall be adjusted, repaired or replaced, free of charge, during the guarantee period.

1.08 OWNER'S MANUALS

- A. General

- 1. Submit two (2) draft copies of owner's manuals for review. After review by authorized representative, the contractor shall incorporate review comments and submit four (4) interim final copies. Upon completion of project, acceptance of project by the owner, submit six (6) copies of final "as built" manuals and one (1) reproducible copy (3-mil sepia mylar).

2. Update manuals with modifications made to system during guarantee period. Provide replacement pages or supplements in quantity stated above for "as built" manuals.
- B. Operating manual to serve as training and reference manual for all aspects of day-to-day operation of the system. As a minimum include the following:
1. Control flow diagrams for all building systems.
 2. Sequence of operation for automatic and manual operating modes for all building systems. The sequences shall cross reference the system point names.
 3. Description of manual override operation of all control points in system.
 4. BAS/DDC system manufacturer's complete operating manuals.
- C. Provide maintenance manual to serve as training and reference manual for all aspects of day-to-day maintenance and major system repairs. As a minimum include the following:
1. Complete as-built installation drawings for each building system.
 2. Overall system electrical power supply scheme indicating source of electrical power for each system component. Indicate all battery backup provisions.
 3. Overall system shielding and grounding scheme indicating all major components and ground paths.
- D. Provide Programming Manual to serve as training and reference manual for all aspects of system programming. As a minimum include the following:
1. Complete programming manuals, and reference guides.
 2. Details of any special software packages and compilers supplied with system.
 3. Information required for independent programming of system.

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4. Point schedule; include all points, real and virtual.
5. Software troubleshooting procedures.

PART 2 - PRODUCTS

2.01 AUTOMATIC CONTROL VALVES AND DAMPERS

- A. All automatic control valves shall be furnished by the temperature control manufacturer and shall be installed by the Contractor for Heating, Ventilating and Air Conditioning Work under the control manufacturer's supervision.
- B. Unless specified otherwise, automatic damper shall be furnished by the control manufacturer and shall be set in place by the Sub-Contractor for Heating, Ventilating and Air Conditioning Work under the supervision of the control manufacturer. HVAC Sub-Contractor shall supply damper dimensions to the control manufacturer and shall be responsible for the damper sizing.

2.02 ELECTRIC WIRING

- A. All electric wiring, materials and installation shall be in accordance with the latest revision of the National Electric Code, and applicable Local Code, and shall carry the UL label where applicable. All wiring shall be installed in EMT conduit, $\frac{3}{4}$ " minimum, and shall be a minimum of #14 AWG. No bare cables or plenum rated cables, no bare wiring. All specials, such as junction boxes and connectors, shall be of type designed for use with conduit.
- B. All wiring exposed, outside of building shall be in rigid galvanized conduits.
- C. Wiring below grade shall be in weathertight, plastic coated rigid galvanized conduits.
- D. All 120 Volts, 24 Volts, control wiring shall be provided by this Contractor.
- E. Source of power for controls shall be provided under electrical section. This Contractor shall extend wiring from power source to controls and devices.

2.03 AUTOMATIC DAMPERS, AND SMOKE DAMPERS

- A. Dampers shall have 16 gauge galvanized frames of not less than 3" in width and blades of 16 gauge, or double 22 gauge, galvanized steel, and shall be adequately braced to form a rigid assembly, where required in galvanized ductwork. Dampers shall have blades not more than 8" wide. Linkage and hardware shall be zinc plated steel. Damper blades and rods shall be installed in horizontal position.
- B. All dampers shall be of the proportioning or opposed blade type and shall be motor operated. Dampers shall have continuous elastomer or stainless steel stops to avoid leakage. Bearings shall be oilite nonferrous sleeve type. All dampers shall be provided with continuous $\frac{3}{16}$ " x $\frac{1}{2}$ " closed cell neoprene gasketing around perimeter of the frame and at interlocking blade edges, to form an airtight seal.
- C. All dampers shall be constructed to provide a maximum leakage of 3%, with an approach velocity of 1500 fpm flow, when closed against 4 inches of water. Submit leakage and flow characteristic data for all dampers.
- D. All outside air dampers shall automatically return to closed position in the event of loss of electricity or air.

2.04 AUTOMATIC AND SMOKE DAMPER OPERATORS

- A. Damper operators shall be motorized electronic actuators, with reinforced synthetic rubber diaphragm, and with bracket arrangement for location outside the airstream wherever possible. All damper operators shall be of sufficient size and number to operate their respective dampers smoothly against friction and air flow. Damper operators shall have external adjustable stops to limit the stroke in either direction, if required for proper operation. See positioning relays for additional requirements. Smoke damper at unit, outside air, return air and relief air dampers for systems in excess of 15000 CFM shall close, when fan is off. Smoke damper shall have 60 second delay in closing and 20 second rapid start.

2.05 VALVES

- A. All valves shall be fully proportioning globe type, with throttling plugs, renewable composition discs, bronze trim, and of the spring return type, except as otherwise noted. Valves shall be sized by the control manufacturer and guaranteed to be of sufficient size to meet the heating and cooling requirements. Two position valves shall be line size. Valves shall be furnished with actuators having reinforced synthetic rubber diaphragms. Valves shall have equal percentage or linear flow characteristics. All valves bodies shall have pressure rating and connection type construction to conform with the pipe fitting schedule in these Specifications.
- B. All throttling 2-way water valves shall be sized for pressure drop equal to respective coil pressure drop at flow rates indicated on the drawings with a maximum pressure drop of maximum 3 PSI at full design flow. All 3-way water valves shall be sized for a maximum pressure drop of 5 feet. All water valves shall be single seated, except where water pressure and flow require double seated valves.

2.06 ROOM THERMOSTATS

- A. All thermostats shall have adjustable and shall be of the fully proportioning type. The thermostats shall be of the relay type and shall be provided with an adjustable range of 55° - 85°F., key operated, non-indicating, lock type. Finish and final locations shall be approved by the Architect.
 - 1. Thermostats in public spaces, gym shall have 16 gauge slotted metal guard with key and lock.

2.07 OPERATOR INTERFACE

- A. Operator Interface. Furnish PC based workstation as shown on the system drawings. Workstation shall be able to access all information in the system. Workstation shall reside on the same high-speed network as the building controllers, and also be able to dial into the system.
- B. Workstation information access shall use the BACnet Protocol. Communication shall use the ISO 8802-3 (Ethernet) or ARCNET (ASTM 878.1) Physical/Data Link

layer protocol. Remote communications shall use the BACnet Point to Point Physical/Data Link Layer Protocol.

1. Workstation shall be located in custodian office or a designated space selected by Owner.

C. Hardware. Operator workstation shall consist of the following:

1. Personal Computer: Furnish IBM compatible PCs as shown on the drawings. The CPU shall be a minimum of an Intel Pentium IV and operate at a minimum of 2.4 GHz. A minimum of 512 Megabytes of RAM, one 1.44 Megabyte 3.5 inch diskette drive, 48X CD ROM drive, and a 40 Gigabyte hard disk shall be provided. A two-button mouse will also be provided. Furnish all required serial, parallel, and network communication ports, and all cables for proper system operation. The PC shall have a minimum of a 17" SVGA monitor.
2. Modems: Furnish auto-dial telephone modems.
3. Printers: Each workstation shall have 1 printer, with tractor feed, and associated cables. Each printer shall be capable of a minimum 160 characters per second operation and be compatible with standard parallel or serial communications.
4. BACnet: The PCWS shall use the Read (Initiate) and Write (Execute) Services as defined in Clauses 15.5 and 15.8, respectively, of ASHRAE Standard 135-95, to communicate with BACnet objects in the internetwork. Objects supported shall include: Analog input, analog output, analog value, binary input, binary output, binary value, device.

D. System Software

1. Operating System: Furnish a commercially available, concurrent multi-tasking operating system. The operating system shall also support the use of other common software applications that operate under DOS or Microsoft Windows. Acceptable operating systems are Windows XP Professional, and Windows 2000.
2. System Color Graphics: The Operator Workstation software shall be graphically oriented. The system shall allow display of up to 10 graphic screens at

once for comparison and monitoring of system status. Provide a method for the operator to easily move between graphic displays and change the size and location of graphic displays on the screen. The system graphics shall be able to be modified while on line. An operator with the proper password level shall be able to add, delete, or change dynamic points on a graphic. Dynamic points shall include analog and binary values, dynamic text, static text, and animation files. Graphics shall have the ability to show animation of equipment.

- a. Custom Graphics: Custom graphic files shall be created with the use of commonly available graphics packages such as PC Paint. The graphics generation package shall create and modify graphics that are saved in industry standard formats such as PCX, BMP, GIF and JPEG. The graphics generation package shall also provide the capability of capturing or converting graphics from other programs such as Designer, or AutoCAD.
 - b. Graphics Library: Furnish a complete library of standard HVAC equipment such as cooling system, chillers, heating system, air handlers, terminals, unit ventilators, fan coils, heat exchangers, pumps, fans. This library shall also include standard symbols for other equipment including fans, pumps, coils, valves, piping, dampers, and ductwork. The library shall be furnished in a file format compatible with the graphics generation package program. Provide each equipment, system color graphics with flow diagram, valves, dampers, set points, adjustments, alarms, points, components, variables, modes.
 - c. Engineering Units: Allow for selection of the desired engineering units (i.e. Inch pound) in the system. Unit selection shall be able to be customized by locality to select the desired units for each measurement.
- E. System Applications: Each workstation shall provide operator interface and off-line storage of system information. Provide the following applications at each workstation.

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1. Automatic System Database Save and Restore. Each workstation shall store on the hard disk a copy of the current database of each building controller. This database shall be updated whenever a change is made in any panel in the system.
2. Manual Database Save and Restore: A system operator with the proper password clearance shall be able to archive the database from any system panel and store on magnetic media.
3. System Configuration: The workstation software shall provide a graphical method of configuring the system. The user with proper security shall be able to add new devices, and assign modems to devices.
4. On-Line Help: Provide a context sensitive, on-line help system to assist the operator in operation and editing of the system.
5. Security: Each operator shall be required to log on to the system with a user name and password in order to view, edit, add, or delete data. System security shall be selectable for each operator. The system supervisor shall have the ability to set passwords and security levels for all other operators. Each operator password shall be able to restrict the operator's access for viewing and/or changing each system application, full screen editor, and object.
6. System Diagnostics: The system shall automatically monitor the operation of all workstations, printers, modems, network connections, building management panels, and controllers. The failure of any device shall be annunciated to the operator.
7. Alarm Processing: Any object in the system shall be configurable to alarm in and out of normal state. The operator shall be able to configure the alarm limits, warning limits, states, and reactions for each object in the system. The operator shall be able to determine what actions, if any, are to be taken, by object (or point), during an alarm. Actions shall include logging, printing, starting programs, displaying messages, dialing out to remote stations, paging, providing audible annunciation or displaying specific system

graphics. Each of these actions shall be configurable by workstation and time of day.

8. Trend Logs: The operator shall be able to define a custom trend log for any data in the system. This definition shall include interval, start-time, and stop-time. Trend intervals of 1, 5, 15, 30, and 60 minutes as well as once a shift (8 hours), once a day, once a week, and once a month shall be selectable. All trends shall start based on the hour. Each trend shall accommodate up to 64 system objects. The system operator with proper password shall be able to determine how many samples are stored in each trend. Trend data shall be sampled and stored on the Building Controller panel and be archived on the hard disk. Trend data shall be able to be viewed and printed from the operator interface software. Trends must be viewable in a text-based format or graphically. They shall also be storable in a tab delimited ASCII format for use by other industry standard word processing and spreadsheet packages.
9. Dynamic Graphical Charting: The operator shall be able to select system values to be charted in real time. Up to three values at one time can be selected for each chart. The type of chart (bar, line, 3-D, etc.) shall be selectable.
10. Alarms and Event Log: The operator shall be able to view all logged system alarms and events from any location in the system. Events shall be listed chronologically. All that have not been cleared by the operator shall be archived to the hard disk on the workstation.
11. Objects and Property Status and Control: Provide a method for the operator with proper password protection to view, and edit if applicable, the status of any object and property in the system.
12. Clock Synchronization: The real time clocks in all building control panels and workstations shall be synchronized on command of an operator. The system shall also be able to automatically synchronize all system clocks, daily from any operator-designated device in the system. The system shall automatically adjust for daylight savings and standard time if applicable.

13. Reports and Logs: Provide a reporting package that allows the operator to select, modify, or create reports. Each report shall be definable as to data content, format, interval, and date. Report data shall be archived on the hard disk for historical reporting. Provide the ability for the operator to obtain real time logs of designated lists of objects. Reports and logs shall be stored on the PC hard disk in a format that is readily accessible by other standard software applications including spreadsheets and word processing. Reports and logs shall be readily printed to the system printer. The operator shall be able to designate reports that shall be printed or stored to disk at selectable intervals.
 - a. Custom Reports: Provide the capability for the operator to easily define any system data into a daily, weekly, monthly, or annual report. These reports shall be time and date stamped and shall contain a report title and the name of the facility.
 - b. Standard Reports. The following standard system reports shall be provided for this project. The owner shall readily customize these reports to the project.
 - 1) Chilled Water System Report
 - 2) Heating System Report
- F. Workstation Applications Editors: Each PC workstation shall support full screen editing of all system applications.
 1. Controller: Provide a full screen editor for each type controller and application, that shall allow the operator with proper password to view and change the configuration, name, control parameters, and system set-points.
 2. Scheduling: An editor for the scheduling application shall be provided at each workstation. Provide a monthly calendar for each schedule. Exception schedules and holidays shall be shown clearly on the calendar. Provide a method for allowing several related objects to follow a schedule. The advance and delay time for each object shall be adjustable from this master schedule.

3. Equipment Coordination: Provide a full screen editor that allows equipment to be grouped for proper operation as specified in the sequence of operations. This shall include the coordination of UV, fan coils, rooftop AHU, with their associated scheduled starts, heating/cooling systems.
4. Custom Application Programming: Provide the tools to create, modify, and debug custom application programming. The operator shall be able to create, edit, and download custom programs at the same time that all other system applications are operating. The system shall be fully operable while custom routines are edited, compiled, and downloaded.
5. Portable Operator's Terminal: Furnish a Portable Operator's Terminal that shall be capable of accessing all system data. This device may be connected to any point on the system inter-network or may be connected directly to any controller for programming, set-up, and troubleshooting. The Portable Operators Terminal shall use the Read (Initiate) and Write (Execute) Services as defined in Clauses 15.5 and 15.8, respectively, of ASHRAE Standard 135-95, to communicate with BACnet objects in the internetwork. Objects supported shall include: Analog input, analog output, analog value, binary input, binary output, binary value, device.

The Portable Operator's Terminal shall be an IBM compatible notebook-style PC including all software and hardware required with:

- a. 1.7 GHz Intel Pentium 4M Processor
- b. 256 MB RAM
- c. 30 Gbyte Hard Drive
- d. 3.5" 1.44 MB Floppy Disk Drive
- e. 40X CD ROM Drive

2.08 SYSTEM SOFTWARE

- A. System Security: User access shall be secured using individual security passwords and user names that restrict the user to only the objects, applications, and system functions as assigned by the system manager.
- B. Scheduling: Provide the capability to schedule each object or group of objects in the system. Each of these

schedules shall include the capability for start, stop, optimal start, optimal stop, and night economizer actions. Each schedule may consist of up to [10] events. When a group of objects are scheduled together, provide the capability to define advances and delays for each member. Each schedule shall consist of weekly schedules, exception schedules, holiday schedules and optimal start/stop.

- C. Alarm Reporting: Alarms shall be routed to the appropriate workstations based on time and other conditions. An alarm shall be able to start programs, be logged in the event log, printed, generate custom messages graphics.
- D. Remote Communications: The system shall have the ability to dial out in the event of an alarm. Receivers shall include PC Workstations, and Alphanumeric pagers. The alarm message shall include the name of the calling location, the device that generated the alarm, and the alarm message itself.
- E. PID Control: A PID (proportional-integral-derivative) algorithm with direct or reverse action and anti-wind-up shall be supplied. The algorithm shall calculate a time-varying analog value used to position an output or stage a series of outputs.
- F. Staggered Start: This application shall prevent all controlled equipment from simultaneously restarting after a power outage. The order in which equipment (or groups of equipment) is started, along with the time delay between starts shall be user-selectable.
- G. Anti-Short Cycling: All binary output points shall be protected from short cycling. This feature shall allow minimum on time and off time to be selected.

2.09 BUILDING CONTROLLERS

- A. General: Provide Building Controllers to provide the performance specified in section 1 of this division. Each of these panels shall meet the following requirements.
 - 1. The Building Automation System shall be composed of one or more independent, stand-alone, microprocessor based Building Controllers to manage

the global strategies described in System software section.

2. The controller shall provide a communications port for connection of the Portable Operators Terminal using Point-to-Point BACnet physical/data link layer protocol or a connection to the inter-network.
 3. The operating system of the Controller shall manage the input and output communications signals to allow distributed controllers to share real and virtual point information and allow central monitoring and alarms.
 4. BACnet: The Building Controller shall use the Read (Initiate) and Write (Execute) Services as defined in Clauses 15.5 and 15.8, respectively, of ASHRAE Standard 135-95, to communicate with BACnet objects in the internetwork. Objects supported shall include: Analog input, analog output, binary input, binary output, and device.
- B. Communications: Each Building Controller shall reside on a BACnet inter-network using the ISO 8802-3 (Ethernet) or ARCNET (ASTM 878.1) Physical/Data Link layer protocol. Each Building Controller shall also perform routing to a network of Custom Application and Application Specific Controllers.] C. Memory. The Building Controller shall maintain all BIOS and programming information in the event of a power loss for at least 72 hours.

2.10 CUSTOM APPLICATION CONTROLLERS

- A. General - The Building Automation System shall be composed of one or more independent, stand-alone, microprocessor based Building Controllers to manage the local strategies described in System Software section. The operating system of the Controller shall manage the input and output communications signals to allow distributed controllers to share real and virtual point information and allow central monitoring and alarms.
- B. Environment - Controllers used outdoors and/or in wet ambient shall be mounted within NEMA 4 Type waterproof enclosures, and shall be rated for operation at -40 C to 65 C [-40 F to 150 F]. Controller used in conditioned

ambient shall be mounted in NEMA 1 Type rated enclosures, and shall be rated for operation at 0 C to 50 C [32 F to 120 F].

- C. Keypad: A local keypad and display shall be provided for each panel/controller. Keypad shall be provided for interrogating and editing data. An optional system security password shall be available to prevent unauthorized use of the keypad and display.

2.11 APPLICATION SPECIFIC CONTROLLERS

- A. General: Application specific controllers (ASC) are microprocessor-based DDC controllers, which through hardware or firmware design are dedicated to control a specific piece of equipment. They are not fully user programmable, but are customized for operation within the confines of the equipment they are designed to serve. Each ASC shall be capable of stand-alone operation and shall continue to provide control functions without being connected to the network.
- B. Environment - Controllers used outdoors and/or in wet ambient shall be mounted within NEMA 4 Type waterproof enclosures, and shall be rated for operation at -40 C to 65 C [-40 F to 150 F].
- C. Controller used in conditioned ambient shall be mounted in NEMA 1 Type rated enclosures, and shall be rated for operation at 0 C to 50 C [32 F to 120 F].

2.12 COMMUNICATIONS

- A. This project shall comprise a BACnet inter-network. All PC Workstations and Building Controller components shall meet ASHRAE / ANSI Standard 135-1995, BACnet. Each BACnet device shall operate on the BACnet physical/data link protocols specified for that device as defined earlier in this section.
- B. All Building Controllers shall have a communications port for connections with the operator interfaces. This may be either an RS-232 port for Point-to-Point connection or a network interface node for connection to the Ethernet or ARCNET network.
- C. The controls Contractor shall provide all communication media, connectors, repeaters, hubs, and routers necessary for the inter-network.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Examine location where controls and equipment are to be installed and determine space conditions and notify architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment comply with requirements and serve intended purposes.
- B. Coordinated with other work as necessary to interface installation of equipment with other components of systems.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of the automatic temperature control system and after motors have been energized with normal power source, test system to demonstrate compliance with requirement. When possible, field correct malfunctioning controls then retest to demonstrate compliance. Replace controls which cannot be satisfactorily corrected. Refer to Section - Test and Balancing.

3.04 SERVICE AND TRAINING

- A. After completion of the control system installation, the control manufacturer shall regulate and adjust all thermostats, control valves, damper motors, etc., and place in complete operating condition, subject to the approval of the Architect. Complete instructions shall be given to the operating personnel. There shall be two day's instruction given for Winter cycle and two day's instruction for Summer cycle operation.

3.05 INSTALLATION REQUIREMENTS

- A. Install equipment, piping, wiring/conduit parallel to building lines (i.e. horizontal, vertical, and parallel

to walls) wherever possible. Provide sufficient slack and flexible connections to allow for vibration of piping and equipment.

- B. Install all equipment in readily accessible location. Control panels shall be attached to structural walls unless mounted in equipment enclosure specifically designed for that purpose.

3.06 SEQUENCE OF OPERATION FOR CONSTANT VOLUME AHU(s) WITH SPACE TEMPERATURE CONTROL (AC-1, AC-2)

A. OCCUPIED MODE

When the AHU is in the Occupied Mode, the Supply Fan will operate continuously, and the Compressors shall cycle, Gas Heating Valve shall be staged in sequence, and Economizer Dampers will modulate in sequence to maintain Space Air Temperature as sensed by space sensor/stat. The Discharge Air Temperature set point will be automatically reset by the space temperature sensor.

B. UNOCCUPIED MODE

When the AHU is in the Unoccupied Mode, the Supply Fan will be OFF, Outdoor Air Damper and related duct smoke/fire-smoke dampers will be closed, DX cooling will be de-energized and the Gas Heating will be off.

- 1. Air handling unit fan will cycle and gas heating shall be staged with outside air damper closed, return air and smoke damper open to maintain minimum of 60°F temperature in space, at all times.

C. NIGHT SETBACK / MORNING WARMUP HEATING MODE

When the AHU is in the Night Setback / Morning Warm-up Heating Mode, the Supply Fan will operate continuously, the Outdoor Air Damper will be closed and DX Cooling will be off, the Return Air and Smoke Damper will be fully open, and the Gas Heat will be staged to maintain the maximum heating Discharge Air Temperature set point.

D. SUPPLY FAN CONTROL

The Supply Fan will operate continuously whenever the AHU is in either the Occupied Cooling Mode or the Night Setback / Morning Warm-up Heating Mode. The Supply Fan will cycle whenever the AHU is in the Unoccupied Mode, or

the Stop / Auto interlock is open. When supply fan in on, related fire-smoke dampers shall open. Reverse shall occur when fan stops.

E. ECONOMIZER CONTROL

Enthalpy type economizer controls including outdoor air temperature and humidity sensors, return air temperature and humidity and humidity sensors, totalizers and shall calculate outdoor air enthalpy and return air enthalpy. When outdoor enthalpy is lower than return air enthalpy and ambient temperature above 50°F, economizer cycle shall be initiated. During economizer cycle, the outdoor air, return and relief air damper will modulate between the adjustable minimum position and full open position to maintain the space temperature. If economizer damper operation cannot maintain space temperature, mechanical cooling shall be utilized. Economizer fan, damper shall be activated during economizer mode operation.

The Outdoor Air Damper will be set to its adjustable minimum position if the Economizer function is disabled. If the AHU is in the Morning Warm-up mode, the Supply Fan is OFF or the Mixed Air Temperature Sensor has failed, the Outdoor Air Damper will be closed.

F. GAS HEATING CONTROL

The Gas Heating shall be staged in sequence and cycle to maintain the Space Temperature Control set point. The Gas Heating will be off when cooling is on and viceversa. Minimum, maximum discharge air temperature shall be maintained and alarm shall be sent to BMS.

G. DX COOLING CONTROL

During occupied cooling mode of operation the economizer, if available and mechanical cooling shall be used to control the zone temperature. If the enthalpy of the outside air is less than return air enthalpy as sensed by outdoor air and return air temperature and humidity sensors, free cooling by economizer shall be used to satisfy the zone/space temperature set-point. If more cooling is necessary, mechanical cooling shall be staged in sequence as needed. Minimum On/Off timing shall prevent rapid cycling.

H. SAFETIES

1. When smoke is detected by duct smoke detector(s) in supply or return duct, air handling unit supply fan stop, send smoke condition alarm to BAS.
 2. When supply air temperature below 40°F as sensed by a low limit stat/controller is sensed, air handling unit supply fan shall stop, send low temperature alarm to BAS.
 3. When supply air temperature risers above 115°F, as sensed by high limit stat/controller, supply fan shall stop and high temperature alarm shall be signaled at BAS.
 4. When pressure drop through filters exceed its set point, dirty filter alarm shall be annunciated at BAS.
- I. Air handling unit shall start locally at starter or per pre-program routine through BAS. Heating, cooling modes shall be selected manually at BAS.
- J. Existing hot water heating system valves, controls serving Gym shall be reset. Air handling unit heat shall be energized to maintain scheduled space temperature. Existing hot water heat for Gym shall turn-on only if air handling unit and gas heat cannot maintain space temperature. Operation of existing heaters and air handling shall be coordinated. Thermostats shall be set accordingly.

K. BUILDING AUTOMATION SYSTEM INTERFACE

The Building Automation System (BAS) shall send the AHU Space Heating, and Cooling Temperature Set points. The BAS shall also send Start-up, Occupied, Unoccupied, Morning Warm-up, and Heating / Cooling, Economizer enable, Timed Override, Startup, Night Setback. Provide devices, wiring, interface as required. If communication with the BAS is lost, the AHU shall use its default set points and shall operate in the Occupied mode. The Economizer function shall be enabled based on the AHU Outdoor Air Temperature Sensor.

- L. The following points will be monitored and alarmed at the AHU controller and at remote BAS:

1. Supply air temp
2. Mixed air temp
3. Outside air temp, humidity
4. Space temp
5. Fan status
6. Heat/cool and economizer mode
7. Sensors Norm/Fail statuses
8. Filter Norm/Dirty
9. Smoke condition alarm
10. Low discharge temperature alarm
11. High discharge air temperature alarm
12. Return air temperature, humidity

M. The following points will be operator adjustable and/or automatically reset by a BAS program.

1. Space Heating set point
2. Space Cooling set point
3. Economizer set point-OA changeover
4. Cool/Heat disable

3.07 HEATING SYSTEM

- A. Existing boilers shall be enabled and disabled manually or automatically thru the Building Automation System and shall cycle to maintain supply hot water temperature in header as reset based on outside air temperature reset schedule. The boilers shall fire in sequence based on their own operating controls to maintain a primary loop water temperature as scheduled. The Building Automation System shall also enable and disable the existing and new Hot Water Pumps.
- B. School heating system boiler side and school side Hot Water Pumps shall be started and stopped by the Building Automation System by daily schedule and shall be energized when outdoor temperature is 65°F or below (adjustable). These pumps shall be controlled in a Lead/Lag scenario and if lead pump should fail, the lag pump shall start immediately. Heat Exchanger temperature set point shall be maintained through the use of a hot water reset schedule. A sensor in outside air and hot water discharge shall sense temperatures and modulate Heat Exchanger 1/3rd or 2/3rd control valves in sequence to maintain set point according to a pre arranged temperature schedule. 2/3rd valve shall not start to open until 1/3rd valve is completely open. Reverse shall occur when valves close in sequence.

- C. Differential pressure sensors shall modulate open differential pressure control valve(s), when differential pressure in mains exceed its set point.
- D. High discharge water temperature sensor shall close hot water control valve(s) for heat exchanger, when supply water temperature to school exceeds 210°F.
- E. Existing boiler, heating system, pumps, valves, space temperature controls functions shall be verified, modified as required.
- F. The following points will be controlled, monitored and alarmed at the BAS:
 - 1. Hot water Supply temperature (boiler)
 - 2. Sensor Failure
 - 3. Temperature Set Point adjust
 - 4. Hot water Supply Temperature High Alarm
 - 5. Hot water pump status on/off, each pump
 - 6. Supply and return hot water temperature in and out at each heat exchangers.
 - 7. Boiler on/off status
 - 8. Differential pressure control valve status.
 - 9. North zone return water temperature
 - 10. South zone return water temperature
 - 11. Outside air temperature
 - 12. Remote start/stop, each hot wate pump (typical for 4)
 - 13. Return water temperature (boilers)

3.08 UNIT VENTILATOR AND FAN COIL WITH APPLICATION SPECIFIC CONTROLLER

- A. Space Temperature Control - The application specific controller (ASC) shall maintain space comfort by modulating the discharge air temperature of the unit. The ASC shall continuously monitor the error between the return temperature and set point and adjust the discharge air temperature accordingly. This shall be accomplished through the use of PID logic along with modulating valves.
 - 1. Unit ventilators are to be 4 pipe with separate heating and cooling control valves.
 - 2. For unit ventilators with outside air provision, dampers shall be modulating type and shall be modulated for economizer ASHRAE-II cycle.

3. Unit ventilators shall start/stop from BAS, shall have temperature reset through BAS.

Start/stop shall be set based on occupancy schedules or pre-program routine.

- B. Fan Operation - The supply fan shall start and run at scheduled speed and run continuously, while in the occupied mode.

1. The return sensor shall run the unit at scheduled speed for normal operation to maintain space temperature control.

- C. Occupancy Modes - The ASC shall offer the following occupancy modes based on a communicated request or a hard-wired input from a local time clock.

1. Unoccupied Operation - In the unoccupied mode, the supply fan shall be indexed off, the outside air damper shall modulate closed, and the return air damper shall modulate open. If the return temperature moves beyond the unoccupied heating (65', adjustable) or cooling set points, the ASC shall bring on 100% of unit capacity while keeping the outside air damper closed. If the space temperature rises above the adjustable unoccupied cooling set point (80°F, adjustable) and the outside air temperature is less than the space temperature, the fan shall be cycled on, the outside air damper shall be opened and the heating valve shall be closed.
2. Transition from Unoccupied to Occupied - When the unit transitions from the unoccupied mode to occupied mode, morning warm-up/cool down and random start routines shall be activated.

- a. Morning Warm-up - When there is a call for heating and the zone temperature is two degrees or more below set point, a morning warm-up sequence shall be initiated. During morning warm-up the fan shall be turned on, the outside air damper shall remain closed and the heating valve shall open. When the zone temperature comes within two degrees of the heating set point the outside air damper shall go to minimum and the ASC shall operate in the occupied mode. In general, morning warm-up

cycle shall be initiated well ahead of occupancy and shall be staggered.

- b. Morning Cool-down - When a morning cool-down is initiated the unit shall operate in the airside economizing mode if possible, and fan shall be indexed on. If economizing mode is not available, the cooling valve shall open and the outside air damper shall remain closed. When the zone temperature reaches the cooling set point the ASC shall operate in the occupied mode.
 - c. Random Start - A randomly generated 3-32 second delay shall be activated when electric power is applied to the ASC or after receiving an occupied command from the BAS.
3. Occupied Operation - The ASC shall open the outside air damper to minimum position and modulate the heating and cooling control valves in sequence to maintain space ventilation and temperature set point. When heating valve is open, cooling coil control valve shall be closed to coil and vice-versa.
- a. Heat/Cool Set point - The return temperature set point shall be determined either by a local set point adjustment knob, the ASC default set point, or building automation system control. The local set point adjustment knob shall determine the set point if the ASC is configured in the standalone mode. If the ASC is in the ICS mode or if the local set point knob fails, the ASC shall use the BAS communicated set point. If the BAS is not communicating, the ASC shall use defaults or local set points. Adjustment for set point shall be concealed, not easily accessible, behind front cover inside enclosure.
- D. Ventilation Control - The ASC shall have the ability to modulate the outside air damper to multiple positions depending on the current routine to provide ASHRAE-II economizer cycle for free cooling. For units with air side economizer, dampers shall modulate between minimum and maximum position for economizer mode operation, when ambient temperature is above 55°F (adjustable).

1. ASHRAE Cycle II - The outside air damper shall remain closed during the unoccupied mode, morning warm-up and cool-down, or when the space temperature exceeds the set point by 3 degrees F. During the occupied mode, the outside air damper shall be at the minimum position (configurable) unless the economizer is active.
- E. For units without outside air, heating and cooling coil control valves shall be modulated in sequence to maintain its sensor setpoint.
- F. For rooms with multiple units and mix of units with and without outdoor air provision, program shall be provided for simultaneous, staggered and master/slave operation of units as may be selected by operator.
- G. SAFETIES AND ALARMS
1. Reset - All diagnostics shall be capable of being reset through the, BAS, or by cycling power to the unit.
 2. Freeze stat - A binary signal shall shut the unit down, close the outside air damper, and open heating control valves when the discharge air temperature falls below 35 degrees F.
 3. Unoccupied Freeze Avoidance - The ASC shall open heating valve when the outside air temperature drops below 35 degrees F (configurable) during the unoccupied mode.
 4. Filter Status - A maintenance timer shall be incorporated into the ASC to signal a filter change after a configurable number of fan run hours.
 5. Fan Status - The ASC shall monitor the fan outputs to determine fan status and report it to a BAS.
- H. COMMUNICATIONS
1. Data Sharing - All ASCs shall be able to communicate in a peer-to-peer environment over a twisted pair of communications wire. All information, monitoring, start/stop, alarm shall be available at BAS.
 2. Master/Slave - Master/Slave shall be used for operating multiple units from a single zone sensor.

The Master unit shall share space temperature, setpoint, heat/cool mode, occupancy, fan speed, entering water temperature, economizer, and capacity control algorithm data over a twisted pair of communication wire to insure seamless cooperation between the units.

3. BAS shall be able to start/stop each unit, indicate space temperature, reset temperature, initiate occupied/unoccupied/warm-up/set back/economizer cycles, monitor on/off status, monitor failure, alarm functions; schedule timed start/stop, maintain minimum space temperature at all times. Provide wiring, devices, interface as required and integrate.

3.09 CHILLED WATER SYSTEM CONTROL

- A. General - The standalone microprocessor based chiller control panel provided by chiller manufacturer shall monitor and control the chiller(s) in a standalone mode or as directed by the chiller sequencing software. System shall consist of chiller(s), chilled water pumps and serve chilled water to unit ventilators, fan coil unit coils.

The chiller sequencing software shall perform the following control strategies.

- B. System Scheduling - Chilled water system shall start manually at starters or through chiller sequencing software will start the chiller system based upon a time of day schedule and/or based on ambient temperature schedule.

The system shall also start in response to a binary contact signal from an external source such as the building control system.

- C. Chiller modules, compressors shall cycle in sequence to maintain supply chilled water temperature set point as reset by outdoor air temperature; per integral controls.
 1. Chillers shall not start until chilled water flow is established through respective flow switch(es) in piping.
 2. Time delay and/or hot gas by-pass shall prevent compressor frequent start/stop and short-cycling.

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3. If lead/designated compressor or module fails to maintain desired chilled water temperature, lag compressor and/or next module shall be activated.
 4. Automatic rotation of compressor and modules shall equalize run-time and wear and tear.
 5. Chiller shall stop when safeties are tripped. An alarm shall be annunciated at BAS when chiller fails or trips.
 6. Each chiller shall have integral communication port (RS-232 or similar) to communicate with BAS via open protocol. Interlock and communication interface related wiring shall be provided by BAS Contractor.
- D. Chilled water pump shall be started manually at starter or automatically through pre-programmed routines at BAS.
1. Chilled water pump shall start first and after chilled water flow is proven by flow switch, chiller shall start.
 2. If lead chilled water pump fails, an alarm shall be signaled at BAS.
 3. Stand-by or lag pump shall start manually at starter or automatically through BAS.
- E. BAS system shall monitor, control chilled water system via open protocol communication with the chiller central control panel. As a minimum, following points, alarm, functions shall be provided at remote BAS. Provide additional devices, sensors, interface, wiring as required.
1. Chilled water supply temperature indication
 2. Chilled water return temperature indication
 3. Reset chilled water supply temperature
 4. On/off status, each module, compressors
 5. Flow switch status
 6. Remote start/stop
 7. High temperature failure alarm
 8. Low temperature failure alarm
 9. System high pressure failure alarm
 10. System low pressure failure alarm
 11. Volts, current Amperes
 12. Demand limit
 13. Chilled water pump status (each pump)

14. Lead pump failure alarm
15. Remote pump start/stop (each pump)
16. Ambient temperature
17. Chiller common failure alarm
18. Sensor failure alarm

3.10 EXHAUST FAN CONTROL

- A. Classroom Exhaust Fans (GX-1, GX-2) shall be started and stopped at starter or by the BAS time schedule. Exhaust Fans shall be two speed. Upon a command to start, interlocked damper shall open and fan shall operate at low speed. When unit ventilator system is in economizer mode, fans shall be switched to high speed through command from BAS. When fan starts, respective fire-smoke dampers shall open. Reverse shall occur when fan stops.
- B. Kitchen hood exhaust fan shall start manually through a local switch in kitchen.
- C. Laboratory exhaust fans shall start when respective laboratory is in "occupied mode" through DDC system interlock or manually through local switch or at starter.
- D. Platform exhaust fans, mall exhaust fan and Gym locker/shower shall be manually started through local switch.
- E. Gym offices exhaust fans shall start through interlock, when respective fan coil unit starts.
- F. Provide on/off status indication and remote start/stop for each fan at BAS. Status shall be through current sensors.
- G. When any fan starts, its motorized damper, respective smoke damper shall open. Reverse shall occur when fan stops.
- H. When smoke is sensed by smoke detector, fan shall shut down.

3.11 MECHANICAL/ELECTRICAL VENTILATION

- A. Mechanical/electrical room exhaust fan and related air intake dampers shall be interlocked and shall operate through remote thermostat to maintain thermostat set point at 80°F (adjustable).

3.12 UNIT HEATERS

- A. Remote thermostat shall cycle heater fan on and off to maintain its setpoint.
- B. Strap on aquastat shall prevent heater operation when water temperature below 100°F is sensed by aquastat.

3.13 DIFFERENTIAL PRESSURE BY-PASS VALVE ASSEMBLIES

- A. Differential by-pass valve shall be modulated open when differential pressure across main supply and return piping exceeds its set point.

3.14 FIRE-SMOKE DAMPERS

- A. All fire-smoke dampers associated with duct system shall open when fan starts and shall close when respective fan is off.

3.15 CONDENSATE RETURN PUMP UNITS

- A. Integral float shall activate lead pump when water level above its set point is sensed. Lag pump shall automatically start if lead pump cannot maintain water level.
- B. Failure alarm shall be annunciated at BAS when high water level is sensed.

3.16 TESTING AND ACCEPTANCE

- A. Perform a three-phase commissioning procedure consisting of field I/O calibration and commissioning, system commissioning and integrated system program commissioning. Document all commissioning information on commissioning data sheets which shall be submitted prior to acceptance testing. Commissioning work which requires shutdown of system or deviation from normal function shall be performed when the operation of the system is not required. The commissioning must be coordinated with the owner and construction manager to ensure systems are available when needed. Notify the operating personal in writing of the testing schedule so that authorized personnel from the owner and construction manager are present throughout the commissioning procedure.
 - 1. Prior to system program commissioning, verify that each control panel has been installed according to

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plans, specifications and approved shop drawings. Test, calibrate and bring on line each control sensor and device. Commissioning to include, but not be limited to:

- a. Sensor accuracy at 10, 50 and 90% of range.
 - b. Sensor range.
 - c. Verify analog limit and binary alarm reporting.
 - d. Point value reporting.
 - e. Binary alarm and switch settings.
 - f. Actuator and positioner spring ranges.
 - g. Fail safe operation on loss of control signal, pneumatic air, electric power, network communications, etc.
- B. After control devices have been commissioned (i.e. calibrated, tested and signed off), each DDC program shall be put on line and commissioned. The contractor shall, in the presence of the owner and construction manager, demonstrate each programmed sequence of operation and compare the results in writing. In addition, each control loop shall be tested to verify proper response and stable control, within specified accuracy's. System program test results shall be recorded on commissioning data sheets and submitted for record. Any discrepancies between the specification and the actual performance will be immediately rectified and retested.
- C. After all DDC programs have been commissioned, the contractor shall verify the overall system performance as specified. Tests shall include, but not be limited to:
1. Data communication, both normal and failure modes.
 2. Fully loaded system response time.
 3. Impact of component failures on system performance and system operation.
 4. Time/Date changes.
 5. End of month/ end of year operation.

6. Season changeover.
 7. Global application programs and point sharing.
 8. System backup and reloading.
 9. System status displays.
 10. Diagnostic functions.
 11. Power failure routines.
 12. Battery backup.
- D. Submit for approval, a detailed acceptance test procedure designed to demonstrate compliance with contractual requirements. This Acceptance test procedure will take place after the commissioning procedure but before final acceptance, to verify that sensors and control devices maintain specified accuracy's and the system performance does not degrade over time.
- E. Using the commissioning test data sheets, the contractor shall demonstrate a minimum of 15 percent of each point type, as randomly selected by the owner. The contractor shall also demonstrate 15 percent of the system functions, as randomly selected by the owner. Based on the above samples, the owner may accept the entire system or require the contractor to demonstrate all points and system functions until all devices and functions meet specification.
- F. The contractor shall supply all instruments for testing and turn over same to the owner after acceptance testing.
1. All test instruments shall be submitted for approval.

Test Instrument Accuracy:

Temperature:	1/4F or 1/2% full scale, whichever is less.
Pressure: High Pressure (psi):	1/2 psi or 1/2% full scale, whichever is less.
Low Pressure:	1/2% of full scale (in w.c.)

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Humidity: 2% RH
Electrical: 1/4% full scale

- G. After the above tests are complete and the system is demonstrated to be functioning as specified, a thirty day performance test period shall begin. If the system performs as specified throughout the test period, requiring only routine maintenance, the system shall be accepted. If the system fails during the test, and cannot be fully corrected within eight hours, the owner may request that performance tests be repeated.
- H. Move In Checkout
1. Each floor shall be re-tested 24 hours prior to move in. The test shall ensure all corrective work is complete and all systems are 100% operational.
 2. Provide all overtime required for all BMS trades as required.
- I. Additional testing, debugging and fine tuning
1. Provide an additional 40 hours of appropriate highest labor cost category to be used at the owner's discretion to test, debug and fine tune the system after occupancy.

END OF SECTION 15950

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SECTION 16000
GENERAL PROVISIONS FOR ELECTRICAL WORK

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Drawings are diagrammatic and are a graphic representation of contract requirements to the best available standards at the scale required.
- D. Light and power and miscellaneous systems riser diagrams, as well as schematic diagrams, generally indicate connections to be used for various systems and equipment. Systems conduit and wiring shall be as required for the actual systems installed on this Project. Provide all work shown on diagrams whether or not it is duplicated on the plans.

1.02 SCOPE OF WORK

- A. The Specifications and the accompanying drawings are intended to secure the provisions of all material, labor, equipment, and services necessary to install complete, tested, and ready for operation the Electrical Systems in accordance with the Specifications and Drawings. All systems shall be complete with all necessary appurtenances and minor auxiliaries, including pull boxes, offsets to clear interferences, and supports which are not shown but are needed to make each system complete in every respect. All work described in the Specifications and not shown on the Drawings, or vice versa, shall be furnished in complete working order. If mention has been omitted of any item of work or material, necessary for completion of the system, then such items must be and are hereby included.

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1. Secondary service installation in coordination with Utility Company.
2. Power and light distribution system.
3. Panelboards - lighting, power and distribution.
4. Fuses and/or circuit breakers.
5. Installation and wiring of individual controllers. Erecting starter racks, where required.
6. Control devices, only where specifically called for.
7. Safety and disconnect switches, unless furnished with starters or on equipment. Weatherproof devices for outdoor equipment. Six (6) pole switches for two-speed, three-phase motors.
8. Motor power wiring.
9. Raceways and installation components.
10. Wire and Cable.
11. Electrical work in connection with equipment specified and furnished under other Sections of the Specifications, or furnished by the Owner under separate contracts or direct purchase.
12. Grounding system in conformance with applicable codes.
13. Wiring devices.
14. Lighting fixtures, including lamps, as described in these Specifications.
15. Power wiring for unit ventilators.
16. Power and control wiring for unit and cabinet heaters.
17. 120 Volt supply to EP switches and temperature control and/or data gathering panels.

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18. Breakglass stations for mechanical equipment.
19. Furnishing of access doors.
20. Furnishing and setting of all sleeves through the floors, roof and wall, where required including waterproofing and fireproof sealing and cap flashing.
21. Excavation and backfill (excavation in rock shall be included). All concrete work for pads (including housekeeping pads).
22. Hardware, such as inserts, bolts, etc., associated with concrete pads.
23. Cutting and core drilling associated with electrical work including penetrations of foundation. Provide all framing and waterproofing per structural engineer's approval.
24. Prime painting, where required for electrical equipment and installation.
25. Provision for temporary light and power.
26. Paying all fees and performing all testing and adjusting and furnishing all certificates of approval, and those of Underwriters.
27. Communications, alarm and signaling systems, including the following:
 - a. Modification of existing fire alarm system.
 - b. Furnishing, installing and connecting of all alarm initiating and signaling devices, except as noted hereinafter:
 - 1) Installation of duct smoke detectors.
 - c. All fan shutdown wiring and furnishing, installing and connecting relay cabinets required for fan shutdown.
 - d. Wiring and control of fire/smoke dampers.

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- e. Electrical provision for building automation system.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. The following items of materials and labor will be furnished under other Sections of the Specifications and shall be excluded from the work to be furnished by this Contractor:

1. Furnishing of metering current transformers and metering equipment.
2. Furnishing and setting of motors, adjusting thermal elements and replacing thermal overloads if necessary. Supplying individual starters and control devices, unless specifically indicated otherwise. This Contractor shall ascertain that combination starters are obtained and installed where so identified on the Electrical Drawings.
3. Installation of electric valves, float switches and pressure and pneumatic- electric switches, stats and related control devices.
4. Furnishing and installing HVAC temperature control boards, supervisory temperature control and energy management systems.
5. Base flashing for conduits passing through roof.
6. Setting of access doors in walls and ceilings.
7. Rough and finish patching.
8. Finish painting of exposed conduits, boxes, hangers, apparatus, etc.
9. Openings for sleeves in foundation walls below grade and floor slabs when noted on Foundation Drawings or in Foundation Specifications.
10. Dewatering of trenches inside and outside of Building.

1.04 QUALITY ASSURANCE AND STANDARDS

- A. The complete installation shall be in accordance with the applicable requirements and standards of National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), New York City Electrical Code (NYCEC), National Electrical Code (NEC), Institute of Electrical and Electronic Engineers (IEEE), American National Standard Institute (ANSI), Occupational Safety and Health Administration (OSHA), National Electrical Safety Code, Insulated Cable Engineers Association (ICEA), Underwriters' Laboratories (UL), Factory Mutual (FM), Factory Insurance Association (FIA), National Electrical Contractors Association (NECA) "Standard of Installation", Local Inspection Agency, Local Power Company, along with state and local municipal codes and all applicable codes and authorities having jurisdiction. Any items or requirements noted in the Specifications or on Drawings, which conflict with these shall be referred to the Architect for decision. All work necessary to comply with these requirements shall be performed by the Contractor at no extra cost to the Owner.
- B. Where reference is made to the National Electrical Code only, without mention of the New York City Electrical Code, the requirements of the latter, where they differ from the former, shall take precedence, where applicable.
- C. All electrical equipment, materials and appliances shall have the listing of the Underwriters' Laboratories, Inc., and shall bear labels attesting to UL listing, and types approved by Municipal Departments having jurisdiction.

1.05 SUBMITTALS

- A. Refer to Section 16000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.
- B. The Contractor shall submit shop drawings with such promptness as to cause no delay in his own work or that of another contractor.

- C. Submit shop drawings complete in every detail for items as described in the Contract Documents, or as may be required by the Architect.
- D. Submit shop drawings as indicated in subsequent Sections of this Specification.

1.06 EXAMINATION OF EXISTING CONDITIONS ON PREMISES

- A. Before submitting his bid, this Contractor shall visit the site of the work and shall thoroughly familiarize himself with the observable existing conditions affecting the work. No additional compensation will be granted on account of extra work made necessary by the Contractor's failure to investigate such existing conditions. Verify all grades, elevations, dimensions and clearances at the site.
- B. Examine all work prepared by others to receive the work of this Section and report any discrepancies and/or defects affecting installation to the General Contractor for correction. Commencement of work will be construed as complete acceptance of preparatory work by others.

1.07 COORDINATION OF WORK WITH OTHER TRADES

- A. The work of this Section shall be coordinated with the work of all other Contracts, the Utility Company, and shall be so arranged that there will be no delay in the proper installation and completion of any part or parts of each respective work wherein it may be interrelated with that of this Contract so that generally all construction work can proceed in its natural sequence without unnecessary delay. All communications of a coordinating nature to the Architect shall be via the Construction Manager or General Contractor.
- B. Examine all Architectural, Structural, Heating, Ventilating and Air Conditioning, Sprinkler and Plumbing Drawings relating to this Project, and verify all governing conditions at the site and become fully informed as to the extent and character of the work required and its relation to other work in the building. No consideration will be granted for any

alleged misunderstanding of the materials to be furnished for work to be done.

- C. Scaled and figured dimensions with respect to the items are approximate only; sizes of equipment have been taken from typical equipment items of the class indicated. Before proceeding with work, the Contractor shall care-fully check all dimensions and sizes and shall assume full responsibility for the fitting-in of equipment and materials to the building and to meet architectural and structural conditions.
- D. Coordinate work with other disciplines. Confer with other contractors whose work might affect this installation; and arrange all parts of this work and equipment in proper relation to the work and equipment of others, with the building construction and with architectural finish so that this work will harmonize in service, appearance, and function.
- E. Exposed piping shall be installed to provide the maximum amount of headroom but in no case shall piping be installed less than seven feet (7'-0") above the finished floor. Piping installed in areas where hung ceilings or other furred spaces are indicated shall be installed concealed.
- F. The Contractor is referred to the Architectural Drawings for locations and types of hung ceilings and furred spaces.

1.08 INSPECTION AND TESTS

- A. At the time of the final inspection and tests, all connections at the panels and all splices, etc., must have been completed. All fuses must be in place and the circuits continuous from service switches to all receptacles, outlets, motors, etc. Each entire wiring system must test free from short circuits and grounds. When wiring systems are "megger" tested, the insulation resistance between conductors and between conductors and grounds, based on maximum load, shall not be less than that required by National Electrical Code and local authorities having jurisdiction. A written record of all test data shall be supplied to the Architect (five copies). The tests shall cover but not be limited to the following:

1. Secondary service and distribution system.
 2. Fire alarm and smoke detection system.
 3. All communications, signaling and alarm systems.
 4. Power installations and motor controls.
 5. Light installations and circuit switching.
 6. Any part of the work called for in the Specifications, or Drawings and as designated by the Architect or Engineers.
- B. Provide all necessary testing equipment, instruments, and skilled personnel for the tests. If in the opinion of the Architect, the results of such tests show that the work has not complied with the requirements of the Specifications or Drawings, the Contractor shall make all additions or changes necessary to put the system in proper working condition and shall pay for all the expenses and for all subsequent tests which are necessary to determine whether the work is satisfactory. Any additional work or subsequent tests shall be carried out at the convenience of the Owner, prior to final payment.

1.09 PERMITS, CERTIFICATES AND FEES

- A. Obtain and deliver a final Certificate of Approval from the applicable inspection authority having jurisdiction. Make delivery to the Architect for transmittal to the Owner upon completion of the work and before final payment. Pay all charges made by the inspection authority and include their cost in the bid.
- B. This work shall include the procurement of and payment for all permits, certificates and fees for the performance of the electrical work in compliance with codes, applicable laws and municipal regulations including those from local utilities for services.

1.10 PROTECTION, MAINTENANCE AND PRODUCT HANDLING OF ELECTRICAL EQUIPMENT

- A. Electrical equipment shall be delivered and stored at the site, properly packed and crated until finally installed. Store materials in spaces as designated by the General Contractor. Investigate each space through which equipment must be moved. If necessary, equipment shall be shipped from manufacturer in crated sections of size suitable for moving through restricted spaces.
- B. Uninstalled and installed equipment and materials shall be adequately protected against loss or stealing; damage caused by water, paint, fire, plaster, moisture, acids, fumes, dust or other environmental conditions; or physical damage, during delivery, storage, installation and shutdown conditions. This Contractor shall replace any damage or stolen material without extra cost to the Owner.
- C. Provide effective protection for all material and equipment against damage that may be caused by environmental conditions. Do no work when conditions of temperature in area or moisture on materials or substrates are not in accordance with material manufacturer's recommended conditions for installation.
- D. This Contractor shall be responsible for the maintenance of all equipment and systems installed, until final acceptance by the Architect and the Owner. The Operation of the equipment by the Owner does not constitute an acceptance of the work. Work will be accepted only after the Contractor has adjusted his equipment, demonstrated that it fulfills the requirements of the Drawings and Specifications, and has furnished all required certificates.
- E. This Contractor shall guarantee in writing to the Owner that all work installed by him shall be free of defects in workmanship and materials and that all apparatus will develop the capacities and characteristics as indicated, and that, if during a period of one year from date of final approval of work by the Architect, any defects in workmanship, materials or performance appear, he will remedy them without any cost to the Owner. Guarantee requirements

shall consist of the aforesated and other requirements, as established under applicable Contract Documents.

- F. Provide effective protection against damage for all material and equipment during shipment, and storage at the Project Site. Cover all stored equipment to exclude dust and moisture. Place stored conduit on dunnage with appropriate weather cover and caps on exposed ends.
- G. After cabinets and boxes are installed, cover openings to prevent entrance of water and foreign materials. Close conduit openings with temporary metal or plastic caps, including those terminated in cabinets.
- H. Protect all rough and finished floors and other finished surfaces from damage which may be caused by construction materials and methods. Protect floors with tarpaulins, chip pans and oil-proof floor covering. Protect finished surfaces from welding and cutting splatters with baffles and asbestos splatter blankets. Protect finished surfaces from paint droppings, adhesive and other marring agents with drop cloths. Protect other surfaces with appropriate protective measures.
- I. Have materials delivered to site. Unload and store materials in designated location, and protect from damage. Deliver materials to their point of installation.
- J. Deliver materials to Project site in manufacturer's original unopened containers with manufacturer's name and product identification clearly marked thereon.

1.11 DELIVERY AND RECEIVING

- A. Owner-furnished equipment will be delivered, crated or otherwise packaged to the Site delivery point selected by the Construction Manager. This Contractor shall accept delivery of all Owner-furnished items which are under his trade jurisdiction and place them in their final location.

- B. Where items cannot be immediately placed in their final position, this Contractor shall store and protect all Owner-furnished items until the time of their final installation. He shall be responsible for the care and protection of the items until acceptance by the Owner. Delivery of Utility Company furnished equipment shall be coordinated with the delivery policy of that company.

1.12 ACCESSIBILITY AND MEASUREMENTS

- A. All work shall be installed so as to be readily accessible for operation, maintenance and repair. Minor deviations from the plans may be made to accomplish this, subject to the approval of the Architect or Engineers.
- B. Before ordering any material or doing any work, the Contractor shall verify all measurements at the Building, and shall be responsible for the correctness of same as related to the work under this Contract.

1.13 TEMPORARY LIGHT AND POWER

- A. Electric services for temporary light and power shall be obtained from the utility company and extended as required. Consult the Owner prior to making any connections.
- B. The Electrical Contractor shall furnish, install and maintain the temporary lighting and power system for all Contractors. The use of electricity shall be kept to a minimum.
- C. The Owner or Owner's Representative will pay for all energy required by the temporary lighting and power system.
- D. Provide all wiring, supports, lamp sockets, receptacle sockets and any other materials, supplies or equipment necessary for temporary light and power system.
- E. Ground fault protection required by OSHA for temporary receptacle circuits shall be accomplished by providing branch circuit panels containing ground fault protection branch circuit breakers.

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- F. Provide a grounding conductor connection to each receptacle grounding terminal. Minimum size branch circuit and grounding conductors shall be No. 12 AWG.
- G. Install separate stringer circuits for lighting and receptacles. Provide one lamp socket and one duplex receptacle (or two single receptacles) for every 400 square feet of new general construction area. (Approximately 20 feet on centers). Furthermore, provide one lamp socket and one duplex receptacle every 20 feet along the peripheral walls of the construction areas for temporary conditions. Each lamp socket shall be provided with a 100 watt lamp. Replace burned out lamps as required for as long as the temporary lighting system is maintained in operation.
- H. Provide sufficient supplementary temporary lighting to permit proper execution of the work. This supplementary lighting shall consist of but not be limited to the following:
 - 1. Construction hoist landings.
 - 2. Stairways and stairway landings where existing illumination is inadequate due to alterations or construction.
 - 3. Interior rooms not covered with general construction area lighting.
- I. Provide power wiring to operate construction hoist. Provide fused disconnect switch at hoist location. Fuse size, wiring size and disconnect shall be as required.
- J. Provide 50 trailer extension cords, each 25 feet long. Cords shall be 16-3, Type SJ. 25 of the trailer cord sets shall be receptacle type ITT No. 6112 and 25 of the trailer cord sets shall be trouble light type with receptacle ITT No. J-3270. Distribution of these cord sets to Mechanical and other contractors shall be as directed by the Owner's Representative.
- K. Keep the temporary lighting and power system operational commencing fifteen (15) minutes before the established starting time of that trade which starts

work earliest in the morning and ending fifteen (15) minutes after the established quitting time of that trade which stops work latest in the evening. This applies to all weekdays, Monday through Friday inclusive, which are established as regular working days for any trade engaged in the work, and shall continue until Final Acceptance of the work or until these services are ordered terminated by the Owner or the Owner's Representative.

1.14 NAMEPLATES

- A. Furnish a nameplate for each separately installed feeder switch and circuit breaker, each individual panel, disconnect switch, power conditioners, starter push-button station and equipment enclosure.
- B. Unless otherwise noted, nameplates shall be black laminate with white letters of uniform size consisting of reasonably large caps, easily visible.
- C. Inscriptions shall consist of name and number of equipment as shown on the Drawings and as approved by the Architect.

1.15 NAMES AND TRADE NAMES

- A. Where trade and manufacturers' names are specified or indicated on the Drawings, they are intended to indicate the standard of material or articles required. This shall not remove the responsibility of the Contractor from verifying the equipment's compliance with all rules and regulations governing the use of such equipment. No purchase of any equipment shall be done without written authorization, if such equipment will not abide with all rules and regulations, covering its intended use.

1.16 MATERIAL AND WORKMANSHIP

- A. All material shall be new and of the best quality and shall have the Underwriters Laboratories label attached. The label shall be of the type for the intended application. The work throughout shall be executed in the best and most thorough manner under the direction of, and to the satisfaction of the Architect who will interpret the meaning of the

Drawings and Specifications. The Architect shall have the power to reject any work and materials which, in his opinion, is not in full accordance therewith.

- B. If, after installation, operation of the equipment proves to be unsatisfactory to the Owner by reason of defects, errors or omissions, the Owner reserves the right to operate equipment until it can be removed from service for correction by Contractor. Contractor shall pay for damages to work of other trades caused by this defective equipment and its replacement.

1.17 OPERATING INSTRUCTIONS (SYSTEMS AND EQUIPMENT FURNISHED UNDER CONTRACT FOR ELECTRICAL WORK)

- A. Two months prior to the completion of all work and the final inspection of the installation by the Owner, five copies of a complete Instruction Manual, bound in booklet form and suitably indexed, shall be submitted to the Architect for approval. All written material contained in the Manual shall be typewritten or printed.
- B. The Manual shall contain the following items:
 - 1. Table of Contents
 - 2. Introduction - Explanation of manual and its use.
 - 3. Description of system or equipment.
 - a. Complete schematic drawings of all systems.
 - b. Functional and sequential description of all systems.
 - 4. Systems Operation
 - a. Operation procedures.
 - b. All posted instruction charts.
 - 5. Maintenance
 - a. Systems trouble-shooting charts
 - b. Procedures for checking out functions.
 - c. Recommended list of spare parts.
 - 6. Listing of Manufacturers

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7. Manufacturer's Data (where multiple model, type and size listings are included, clearly and conspicuously indicate those that are pertinent to this installation.
 - a. Description - literature, drawings, illustrations, certified performance charts, technical data, etc.
 - b. Operation
 - c. Maintenance - including complete trouble-shooting charts
 - d. Parts list
 - e. Names, addresses and telephone numbers of recommended repair and service companies.
 - f. Guarantee data.

END OF SECTION 16000

SECTION 16111
RACEWAYS AND INSTALLATION COMPONENTS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The requirements of this section apply to raceway work required for the protection of electrical conductors. Raceways are required for all wiring unless otherwise specified.
- B. The work includes the furnishing and installation of completely coordinated, effectively grounded raceway systems complete with boxes, fittings, flexible connections to vibrating equipment and other accessories, as required. Conduit or tubing sizes referred to in the Specifications and on the Drawings are nominal trade sizes.

1.03 QUALITY ASSURANCE

- A. Manufacturers - Firm regularly engaged in manufacture of raceways and accessories of the types required and whose products have been in satisfactory use in similar service for not less than 5 years. Refer to PART 4 of this section for "Approved Manufacturers".
- B. Raceways and installation components shall be listed and labeled by Underwriters Laboratories and comply with applicable sections of National Electrical Manufacturers Association standards.
- C. All outdoor installations shall be weatherproof.

1.04 SUBMITTALS

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work.

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- B. Submit a list of proposed manufacturers for all raceways and components.

1.05 GUARANTEE

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 RACEWAYS AND FITTINGS

A. Raceways:

1. All conduit shall be 3/4-inch minimum.
2. Rigid steel conduit: Shall be full weight steel pipe, hot dipped galvanized inside and outside, threaded.
3. Conduit for direct burial: Shall be galvanized rigid steel with PVC jacket.
4. Electric metallic tubing (EMT) shall be steel thin wall pipe, galvanized, threadless.
5. Flexible steel conduit (Greenfield): Shall be continuous single strip, galvanized.
6. Liquid-tight, flexible steel conduit: Shall be zinc coated and consist of flexible galvanized steel tubing over which is extruded a liquid-tight jacket of polyvinyl chloride (PVC).
7. Wiring troughs: Refer to Section 16141, 2.2 B.

B. Conduit Fittings:

1. Thread compounds shall be UL approved conductive type to insure low resistance ground continuity through conduit.
2. Metallic conduit fittings shall be corrosion resistant.
3. Bushings shall be of the metallic insulated type.
4. For weatherproof and dusttight installations provide liquid-tight fittings with sealing rings and insulated throat.

5. Rigid steel conduit fittings:
 - a. Fittings shall be standard threaded couplings, locknuts, bushings, and elbows.
 - b. Sealing fittings shall be of the threaded cast iron type. Sealing fittings used to prevent passage of water vapor shall be of the continuous drain type. In concealed work, each fitting shall be installed in a flush steel box with blank coverplate having the same finish as that of other electrical plates in the room.
6. Electrical metallic tubing fittings:
 - a. Couplings and connectors shall be steel body-malleable iron nut, "concrete tight". They shall be compression type, afford raintight integrity, and provide positive ground. Connectors shall have insulated throats.
7. Flexible steel conduit (Greenfield) fittings:
 - a. Shall be pressure clamp type with insulated throat and UL approved for ground continuity.
8. Liquid-tight flexible metal conduit fittings:
 - a. Shall be of a type incorporating a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats. Shall be UL approved for ground continuity.
9. Expansion and deflection couplings:
 - a. Shall accommodate 0.75 inch deflection, expansion, or contraction in any direction and allow 30 degree angular deflections. Couplings shall comply with UL 467 and 514 and shall qualify seismically.
 - b. Shall include internal flexible metal braid sized to guarantee conduit ground continuity and fault currents in accordance with UL 467, and the NEC tables for ground conductors.

2.02 INSTALLATION COMPONENTS

A. Sleeves:

1. Provide and assume responsibility for locating and maintaining in proper position all sleeves

required for the work. See Section 15000 - General Requirements for Mechanical and Electrical Work for sleeves specification.

2. For raceways through sleeves, provide seals of oakum packing and lead or O.Z. Type WSC compound on both sides.
3. For cables in raceways through sleeves, provide seals similar to O.Z. Type WSC compound or Type C series terminators.
4. Through floors, exterior masonry walls, roof, and underground, sleeves shall be schedule 40 galvanized steel pipe. For other areas, sleeves shall be 18 gauge galvanized sheet steel.

B. Fire sealants:

1. Openings through floors and walls in which cables, conduits, or pipe pass shall be sealed by U.L. classified smoke and fire stop fittings, and have an hourly rating equal to the fire rating of the floor or wall. Fittings shall be similar to O-Z Gedney Type "CFS" or CAFS".
2. Penetrations through fire-rated floors in which wiring for floor service outlets is routed shall be sealed by U.L. classified smoke and fire-stop fittings, and shall have an hourly rating equal to the floor rating. Fittings shall be similar to O-Z Gedney Type "PTFS".

2.03 SUPPORTS

A. Conduit Supports:

1. All parts and hardware shall be zinc-coated or have equivalent corrosion protection.
2. Individual conduit hangers, shall be designed for the purpose, have pre-assembled closure bolt and nut, and provisions for receiving hanger rod.
3. Multiple conduit (trapeze) hangers shall be not less than 1 ½ by 1 ½ inch, 12 gauge steel, cold formed, lipped channels. Hanger rods shall be not less than 3/8-inch diameter steel.
4. Solid masonry and concrete anchors shall be a type approved for the purpose.

B. Fasteners:

1. Furnish all fasteners and hardware compatible with the materials and methods required for attachment of supporting devices.
 - a. Slotted-Type Concrete Inserts: Galvanized pressured steel plate complying with ASTM A 283; box-typed welded construction with slot designed to receive steel nut and with knockout cover; hot-dipped galvanized in compliance with ASTM A 386.
 - b. Masonry Anchorage Devices: Expansion shields complying with Federal Specification FF-S-325, as follows:
 - 1) Furnish lead expansion shields for machine screws and bolts $\frac{1}{4}$ " and smaller; head-out embedded nut type, single unit class, Group I, Type 1, Class 1.
 - 2) Furnish lead expansion shields for machine screws and bolts larger than $\frac{1}{4}$ " in size; head-out embedded nut type, multiple unit class, Group I, Type 1, Class 2.
 - 3) Furnish bolt anchor expansion shields for lag bolts, zinc alloy, long-shield anchors class, Group II, Type 1, Class 1.
 - 4) Furnish bolt anchor expansion shields for bolts, closed-end bottom bearing class, Group II, Type 2, Class 1.
 - c. Toggle Bolts:
 - 1) Tumble-wing type, complying with Federal Specification FF-B-588, type, class and style as required.
 - d. Nuts, Bolts, Screws, Washers:
 - 1) General: Furnish zinc-coated fasteners, with galvanized complying with ASTM A 153 for exterior use or where built into exterior walls. Furnish fasteners for the type, grade and class required for the particular installation.

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- 2) Standard Nuts and Bolts: Regular hexagon head type, complying with ASTM A 307, Grade A.
- 3) Lag Bolts: Square head type, complying with Federal Specification FF-B-561.
- 4) Machine Screws: Cadmium plated steel, complying with Federal Specification FF-S-92.
- 5) Wood Screws: Flat head carbon steel, complying with Federal Specification FF-W-92.
- 6) Plain Washers: Round, general assembly grade carbon steel, complying with Federal Specification FF-W-92.
- 7) Lock Washers: Helical spring type carbon steel, complying with Federal Specification FF-W-84.

C. "C" Beam Clamps:

- a. For 1" Conduit Maximum: Caddy Fastner Div./Erico Products Inc. BC-8P and BC-8PSM Series, HIT Spring Steel Fasteners, Inc. CH Series.
- b. For 3" Conduit Maximum: Kindorf Elec. Prod. Div./Midland Ross Corp. 500 Series hanger; Gedney Electric Co. IS-500 Series beam clamp with H50WB Series hangers; Appleton Electric Co. BH-500 Series beam clamp with H50W/B Series hanger.
- c. For 4" Conduit Maximum: Kindorf Elec. Prod. Div./Midland Ross Corp. E-231 beam clamp and E-234 anchor clip and C-149 Series lay-in hanger; Unistrut Corp. P2676 beam clamp and P-1659 Series anchor clip with J1-205 Series lay-in hanger.
- d. For Threaded Rods (100 lbs. load max.): Caddy Fastner Div./ Erico Products Inc. Cat. No. BC-4A; HIT Spring Steel Fasteners Inc. master clamp MC.
- e. For Threaded Rods (200 lbs. load max.): Kindorf Elec. Prod. Div./Midland Ross Corp. 500 Series; Gedney Electric Co. IS-500 Series; Appleton Electric Co. BH-500 Series.

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- f. For Threaded Rods (300 lbs. load max.): Kindorf Elec. Prod. Div./Midland Ross Corp. E-231 beam clamp and E-234 anchor clip; Unistrut Corp. P2676 beam clamp and P-1659A Series anchor clip.

D. Pipe Straps:

- 1. Two hole steel conduit straps with Galv-Krom finish, Kindorf Elec. Prod. Div./Midland Ross Corp. C-144 or C-280 Series.

E. Pipe Clamps:

- 1. One hole malleable iron type clamps, Kindorf Elec. Prod. Div./ Midland Ross Corp. HS-400 Series; Gedney Electric Co., 14-50 Series.

F. Deck Clamps:

- 1. Caddy Fasteners Div./Erico Products Inc. DH-4-T1 Series. HIT Spring Steel Fasteners, Inc. RD Series.

G. Fixture Stud and Strap:

- 1. Steel Electrical Products Div. FE-431; Gedney Electric Co. SL-134.

H. Channel Support System and Accessories:

- 1. Furnish 12 gauge galvanized steel channel and accessories as manufactured by:
 - a. Kindorf Elec. Prod. Div./Midland Ross Corp.; B-9000 (1 1/2" x 1 1/2"), B-901 (1 1/2" x 1 7/8"), B-902 (1 1/2" x 3").
 - b. Unistrut Corp.; P-3000 (1 3/8" x 1 5/8"), P-5500 (1 5/8" x 2-7/16"), P-5500 (1 5/8" x 3 1/4").
 - c. B-Line Division - The Brinkley Co.; B-22 (1 5/8" x 1 5/8"), B-12 (1 5/8" x 2-7/16"), B-11 (1 5/8" x 3 1/4").
 - d. Versabar Corp.; VA-1 (1 5/8" x 1 5/8"), VA-3 (1 5/8" x 2 1/2").

I. Support Fittings for Industrial Fluorescent Fixtures on Exposed Conduit System:

- 1. Ball Hanger: Crouse-Hinds Co. ALC, Appleton Electric Co. AL Series.

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2. Flexible Fixture Hanger: Crouse-Hinds Co. UNJ115, Appleton Electric Co. UNJ-50 or UNJ-75.
3. Flexible (Hook Type) Fixture Hanger: Crouse-Hinds Co. UNH-1, Appleton Electric Co. FHHF.
4. Eyelet: Steel City Electrical Products Div. H-263, Unistrut Corp. M2250.
5. Eyelet with Stud: Steel City Electrical Products Div. H262, Unistrut M2250.
6. Conduit Hook: Crouse-Hinds Co. UNH-13, Appleton Electric Co. FHSN.

2.04 BOXES

A. Outlet boxes:

1. Outlet boxes for concealed work shall be galvanized steel, 4 in. square or octagonal, or as required by construction, devices or wiring, and shall conform to UL's "Standard for Outlet Boxes and Fittings." Outlet boxes shall be provided with a galvanized steel cover or extension ring depth as required. As a minimum, boxes shall be of the following depths and as described for specific applications hereinafter:

Above ceiling, 1 ½ in. deep.

In ceiling or slab, 3 in. deep.

In wall for fixture, 2 ¾ in. deep.

In wall for receptacles and switches, 1 ½ in. deep.

With raised covers and fixtures studs where required.

Through-the-wall type are not permitted.

Receiving 1 ¼" conduit, 2 ½" deep min.

2. Ceiling fixture outlet boxes, except as noted, shall be 4" octagonal and 1 5/8" deep and with 3/8" fixture stud. Where cast in slab, boxes shall be open back concrete type.
3. Wall bracket outlets shall be 4" square and 1 5/8" deep with cover having 2 7/8" round openings and except for lampholders shall be furnished with fixture stud.

4. All outlet boxes for concealed convenience receptacles or local switches shall be 4" square and 1 5/8" deep with regular deep switch extension cover, except where installed on columns they shall be of sufficient depth so that conduits may be installed into these boxes in back of fireproofing. Outlet boxes for gang receptacles and switches shall suit space conditions.
5. Outlet boxes for exposed work shall be galvanized cast iron or aluminum with threaded hubs. Except as otherwise required by construction, devices or wiring, the outlet boxes shall be 4 in. round x 2 in. deep for mounting on ceilings and 4 in. square x 2 in. deep for mounting on walls.
6. Boxes shall be of the cast type for switches and receptacles when installed on the exterior of the project. Such boxes shall be aluminum or malleable iron of the threaded hub type, with covers without projecting edges or corners and with openings suitable for the devices to be contained therein. Outlet boxes and covers shall be galvanized or anodized and shall be gasketed.
7. Outlet boxes located outdoors and damp locations shall be weatherproof.
8. Outlet boxes without fixture or device, shall have blank cover.
9. Offset back-to-back outlets, shall have minimum 6 in. separation between them.
10. Extension rings shall be provided as required to suit various conditions.
11. Grounding screw and cable wiring connector shall be provided as required by wiring method.
12. Boxes for use with surface mounted raceways shall be of the same construction and manufacture as the raceway.
13. Except where special outlets are required, wall outlets for signaling systems shall be 4" square with single gang raised cover and bushed plate.
14. Junction outlets shall be the same as bracket outlets but without stud, furnished with covers to suit each condition and as directed. Where number of conductors exceed capacity of standard box, provide special size box.

B. Junction and Pull Boxes:

1. Junction and pull boxes shall be made of galvanized sheet steel and with screw-on covers, except as noted, and will include insulated supports for cables.
2. Provide junction and/or pull boxes as noted or as required. All junction and pull boxes shall be accessible.
3. Junction and pull boxes located outdoors and in damp locations shall be galvanized cast iron with threaded hubs and gaskets.
 - a. Provide barriers in junction boxes or pull boxes between:
 - 1) Emergency and normal wiring.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine locations where raceways and installation components are to be installed, determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Raceways:

1. Install raceways in accordance with applicable requirements of NEC and National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices.
2. The routing and location of conduit runs are generally not dimensional on the drawings but shall be determined in the field to suit the locations of equipment, to conform to structural features and to avoid interferences. Where exposed conduits are dimensional on drawings, they shall be installed to a tolerance of $\frac{3}{4}$ inch. Coordinate with equipment configuration and exact location prior to connection.

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3. Support by means of ceiling trapeze, strap hangers, or wall brackets, structural steel angles or channels. Secure raceways to supports with pipe straps or U-bolts. Spacing of support shall be as per NEC. Provide U-bolts at each floor level for riser raceways and connect to acceptable supports.
4. Mount supports to structure with toggle bolts on hollow masonry, expansion shields or inserts on concrete and brick, machine screws on metal, wood screws on wood.
5. Allow a 6 in. minimum separation between raceways and steam and hot water pipes. Provide approved thermal insulation for electric lines where this separation cannot be maintained.
6. Keep raceways clear of motor foundations and from underside of boilers. Also, install raceway so that they will not obstruct headroom, doorways, or walkways.
7. For outlets located in hung ceilings, run raceways in hung ceilings and connect to main ceiling support channels.
8. Run raceways concealed, except as noted. Exposed raceways shall be run parallel with or at right angles to walls. In walls, run raceways vertically only.
9. Mechanically join all metal raceways, enclosures and junction boxes to form a continuous electrical conductor. Connect all electrical boxes, fittings and cabinets so as to provide effective electrical continuity and firm mechanical assembly. Maintain grounding continuity of interrupted metallic raceways with ground conductor, sized in accordance with the NEC.
10. Provide long radius bends for empty raceway system where required to satisfy the system cabling requirements.
11. Install complete conduit runs before pulling in wire or cable. Install raceways so that required conductors may be drawn in without injury or excessive strain to raceway or cable. Where raceway size is not indicated, follow applicable code.
12. Do not cross pipe shafts or ventilation duct openings. Route raceway to avoid present or

- future openings in floor, wall or ceiling construction, when so indicated on the drawings.
13. Keep end of raceways plugged or capped during construction.
 14. For empty raceways over 10 ft. long, provide fish or pull wire. Pull wire shall consist of nylon or polypropylene cord.
 15. Damaged or deformed raceway shall be removed and replaced.
 16. Branch circuit conduits shall not be supported by lighting fixtures, piping, or air conditioning ducts.
 17. For conduits entering the building, perform the following:
 - a. Plug all empty raceways.
 - b. Enter through floor or wall entrance fittings. The entrance fittings shall have a gland assembly which shall be capable of providing a seal around the conduit or cable to withstand 50 foot head of water without leakage. The sealing assembly shall be similar to O-Z Gedney Type "FSK" or "FSCS".
 18. Work with extreme care near existing ducts, conduits, cables and other utilities to avoid damaging them.
 19. For conduit installation in or under concrete.
 - a. Where located in slabs, the maximum outside diameter of the conduit shall be 1/3 the slab thickness. When locating in the slab, place conduits in a manner so as not to interfere with the placement of reinforcing bars or cause damage to structural members or structural support.
 - b. Where located in concrete fill, the conduit shall have a minimum of 1 in. cover.
 - c. In terrazzo floor finish, rigid steel conduit is not permitted.
 - d. Where located under the building, conduit shall be concrete encased or PVC coated rigid steel.

20. Permitted Uses:

a. Rigid Galvanized Steel Conduit (RGS):

- 1) RGS shall be used under slab, for underground installation (PVC coated if direct burial) for risers and branch feeders, in wet or damp locations, for exposed runs on the exterior of the building, in concrete slabs, in mechanical equipment spaces, hazardous locations, where subject to physical damage, and as noted.

b. Electric Metallic Tubing (EMT):

- 1) EMT shall be used for branch circuit wiring installed in dry locations (hung ceilings, hollow block walls and furred spaces).
- 2) EMT shall be used for low voltage system wiring, (communications, signaling, alarm; remote controls, etc.) installed in dry locations (hung ceilings, hollow block walls, riser shafts, and furred spaces).

c. Flexible steel conduit:

- 1) Flexible steel conduit "Greenfield", shall be used for the following applications: for short connections where rigid conduit or tubing is impracticable, from outlet box to recessed lighting fixture with minimum length of 4 ft. and a maximum length of 6 ft., and for final connections to vibrating equipment other than motors and transformers in dry locations only.
- 2) For final connections to motor terminal boxes, transformers and other vibrating equipment, the flexible steel conduit shall have polyvinyl sheathing "Sealtite" and a ground conductor. The minimum length of the flexible conduit shall be 18 in. with slack. Connect the ground conductor to the enclosure or raceway at each end.

19. Provide expansion-deflection fittings with bonding jumper at expansion joints and on length of runs in accordance with manufacturer's recommendations.

20. For Wet, Damp, or Moist Locations:

- a. Provide sealing fittings, to prevent passage of water vapors, where conduits pass from warm to cold locations, such as refrigerated spaces, air conditioned spaces, or similar areas.

B. Sleeves:

1. Sleeves shall be provided in accordance with the following guidelines:
 - a. Set required sleeves and inserts in place during progress of construction to avoid cutting of completed work.
 - b. Provide sleeves for raceway passing through floors and foundations. Determine exact location of sleeves in field to avoid interference with structural members or equipment of other trades.

C. Fire-Stops:

1. Where wiring, conduits, cable trays, wireways, and other electrical raceways pass through fire partitions, fire walls, or floors, install an approved fire-stop that provides an effective barrier against the spread of fire, smoke and gases. Firestop material (Heat activated putty and a high temperature fiber material) shall be packed tight and shall completely fill clearances between raceways and openings. It shall be applied concurrently with the installation of the wiring. The fire stop fittings shall have a U.L. classified hourly rating equal to the fire rating of the floor or wall.
2. Floor, exterior wall, and roof seals shall also be made watertight. Mineral wool, oakum, grout or duct seal stuffed into or around penetrations shall not be used.

D. Outlet Boxes:

1. Set boxes square and true with the building finish. Boxes shall be secured to the building structure by adjustable strap irons.
2. Verify outlet locations in finished spaces with Architectural Drawings of interior details and finishes. In locating outlets, allow for overhead pipes, ducts, and variations in arrangement,

thickness in finish, window trim and other architectural construction details. Correct any inaccuracy resulting from failure to do so without any additional expense to the Owner.

3. Refer to Architect any condition that would place an outlet box in an unsuitable location, such as a molding, break glass in wall finish, or behind a radiator.
4. Mount outlet boxes for similar equipment at uniform heights. Where mounting height or location of outlets is not shown or specified, mount outlet as best suited for equipment connected thereto, or as directed.
5. Close all unused openings in outlet boxes with knockout closers manufactured for this purpose. Provide blank plates on outlet boxes in which no device is installed or device installed does not provide a suitable cover.
6. Provide barriers between switches connected to different phases for voltages exceeding 150 volts to ground.
7. Outlet boxes for fixtures recessed in hung ceilings, shall be accessible through the opening created by the removal of the fixture.
8. Securely fasten exposed outlet boxes by attaching to permanent inserts or lead anchors with machine screws. Adequately support all boxes during construction to prevent movement.

E. Panelboard, Junction and Pull Boxes:

1. Panelboard, junction and pull boxes shall be located clear of other trades equipment, accessible, supported from the building structure, and independent of the conduits.
2. Conceal junction and pull boxes in finished spaces.
3. Coordinate size of motor terminal boxes with motor branch circuit conduit and wiring.

PART 4 - APPROVED MANUFACTURERS

4.01 RACEWAYS

- A. Metallic:
 - 1. Allied Tube & Conduit Corp.
Triangle PWC, Inc.
Western Tube & Conduit Corp.
Wheatland Tube Co.
- B. Metallic, Plastic Coated
 - 1. Robroy Industries, Inc.
Electri-Flex Co.
Perma-Cote Industries
- C. Wireways:
 - 1. Panduit Corp.
Square "D" Company
Hoffman Engineering Co.

4.02 RACEWAY FITTINGS

- A. . Appleton Electric Co.
Crouse-Hinds Co.
O.Z. Electrical Mfg. Co., Inc.
Thomas and Betts Co.

4.03 BOXES

- A. Crouse-Hinds Co.
O.Z./Gedney
Raco Inc.
Russell & Stoll Co.
Steel City Electric Co.
Thomas & Betts Co.

END OF SECTION 16111

SECTION 16123
WIRE AND CABLE (600 VOLTS)

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The requirements of this Section apply to wire and cable work specified elsewhere in these Specifications.
- B. The work includes providing wire and cable complete with all accessories in accordance with Drawings and Specifications and as required for a complete system. Wiring size referenced in this Section shall be AWG, except as noted. For special wiring for individual systems refer to respective Sections of these Specifications.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in the manufacture of wire and cable of specified types and ratings, whose products have been in satisfactory use in similar service for not less than 5 years. Refer to PART 4 of this Section for "APPROVED MANUFACTURERS".
- B. Provide wire and cable which has been listed and labeled by Underwriters' Laboratories, and comply with applicable portions of National Electrical Manufacturers Association Standards.
- C. Comply with National Electrical Code (NFPA No. 70) and local electrical codes which apply for construction and installation of wire and cable. Where discrepancies arise between codes, the most restrictive code shall apply.

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1.04 SUBMITTALS

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work, and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 600 VOLT WIRE AND CABLE

A. Conductors:

1. All conductors shall be copper.
2. No. 10 and smaller conductors shall be ASTM Standard, solid, copper. No. 8 and larger conductors shall be ASTM standard, stranded copper.
3. Communications and signal wiring shall conform to the recommendations of the system manufacturers and shall be as specified in respective Sections of these Specifications.

B. Insulation:

1. Rubber and thermoplastic insulation shall comply with ASTM and IPCEA standards.
2. Minimum insulation shall be UL rated for 75°C. Types THHN and USE.
3. Conductor ampacity rating shall be based on 75°C insulation.
4. Types and application:
 - a. THHN shall be used for interior branch circuit and feeder wiring.
 - b. Conductors with insulation rated 90°C shall be provided in high ambient temperature areas and for branch circuit wiring connecting the fluorescent fixtures.
 - c. Types USE and UF cable shall be provided for direct burial feeders and branch circuits.

- d. Bare conductors shall be permitted for grounding where so indicated in GROUNDING Section of Specifications.
- e. Type SFF-2 conductors shall be provided in wiring channels at continuous fluorescent fixtures and in ambient temperatures over 90°C.
- f. For low voltage system wiring (Communications, signaling alarm, remote controls, etc.) installed above suspended ceilings, approved signaling cable without conduit shall be permitted. When installed in air handling plenums signaling cable shall have flame retardant insulation UL classified as low smoke/low flame, with fluoropolymer resin jacket approved for installation in air handling plenums without conduit. Signaling cable installed without conduit shall be adequately harnessed, bundled and tied at 4 foot intervals by individual system and marked with identification tags.

C. Wire Sizes

- 1. For General Use:
 - a. No. 12 minimum copper wire shall be used for lighting and power.
 - b. No. 10 minimum copper wire shall be used for 15 Ampere circuits, at 120 Volts, over 90 ft. in length, and for 20 Ampere circuit, at 120 Volts, over 60 ft. in length.
- 2. For Control and Alarm Wiring, unless otherwise noted:
 - a. No. 14 minimum copper wire.
 - b. No. 12 minimum copper wire for 120 Volt circuits over 60 ft. in length.
- 3. For Other Voltages and Phases and for Longer Circuit Lengths:
 - a. Size wire as required to maintain NEC (NYCEC) permissible voltage drop.
- 4. Raceways:
 - a. Increase raceway sizes for larger wire sizes in conformance with NEC requirements.

D. Color Coding

1. Phase wires shall be color-coded as follows:
 - a. 120/208 Volt system:

Black	- A phase
Red	- B phase
Blue	- C phase
2. Neutral conductors shall be white for 120/208 Volts.
3. Equipment ground wire shall have a green outer covering throughout.
4. Where color-coded cable is not available, certify in writing and request permission for overlap color taping conductors (minimum length 6 in.) in accessible locations.
5. Conductors for control circuits and signal systems shall also be consistently color coded to avoid confusion and permit easy identification of conductors. The IPCEA color code shall be used wherever possible. No two wires in the same raceway shall be the same color, unless provided with flameproof linen identification tags on each end.

PART 3 - EXECUTION**3.01 GENERAL**

- A. Install wire and cable in accordance with the NEC, The National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices to ensure that products serve the intended functions.
- B. 600 Volt Wire and Cable:
 1. Wire and cable shall not be drawn into conduit and raceways until all conduit work is complete, joints made up tightly and the entire run secured in place.
 2. The inside of conduits and raceways shall be dry and clean before conductors are pulled.
 3. Care shall be exercised in pulling to avoid damage to the wire or cable. Lubricants shall be used for pulling wire or cable if the character of the pull might otherwise damage the conductors, insulation or jacket. No thermoplastic wires shall be pulled at temperatures lower than 0°C.

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4. Cables shall be supported at the upper end of all risers and at intermediate points as required by the NEC. Supports shall be O.Z. Type "R", insulation wedges or Kellens grips, or approved equal.
5. Seal conduit with a non hardening compound approved for the purpose, where cable or wire enter building from underground.
6. Cable spacers shall be installed where required. Spacers shall consist of galvanized or cadmium plates, steel or malleable iron threaded conduit and fittings and inserts of non-metallic insulating material with openings adequate to accommodate cables being spaced. Cable spacers shall be O.Z. Mfg. Co., Inc. Type E or Type EL, with grounding lug, or approved equal.
7. Not more than 3 lighting or convenience receptacle circuits shall be installed in one (1) conduit, unless otherwise indicated on Drawings.
8. The Contractor installed service cables containing four (4) or more parallel conductors per phase shall have cable limiters at both ends of each conductor. Limiters shall be rated 600 Volts, 200,000 Amperes RMS interrupting capacity and shall have waterproof sleeves. The requirements for cable limiters shall be coordinated with the Utility Company prior to installation.
9. Provide individual raceways for two pole ungrounded circuits.
10. In certain systems, equipment furnished by an approved manufacturer may require a different number and arrangement of conductors from those indicated on the Drawings. In such cases, the Contractor for the work under this Division shall comply with such requirements at no additional cost to the Owner.
11. In the event the Contractor for the work under this Division or Section chooses to furnish and install a system or item of equipment of different arrangement from that shown or specified, he shall furnish and install any additional wiring and conduit

required by the system at no additional cost to the Owner.

12. In wireways and large pull boxes, lace and tie off conductors in groups of 3 phases and neutral (if used) to limit conductor unbalanced loading. Conductor group shall be as installed in conduit.
13. Tag all feeders and risers in all pull boxes and in all gutter spaces through which they pass. Tags shall be engraved white core nameplates identifying feeders as shown on the Drawings or the circuit protective device from which they originate.
14. Leave all wires with sufficient slack at terminals ends for convenient connections and fixtures and for convenient servicing. Stow loose ends neatly in outlet box.

C. Terminations, Splices and Connections:

1. Splices and taps shall be made in accessible boxes, panelboard fittings, gutters, terminal panels, etc. only. Materials shall be compatible with the conductors, insulations and protective jackets on the cables and wires.
2. All copper conductors No. 8 & larger shall be terminated, spliced, and tapped with color-keyed compression connectors, as manufactured by Thomas & Betts Co., Series 54000, Ideal Industries Series 87000, or approved equal. The manufacturers recommended tooling shall be used. Mechanical type connectors shall not be used.
3. All copper conductors No. 10 AWG & smaller shall be terminated and spliced with Ideal Industries wing-nut wire connectors, or approved equal compression connectors. The flame-retardant, thermoplastic insulated type shall be used to isolate the terminal from other metal parts and equipment.
4. Splices and joints shall be insulated with materials approved for the particular use, location, voltage, and temperature. Insulation shall be not less than that of the conductors being joined.

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5. Plastic electrical insulating tape shall be flame retardant, cold and weather resistant.

D. Cable Tying:

1. All circuit and control wiring in cabinets, panels, pullboxes, wireways, and junction boxes shall be tied and held with nylon Ty-Rap cable ties as manufactured by Thomas & Betts Co., or approved equal.
2. Wire identification ties fastened to conductors at the point of attachment to terminal blocks and equipment components shall be nylon, self-locking Ty-Raps as manufactured by Thomas & Betts Co., and Ideal Industries Series Ty-51M, 53M, or approved equal.

E. Tags:

1. Cables shall be tagged in all pull boxes, wireways and wiring gutters of panels. Where two or more circuits run to or through a control device, outlet box or junction box, each circuit shall be tagged as a guide in making connections.
2. Tags for feeders shall indicate feeder number, size, phase, voltage, origin and termination. Feeder tags shall identify all phases individually.
3. Tags for control and alarm wiring shall indicate type of control or alarm, size of wire and origin and termination.
4. Tags shall be Thomas Betts Co., Ideal Industries, wire-marker dispenser type, self laminated wire markers.

F. Lubrication:

1. Wire lubricating compound shall be suitable for the wire insulation and conduit with which it is used, and shall not harden or become adhesive. Lubricating compound shall be Ideal Industries Yellow 77 Type, or approved equal. Lubricating compound shall not be used on wire for isolated type electrical power systems.

G. Inspection:

1. Contractor shall examine the areas and conditions under which wire and cable are to be installed, and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
2. Do not proceed with the work until unsatisfactory conditions have been corrected.

H. Installation:

1. Coordinate cable and wire installation work with electrical raceway and equipment installation work, as necessary for proper interface.

3.02 FIELD QUALITY CONTROL

A. Visual and Mechanical Inspection:

1. Inspect for physical damage and proper connection in accordance with single line diagram.
2. Cable connections shall be tightened using a calibrated torque wrench.

B. Electrical Test:

1. Megger conductors phase-to-phase and phase-to-ground for continuity and insulation tests before connection to utilization devices for the following:
 - a. 100 percent of feeders.
 - b. 10 percent of branch circuits
 - c. 100 percent of 3-phase motor branch circuits.
2. Verify phase rotation for all 3-phase motor circuits.

C. Perform tests prior to connecting equipment and in presence of authorized representatives.

D. Exercise suitable and adequate safety measures prior to, during, and after the high potential tests, including placing warning signals and preventing people and equipment from being exposed to the test voltages.

E. Submit certified written report of test results to Architect.

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- F. Correct installation of or replace cable testing below manufacturer's standards.
- G. Subsequent to wire hook-ups, energize circuit and demonstrate functioning in accordance with requirements.

PART 4 - APPROVED MANUFACTURERS

4.01 WIRE AND CABLE UNDER 600 VOLTS

- A. For Wire and Cable:
 - 1. Pirelli Cable Corp.
 - 2. Basic Wire & Cable Corp.
 - 3. Triangle
 - 4. Okonite
- B. For Wire and Cable Termination and Connections:
 - 1. Thomas and Betts Corp.
 - 2. Burndy Corp.
 - 3. Elastimold
 - 4. G&W Electric Co.

END OF SECTION 16123

SECTION 16141
WIRING DEVICES AND INSTALLATION COMPONENTS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

- 1. Generally, the location of devices and outlet boxes in finished rooms or spaces shall be where indicated. In the case of special rooms and areas, locations shall be obtained from Architect and from his scaled drawings of interior details and finish. All local switches near doors shall be located at strike side of door as finally hung, whether so indicated on the plans or not, unless specifically indicated otherwise.
- 2. Except as otherwise indicated or where shown on Architect's details, the following dimensions from finish floor to center of outlet shall be established.

a. Receptacle outlets, unless otherwise noted	1'-6"
b. Wall switch outlet	4'-0"
c. Fire alarm station	4'-0"
d. Fire alarm speakers and strobe lights	6'-8"
e. Motor controllers	5'-0"
f. Safety and disconnect switches	5'-0"
g. Panelboards (lighting and power)	6'-6" above finished floor to top.

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- D. In centering outlets allow for overhead pipes, ducts, etc., and for variation in thickness of fireproofing and plastering. Allowances shall also be made for window trims, paneling, counters, casework, etc. Any inaccuracies resulting from failure to comply with the above must be corrected without additional expense to the Owner.
- E. Receptacles listed in this Section of the Specification shall be of the type indicated, or approved equal to the Manufacturers listed. Where furnished under this Section of the Specification, provide matching plugs for each receptacle.
- F. Where indicated, switch and receptacle shall be combined.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the Owner, all wiring devices in accordance with Drawings and Specifications.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of wiring devices and installation components, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Provide wiring devices and installation components produced by a manufacturer listed as an Approved Manufacturer in this Section.
- C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work and submit shop drawings. Shop drawings shall include manual motor starters, wireways, receptacles and local wall switches.

1.05 GUARANTEE

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 WIRING DEVICES (color as selected by Architect)

A. Local Wall Switches:

1. Switches shall be heavy duty, toggle, quiet type, fully enclosed in composition cases.
2. Switches shall be rated 20 amp, 120/277 volt, AC.
3. Switches shall be as indicated below, or approved equal:
 - a. Single Pole: Hubbell No. 1221
 - b. 3 Way: Hubbell No. 1223
4. Key switches of equivalent rating and grade to above switches shall be provided where indicated on Drawings.
5. Where it is not possible to set the switch box flush with the wall, furnish raised edge plates.
6. Where more than one switch is being installed, provide multiple gang switch plates for number of switches as indicated.
7. Gang switch plates for five or more switches (or receptacles) shall be engraved with titles as directed by Architect.

B. Receptacles:

1. Receptacles shall be the grounding type, (except as otherwise noted) composition base, meeting NEMA standards, publication WD-1-1971.
2. Where it is not possible to set the outlet box flush into the wall, furnish raised edge plates. Convenience receptacle shall be mounted with ground pole up, except those mounted above counter levels.
3. Receptacles shall be as indicated below or approved equal:
 - a. Duplex Convenience Receptacles: 125 Volts, 2-Pole, 3-Wire, U ground slot type.
 - 1) 20 Amp. Hubbell No. 5362 (20 Amp circuits).

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- 2) 15 Amp. Hubbell No. 5262 (15 Amp circuits).
 - b. Single Receptacles: 20 Amp, 125 Volts, 2-Pole, 3-Wire, twist-lock type, Hubbell No. 2310.
 - c. Duplex Receptacles: 20 Amp, 125 Volts, 2-Pole, 3-Wire, grounded, twist-lock type, Hubbell No. 7580-G.
 - d. Outdoor Receptacles: 20 Amps, 125 Volts, 2-Pole, 3-Wire, U ground slot type, duplex convenience receptacle, with weatherproof cover, Hubbell No. 5221.
 - e. Ground Fault Interrupter Duplex Receptacles, 20 Amp.: Hubbell No. GF-5262.
 - f. Ground Fault Interrupter Duplex Receptacles, 15 Amp.: Hubbell No. GF-5362.
- C. Floor boxes shall be flush type unless otherwise noted.
- D. Switch, Receptacle, and Signaling Outlet Plates:
1. Plates shall be beveled metal stainless steel Type 302.
 2. Surface mounted wiring devices and blank outlet plates shall be cadmium plated. Interior outlet plates shall be pressed steel. Outlets exposed to weather or corrosive conditions shall be of the cast-metal type.
 3. Plates for weatherproof receptacles shall consist of cast-aluminum gasketed plate with spring-loaded lift covers providing access to the outlet. Lift cover to correspond to number of outlets to be gasketed. Plates for weatherproof switches shall consist of a cast plate with flexible bubble for activating a push type switch. Plates shall be for corrosion-resistant devices, as manufactured by Hubbell, Inc., or approved equal.
 4. Coordinate all finishes and colors as selected by Architect.

2.02 INSTALLATION COMPONENTS

A. Wiring Troughs:

1. Wiring troughs shall be 4" x 4" or 6" x 6", brake-formed of code gauge (No. 16 gauge minimum)

steel, furnished in standard 10-foot sections with knockouts, as required. Wiring troughs shall be of the screw-on cover type and shall have a high grade enamel finish baked on a chemically-cleaned and zinc-phosphatized surface providing maximum resistance to corrosion.

2. Wiring troughs shall be furnished with all the required components, such as square junction boxes, 90-degree elbows, T-shaped pull boxes, crossover pull boxes, box-connecting couplings, fittings and screw-on cover plates. Lengths of individual sections shall be provided in accordance with installation requirements.

B. Manual Motor Starters:

1. Manual motor starters shall be horsepower rated, and voltage rated for the motor load.
2. The operating mechanism shall be a snap switch with one pole per phase.
3. Overload protection shall be provided with one thermal overload relay with replaceable tripping element for each pole, manually reset from the operating handle. The heater for each tripping element shall be coordinated with the nameplate rating of the motor.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where wiring devices and installation components are to be installed, determine space conditions and notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install wiring devices and installation components where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.
- B. Coordinate with other work as necessary to interface installation of wiring devices and installation components.

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- C. Installation shall comply with the requirements of NEC and NECA, "Standard of Installation".
- D. Install devices only after wiring is completed.
- E. Install receptacles and switches only in electrical outlet boxes which are clean, free from debris, excess building materials, etc.
- F. At time of completion, replace items which have been damaged, including those burned and scorched by faulty plugs.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of wiring devices and installation components, and after connection to power source, test wiring devices and installation components to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.
- B. Test wiring devices and installation components to ensure electrical continuity of grounding connections.

PART 4 - APPROVED MANUFACTURERS

4.01 WIRING DEVICES

- A. Harvey Hubbell Incorporated
- B. General Electric Co.
- C. Leviton
- D. Pass & Seymour

4.02 MISCELLANEOUS INSTALLATION COMPONENTS

- A. Refer to Respective Articles.

END OF SECTION 16141

SECTION 16165
250 VOLT FUSES

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, the fuses as shown in accordance with Drawings and Specifications.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of fuses whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Provide fuses produced by a manufacturer listed as an Approved Manufacturer in this Section.
- C. Provide equipment whose performance under specified conditions is certified by the manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work. Shop drawings shall include cuts and time current curves.

PART 2 - PRODUCTS

2.01 250 VOLT FUSES

- A. All fuses shall be of the same manufacturer. Fuses shall not be installed until equipment is to be energized. All fuses shall have a 200,000 ampere RMS symmetrical interrupting rating unless specified otherwise. Fuse symbols in parentheses are those of Bussmann.
- B. Fuses: 601 to 6000 Amperes shall be U.L. Class L (KRP-C), with time-delay characteristics of 10 seconds or more, at 500% of current rating.
- C. Fuses: Up to 600 Amperes shall be UL Class "J", (JKS fast acting), for non-inductive loads and UL Class "J" (LPJ time delay) for inductive loads.
- D. Spare Fuses:
 - 1. A complete set of spare fuses shall be purchased at the same time the initial fuses are purchased. Spare fuses shall consist of a standard carton for 0 to 60 amperes rating. For above 60 amperes rating provide 10% of each type and rating, or a set of three, whichever is greater.
 - 2. Spare fuses shall be placed in one or more spare fuse cabinets as required. The spare fuse cabinet shall be 30 in. H x 24 in. W x 12 in. D with key lock door, center shelf and fuse index holder. Include one set of fuse bulletins in the fuse cabinet.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where fuses are to be installed and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install fuses where shown or required, in accordance with manufacturer's written instructions, and with

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recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.

- B. Installation shall comply with the requirements of NEC and applicable portions of NECA's "Standard of Installation".
- C. Contractor shall install Class R fuse rejection kits on all heavy duty safety switches not already fitted for Class R fuses.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of fuses, test and inspect system to ensure compliance with requirements.
- B. Final tests and inspections shall be made prior to energization of the equipment. This shall include a thorough cleaning, tightening and review of all electrical connections and inspection of all grounding conductors.

PART 4 - APPROVED MANUFACTURERS

4.01 250 VOLT FUSES

- A. Bussmann
- B. Shawmut

END OF SECTION 16165

SECTION 16170
GROUNDING AND BONDING

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all grounding in accordance with Drawings and Specifications and as required for a complete system.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of the type of equipment required for the application, whose products have been in satisfactory use in similar service for not less than 10 years. Refer to Approved Manufacturers in this Section.
- B. Provide equipment whose performance under specified conditions is certified by the manufacturer and comply with applicable publications of NFPA and UL.
- C. Grounding shall comply with National Electrical Code (NFPA 70) for construction and installation.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings. Shop drawings shall include manufacturer's catalog cuts of splice kits, ground rods and ground wire.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 GROUNDING**

- A. Ground clamps shall be bronze, solderless type with bronze screws suitable for receiving required or specified conductors.
- B. Grounding conductors shall be UL and NEC approved types, copper, with insulation color identified green, except where otherwise shown on the Drawings, or specified.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine locations where grounding is to be installed and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of work.
- B. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. The complete electrical installation shall be permanently and effectively grounded ahead (street side) of the cold water meter in accordance with all code requirements, whether or not such connections are specifically shown or specified. Measured resistance to ground shall be 5 ohms, maximum.
- B. Parts of the electrical installation to be grounded shall include, but not be limited to, the following: underground distribution, electric service system neutral, raceway system for light and power distribution systems, switchgear housings, cabinets, housings, motor frames, housings of ALL communications, alarm, and control panels and associated devices and conduits, lighting fixtures, busway enclosures, individual starters and other non-current carrying metal parts of electrical equipment. The interconnecting of the service ground, system neutral, and equipment ground conductors shall be made within the service equipment assembly.
- C. All copper bars for grounding shall be medium hard drawn. After installation, the copper bar shall be painted with one coat of an approved lacquer.
- D. Ground conductors shall be of sizes and material in accordance with the requirements of the National Electrical Code. Cable for grounding connections shall

be bare in accordance with the latest revisions of ASTM Designations B3 and B8. All open bare grounding cable shall be secured in place with cast one hole malleable clamps and clamp backs, and 1/4 inch bolts.

- E. Ground wires shall be continuous without splices. There shall be no soldered joints in any ground connection. Connectors, clamps, etc. shall be solderless type.
- F. Unless otherwise shown or required, conduit shall provide grounding for motors and electrical equipment.
- G. Ground interrupted metallic raceways with ground conductors connected to metallic raceway at each end.
- H. Bond all conductive piping systems in the buildings to the electrical system ground. Bonding connections shall be made as close as practical to the water pipe or service equipment ground bay.
- I. Where ground connections will be permanently concealed, make the connections by the exothermic process to form solid metal joints. Make accessible ground connections with mechanical pressure type ground connections.
- J. Services at power company interface points shall comply with the power company ground resistance requirements.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of grounding system, test system for continuity and resistance to demonstrate compliance with requirements and submit certification to Architect that material and installation has been properly installed.
- B. Inspect all connections prior to concealing same.

PART 4 - APPROVED MANUFACTURERS

4.01 GROUND RODS

- A. Carolina Galvanizing
- B. Weaver Electric

END OF SECTION 16170

SECTION 16180
POWER, CONTROL AND ALARM WIRING SYSTEMS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all power wiring from service equipment to distribution and utilization equipment, and control and alarm wiring for equipment and systems within the building, except as noted, in accordance with Drawings and Specifications.

1.03 QUALITY ASSURANCE

- A. Power, control, and alarm wiring systems (NFPA 70) for construction and installation.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work, and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 RACEWAYS**

- A. Raceways and installation components shall be as specified in Section Raceway and Installation Components.

2.02 CONDUCTORS

- A. Conductors shall be as specified in Section Wire and Cable.

2.03 DISCONNECT SWITCHES AND MANUAL MOTOR STARTERS

- A. Disconnect switches and manual motor starters shall be as specified in another Section of the Specification.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine locations where power, control and alarm wiring is to be installed and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install wiring, in accordance with manufacturer's written instructions, and with recognized industry practice to ensure that equipment complies with requirements and serves intended purpose.
- B. Coordinate with other work as necessary to coordinate installation of wiring with other components of system.
- C. Installation shall comply with the requirements of NEC and applicable portions of NECA's "Standard of Installations".
- D. Install distribution system for light and power.
 - 1. Furnish and install all necessary conduit and wire, fittings, apparatus, etc., from the service locations to each and every outlet as herein detailed, or shown on the Drawings. The entire system shall be left ready for operation.
 - 2. The interior distribution system, in general, shall consist of 3-Phase, 4-Wire mains at 120/208 Volts.
 - 3. Pull and Splice Boxes
 - a. Pull and splice boxes shall be constructed of code gauge galvanized steel, or aluminum, reinforced, where required, and with removable covers fastened with brass machine

screws. Where size of box is not indicated, it shall be of sufficient size to pull, rack and splice the conductors to be contained therein. Box dimensions shall conform to requirements of NEC and N.Y.C.E.C.

- b. Pull and/or splice boxes shall be accessible and located where indicated on the Drawings or required to facilitate pulling of conductors or in raceway runs that have more than four (4) 90-degree turns.
- c. Boxes shall have a prime coat of zinc chromate paint and a finish coat of gray enamel. Surfaces to be field painted shall be finished in flat gray.

4. Distribution of Feeders and Branch Circuits

- a. Branch circuits shall be concentrated at the panelboards indicated and the circuits must be so connected that the load on each side of the system will balance within ten percent with all lamps operating.
- b. The sizes of all cables and wires and the minimum size of conduit in which they shall be pulled shall in all cases conform to N.Y.C. Electrical Code as a minimum requirement.
- c. The general arrangement of feeders and mains is shown on the Light and Power Riser Diagrams and associated panel Schedules on the Drawings.
- d. The Contractor, in providing this installation, shall balance all loads as evenly as possible on all phases at each panel, if necessary, he shall reconnect branch circuits as required to provide equal phase balance. As-built drawings and panel schedules shall reflect circuiting as actually connected to each panel.

5. Cable Support Boxes

- a. Cable support boxes shall be installed at locations and of dimensions as required by the NEC. These boxes shall be built of steel, or aluminum, with removable cover secured by brass machine screws and shall be stiffened with heavy angle irons. Cable supports shall be OZ type "S". Boxes must in

all ways be satisfactory to the Architect and subject to his approval. Provide ground lug in box, secured by welding or brazing. Submit shop drawings for approval.

6. Painting

a. Panel boxes, support boxes and pull boxes not hot dip galvanized shall be given two shop coats of gray enamel both inside and out. Similarly, concealed iron work shall be given two coats of asphaltum paint. All finish painting of exposed work will be done under another Section of the Specifications.

7. Submit for approval, working drawings showing section and elevation of horizontal and vertical runs of the riser shaft at foot of shaft and at each critical location at which a support box occurs on a scale of 3 inches to the foot, and showing routing of all conduits, cable support boxes, pull boxes, hangers, panelboards and supports. These drawings shall be prepared from dimensions obtained at the building.

E. Motor Power Wiring

1. Run all power feeds and connections from power panels to all motor starters or control panel locations. Where shown on Drawings connect the motor starting devices for motors, supplying and installing all necessary connections between starters and control devices and motors, in conduit, and leave motors ready to start. The power supply leads to the motors from the starters or control panels shall be of the same size and number of the other leads required for the proper operation of each motor.
2. Examine motors for presence of moisture prior to installation. Install, properly align and check rotation of motors that are not part of a completely assembled unit. Lubricate all motors according to the manufacturer's instructions prior to being placed into service.
3. Check motor nameplates for full-load current rating and allowable temperature rise to determine overload heater elements. Install correct heater element in the corresponding starter.
4. Furnish motor safety disconnect switches for all motors, except where such switches are specified to be furnished under other Sections, or are

included in the equipment control panel. Install all motor safety disconnect switches furnished under this Section or Section 15000 of the Specification. Provide (6) wires from starters to two speed, three-phase motors. Switches shall be as specified elsewhere in these Specifications. Install manually-operated devices, such as push-buttons and manual starters to permit convenient operation and be readily accessible.

5. Under no circumstances install rigid conduit terminated in or fastened to motor frame or base, and connecting conduits shall not be used to support starters or control enclosures. Install flexible conduit, Anaconda "Sealtite", at all motor connections to prevent transmission of noise or vibration. Length and radius of flexible conduit shall be sufficient to permit bending of feeder cables without damaging the conductor or its insulation. Allow sufficient slack for movement of the motor over the entire slide rail length.
6. The starters will be furnished to the site under Section 15000 and shall be received and erected under this Section. Where indicated on plan, starters shall be individually or group mounted, plumb and level, on free-standing angle iron frames, supplied under this Section. Frame shall be set as close to the motors as possible. Where indicated mounted on walls or columns, this Contractor shall install flat or angle iron supports for the starters.
7. Provide manual motor starters for all fractional horsepower motors as shown on the Drawings, or otherwise required.
8. Electrical contractor shall provide motor suppliers with the minimum size of motor terminal blocks required for the wiring of the motors.

F. For Control and Alarm Wiring

1. Make connections to the following as specified hereinafter, and indicated on the Drawings.
 - a. Connection of 120V supply to EP and PE switches and motorized dampers furnished under other Sections of the Specifications.
 - b. Shutdown wiring for HVAC systems as shown on Drawings.

- c. Heating and air conditioning temperature control and data gathering panels with alarms, pilots, etc., will be furnished and installed under Section 15000 of the Specifications. 120 Volt supply to control panels shall be furnished under this Section of the Specifications.
 - d. Control and alarm wiring for sump pumps, and air compressors, furnished under other Sections of the Specifications, and setting of all devices in connection with same shall be done under this Section of the Specifications.
2. All control conductors shall be copper, minimum #14 AWG type THHN, 600 volt insulated, installed in conduit. All conductors shall be tagged with brass or aluminum tags, permanently attached, giving the system designation and terminal number, or other such designation as approved.
 3. Control wiring shall be based on schematic control diagrams shown on Drawings and/or on the description of control requirements in other Division of these Specifications describing the Mechanical Work, or on control diagrams submitted by Equipment Manufacturers.
 4. Actual wiring between equipment and devices shall be done from point-to-point wiring diagrams showing the terminal connections on each piece of equipment. Obtain the individual equipment wiring diagrams from the Contractor who supplies the mechanical systems and equipment to be wired, and prepare neat point-to-point diagrams showing the actual wire and conduit and interconnections between the various equipment and control devices. After installation, correct these diagrams to show the "As-Installed" conditions for the Record.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of power, control and alarm wiring, and after associated systems have been energized, test power, control and alarm wiring to demonstrate compliance with requirements. Field correct or replace defective wiring, and retest.

END OF SECTION 16180

SECTION 16421
UTILITY SERVICE ENTRANCE

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, electric service as shown on the Drawings and hereinafter specified.
- B. Equipment and wiring shall be provided and installed in part by Con Edison referred to as Utility Company and in part under this contract.

1.03 QUALITY ASSURANCE

- A. All work shall be performed in accordance with all rules, regulations, and standards of Utility Company, and all applicable codes.
- B. Where deemed necessary, perform all work under the supervision of the Utility Company representative.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 ELECTRIC SERVICE**

- A. The following work shall be performed by the Utility Company:
1. Service wiring as noted
 2. Supplying metering transformers
 3. Supplying and installing watthour and demand meters.
 4. Final connections to metering equipment.
- B. The following work shall be performed by the Contractor.
1. Arrange with the Utility Company for service facilities and pay all charges.
 2. Extend service from Utility Company termination.
 3. Remove existing service entrance raceways and remove existing manhole for Con Edison feeders and for service entrance feeders to switchboards.
 4. Provide property line box complete with all crabs, splices, details, etc. to connect Con Edison feeder to service entrance feeders, in accordance with all Con Edison requirements.
 5. Provide sleeves for service entrance raceways.
 6. Provide wiring and raceways from manhole to service equipment.
 7. Provide limiter lugs on both ends of service entrance cable.
 8. Metering transformer enclosures and meter pans.
 9. Install metering transformers.
 10. Meter wiring except final connections.
 11. Obtain Utility Company and NYC Advisory Board approval for all electric service work and service equipment shop drawings. Submit drawings to NYC Advisory Board and pay all charges.
 12. Provide all associated installation components and accessories.

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PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where electric service equipment and raceways are to be installed, determine space conditions and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of the work.

3.02 INSTALLATION

- A. Install equipment and components where shown or as directed, in accordance with Utility Company's instructions (where applicable), and with recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.
- B. Coordinate with other work as necessary to coordinate installation of equipment with other components of systems.

END OF SECTION 16421

SECTION 16426
DISTRIBUTION SWITCHBOARDS

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the owner, distribution switchboards in accordance with Drawings and Specifications.

1.03 QUALITY ASSURANCE

- A. **Manufacturers:** Firms regularly engaged in the manufacturer of distribution equipment of the types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years. Refer to list of Approved Manufacturers in this Section.
- B. The distribution switchboards shall be designed, assembled and tested in accordance with applicable standards of NEMA, IEEE and ANSI, and shall be listed and labeled by Underwriters Laboratories.
- C. Comply with the NEC and New York City Electrical Code for construction and installation of (NFPA 70) distribution equipment as applicable.
- D. Provide distribution equipment whose performance under specified conditions is certified by the manufacturer.

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1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings. Shop drawings shall include:
1. Dimensional layout on Architectural background drawings.
 2. Single line diagram and outline drawing.
 3. Manufacturer's catalog cuts.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 SWITCHBOARDS

- A. Furnish and install where indicated a dead front type, completely metal enclosed, self-supporting structural switchboard independent of wall supports. Voltage rating shall be as indicated on the Drawings. It shall consist of the required number of vertical sections bolted together to form one rigid switchboard 90 3/8" high. The sides and rear shall be covered with removable screw-on plates. All edges of front covers or hinged front panels shall be formed.
- B. Equipment shall comply with the latest applicable standards of NEMA, ANSI, U.L. and NYC Electric Code.
- C. All wiring, necessary fuse blocks and terminal blocks within the switchboard shall be furnished as required. All groups of control wires leaving the switchboard shall be provided with terminal blocks with suitable numbering strips and sleeve type marking label on all wires and switchboard wiring diagram shall show terminal block numbering and wiring markings.
- D. Switchboard shall be provided with adequate lifting means and shall be capable of being rolled or moved into installation position and bolted directly to the floor without the use of floor sills.

- E. All exterior and interior steel surfaces of the switchboard shall be properly cleaned and finished with gray enamel over a rust-inhibiting phosphatized coating. Color shall be ANSI 61 gray or manufacturer's standard ANSI color so that all equipment has matching color.
- F. Engraved nameplates shall be furnished for all main and feeder circuits including control fuses and also for all indicating lights and instruments. Nameplates shall give item designation and circuit number as well as frame ampere size and appropriate trip rating. Furnish Master Nameplate giving switchboard designation, voltage ampere rating, short circuit rating, manufacturer's name, general order number and item number. Nameplates shall comply to NYC Electric Code, NEMA and utility requirements.
- G. All bus bars shall be copper. All bus work shall be rated to withstand maximum short-circuit stresses when connected to a supply system having fault capacity of 200,000 at rated voltage. Main horizontal bus bars shall be mounted with all three phases arranged in the same vertical plane. Provide full capacity neutral where a neutral is indicated on the drawings. A ground bus and lug shall be furnished firmly secured to each vertical section structure and shall extend the entire length of the switchboard. All hardware used on conductors shall be high-tensile strength and zinc plated. All terminals shall be of the anti-turn solderless type suitable for Cu cable of sizes indicated. For 4 inch wide and larger buses, 2 inch bolts with double locking washer shall be used.
- H. Furnish cable pull sections or top cable pull boxes where shown on the drawings, or where otherwise required, complete with cable tie down supports. Where cable pull section or pull boxes contain utility service cables provide utility acceptable sealing means.
- I. Switchboards shall have a minimum integrated equipment rating equal to the available fault capacity as shown on the Drawings.

2.02 FUSIBLE SWITCHES

- A. Main and Feeder protective devices shall be quick make quick break fusible switches. Fusible switches 30 ampere through 600 ampere frame shall be furnished with NEMA Class R fuse clips and U.L. labeled for 200,000 A.I.C. All other switches over 800A shall be Bolt-Switch or

Pringle Bolted Pressure type. Refer to drawings for additional accessories. Switches shall incorporate safety cover interlocks to prevent opening the cover with the switch in the 'on' position or prevent placing the switch in the 'on' position with the cover open - provide defeater for authorized personnel. Handles shall have provisions for padlocking and shall clearly indicate the "on" or "off" position.

2.03 UTILITY METERING

- A. Furnish a separate barriered-off Utility Metering Compartment complete with hinged sealable door that complies with Utility Company Specifications. Bus work shall include provisions for mounting Utility Co. current transformers as required by Utility Company. Provide Service Entrance Label and provide necessary applicable service entrance features per National Electrical Code and New York City Electrical Code requirements.

2.04 CUSTOMER METERING

- A. For all service switches, provide:

- Current transformers.

1 - Indicating ammeter, 1% accuracy, 250-degree scale, 0-4000 amperes.

1 - Ammeter switch.

1 - Indicating voltmeter, 1% accuracy, 250-degree scale, 0-600 Volts).

1 - Voltmeter switch

Remark: Meter scale shall provide a minimum of half scale deflection.

2.05 TVSS

- A. These specifications describe the electrical and mechanical requirements for an electrical transient surge suppression filter system integrating both transient voltage surge suppression (TVSS) and electrical high frequency noise filtering for high exposure locations as defined in ANSI/IEEE C62.41-1991.

- B. The unit shall be designed for parallel connection to the facility's wiring system. The suppression filter system shall be designed and manufactured in the USA by a qualified manufacturer of suppression filter system equipment. The qualified manufacturer shall have been engaged in the commercial design and manufacture of such products for a minimum of five (5) years.
- C. These specifications are based on Current Technology's selenium-enhanced Plus suppression filter systems. System shall be provided in NEMA 3R surface mounted panel.
- D. Comply with UL1449, UL1283, CUL, NEMA LS1 and provide ten year warranty.
- E. Provide integral fused disconnect.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed, determine space conditions and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that equipment complies with requirements and serves intended purposes.
- B. Coordinate with other work as necessary to interface installation of equipment with other components of systems.
- C. Installation shall comply with the requirements of NEMA standard, NEC, New York City Electrical Code and applicable portions of NECA's "Standard of Installation".
- D. Tighten all connections and mechanical fasteners prior to energization in accordance with manufacturer's instructions.

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- E. Provide 24-inch wide insulation mat in front of distribution equipment.
- F. Touch-up damaged or scratched surfaces to match original finish.
- G. Coordinate installation of distribution equipment with cable and raceway installation work.
- H. Provide fuses of the ratings indicated. Provide one complete set of spare fuses for each rating.
- I. Adjust operating mechanism for free mechanical movement.
- J. Coordinate with and obtain approval of Utility Company for distribution equipment requirements including all metering prior to installation.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of equipment, and after connection to power source, test equipment to demonstrate compliance with requirements. When possible, field-correct malfunctioning units, then retest to demonstrate compliance. Replace equipment which cannot be satisfactory corrected.
- B. Prior to energization of distribution equipment:
 - 1. Megger check phase-to-phase and phase-to-ground insulating resistance levels of conductors.
 - 2. Check distribution equipment for continuity, and for short circuits.
- C. Subsequent to wire and cable hook-ups, energize distribution equipment and demonstrate functioning in accordance with requirements.
- D. Open and close load break switching devices under load.

PART 4 - APPROVED MANUFACTURERS

- A. For Distribution Equipment
 - 1. Metropolitan Electric
 - 2. Lincoln Electric
 - 3. Electro Tech
 - 4. Atlas
 - 5. All-City Switchboard

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B. For TVSS

1. Current Technology

END OF SECTION 16426

SECTION 16440
SAFETY AND DISCONNECT SWITCHES

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all heavy duty safety and disconnect switches (fused and unfused) in accordance with Drawings and Specifications.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of the type of equipment required for the application, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Safety and disconnect switches shall comply with applicable standards of NEMA and shall be listed and labeled by Underwriters' Laboratories, Inc. Switches shall be approved for service where required, and approved for use in New York City in accordance with NYCEC.
- C. Comply with NEC (NFPA 70) for construction and installation of safety and disconnect switches.
- D. Provide safety and disconnect switches produced by a manufacturer listed as an Approved Manufacturer in this Section.
- E. Provide equipment whose performance under specified conditions is certified by the Manufacturer.

1.04 SUBMITTALS

- A. Refer to Section 15000 Special Requirements for Mechanical and Electrical Work and submit shop drawings. Shop drawings shall include switch dimensions, ratings and NEMA enclosure types.

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 SWITCH INTERIOR**

- A. All switches shall have switch blades which are fully visible in the OFF position when the door is open. Switches shall have removable arc suppressors, where necessary to permit easy access to line-side lugs. Lugs shall be UL listed for aluminum and/or copper cables and front removable. All current carrying parts shall be plated. 30A thru 100A switches shall have provisions for field installed fuse pullers. Switches shall include solid neutral where required.

2.02 SWITCH MECHANISM

- A. Switches shall have a quick-make and quick-break operating handle and mechanism which shall be an integral part of the box, not the cover. Switches shall have a defeatable dual cover interlock to prevent inadvertent opening of the switch door in the ON position or closing of the switch mechanism with the door open. Handle position shall indicate if switch is ON or OFF. Handle shall have provision for padlock.

2.03 ENCLOSURES

- A. Enclosures shall be NEMA 1 enclosure heavy duty type except as otherwise noted or required with multiple knockouts on all sides and back, hinged door, and cover interlock which prevents door from opening when switch is in ON position. Enclosure shall have provisions for positive padlocking in ON and OFF positions.
- B. For exterior installations, the enclosures shall be NEMA 3R (raintight).
- C. All enclosures shall be the NEMA types which are most suitable for the environmental conditions of the area.

2.04 RATINGS

- A. Switches shall be rated for voltage, poles, amperes, and horsepower, as required or shown on Drawings. All switches shall be rated for maximum available fault current as required and/or as noted.

2.05 FUSES

- A. Fused safety and disconnect switches shall be provided with fuses of class, type, and rating as required or shown on Drawings.

PART 3 - EXECUTION**3.01 INSPECTION**

- A. Contractor shall examine locations where safety and disconnect switches are to be installed and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of work.
- B. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install safety and disconnect switches as required by all applicable codes and as shown on Drawings. Install safety and disconnect switches in accordance with manufacturer's written instructions, the applicable requirements of NEC, New York City Electrical Code recognized industry practices, and applicable portions of NECA's "Standard of Installation".
- B. Coordinate with other work as necessary to interface installation of safety and disconnect switches with other equipment in the area.
- C. Coordinate safety and disconnect switch installation work with electrical raceway and cable work as necessary for proper interface.
- D. Install disconnect switches within sight of motor-driven appliances, and motors and controllers, unless otherwise indicated.
- E. Provide nameplate on switch, indicating equipment served.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of safety and disconnect switches, test and inspect system to ensure

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compliance with requirements. When possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment which cannot be satisfactorily corrected.

- B. Close all switches to check for proper energization of all loads.

PART 4 - APPROVED MANUFACTURERS

4.01 SAFETY AND DISCONNECT SWITCHES

- A. Square D
- B. Cutler Hammer
- C. General Electric

END OF SECTION 16440

SECTION 16470
PANELBOARDS - LIGHTING AND POWER

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Sections 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all panelboards in accordance with the Specifications and Drawings.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of panelboards and enclosures whose products have been in satisfactory use in similar service for not less than 5 years. Refer to list of Approved Manufacturers in this Section.
- B. Panelboards, enclosures and accessories shall be listed and labeled by Underwriters' Laboratories, and shall comply with standards of NEMA and NEC (NFPA 70) for construction and installation and be approved for use in New York City in accordance with NYCEC.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work and submit shop drawings. Shop drawings shall include panelboard dimensions, schedules with all pertinent manufacturer's data; molded case circuit breakers and/or fuses with all appropriate ratings; and cabinets.

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1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 PANELBOARDS

A. Construction:

1. Electrical panels shall be dead-front type construction equipped with overcurrent protective devices as scheduled on the Drawings. They shall be complete with cabinet, trim, hinged door, lock directory and such additional features and components as herein specified or shown on the Drawings. Construction of panelboards shall be in all respects satisfactory to the Architect and/or Engineer and subject to his approval.
2. Design panels for 3-Phase, 4-Wire, 120/208 Volt service as scheduled on the Drawings, unless otherwise noted.
3. Panel interior shall be factory-assembled complete with overcurrent protective devices as shown on the Drawings. Interiors shall be designed and assembled so that any individual overcurrent protective device can be replaced without disturbing adjacent units or removing main bus. No additional drilling or tapping of bus work shall be required to change or add branch circuit overcurrent devices. Spaces scheduled on the Drawings shall have all required busing provided for the installation of future circuit breakers.
4. Branch circuits shall be arranged using double row construction. A nameplate shall be provided listing panel designation, type, and ratings.
5. Unless otherwise noted, full size insulated neutral bars shall be included. Bus bar taps for panels with single pole branches shall be arranged for sequence phasing of the branch circuit devices. The Electrical Contractor shall balance the load on all three phases. Neutral bussing shall have a suitable lug for each outgoing feeder requiring a neutral connection. A ground bus shall be included in all panels. An isolated ground bus shall be

provided where indicated on the drawing panel schedules.

6. In multi-section panels provide thru-feed lugs to permit the termination of the incoming feeder conductors as well as the extension of jumpers between panels. Wire size of jumpers shall match that of the incoming feeder size. In the case of multiple-conductor feeders, reduce the size of jumpers in compliance with the NYCEC tap rules.
7. Panelboards shall be multi-section panels where required to comply with NEC Article 384, whether or not indicated on the drawings.

B. Bus:

1. All main bus bars shall be copper sized in accordance with UL standards to limit the temperature rise on any current carrying part to a maximum of 50°C above an ambient of 40°C maximum.

C. Circuit Breakers:

1. Panel circuit breaker overcurrent protective devices shall be as scheduled on the Drawings and as specified. All breakers shall be bolted-on thermal magnetic type unless otherwise indicated, carrying the Underwriters' Laboratories label. Plug-in breakers are not acceptable. Each breaker shall have the following features:
 - a. Magnetic blow-out or other approved arc-quenching devices.
 - b. Two and three-pole breakers shall have non-conductive barriers between poles with separate tripping element in each leg, and with common trip operation.
 - c. A single-operating handle shall open all poles. Two and three pole breakers with handle ties are not acceptable. All handles shall have clearly marked "ON" and "OFF" positions. It shall be impossible to maintain breakers in closed position under overload condition.

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2. Where called for in Schedules on Drawings, provide combination circuit breakers and ground fault interrupters. Such units shall be single-pole, 120V molded case breakers with UL label or listing.
3. Where circuit breakers are used as switches for 120-volt fluorescent lighting circuits, circuit breakers shall be approved for switching duty and shall be marked SWD.
4. Panel circuit breakers shall be bolted-type rated for 20,000 RMS symmetrical amperes minimum interrupting rating at 120/208 volts. Provide higher interrupting ratings where scheduled on the Drawings. For these breakers, provide higher rated frame to meet the duty indicated.
5. Panelboards shall be provided with a main circuit breaker, wherever panel feeder exceeds 200 amperes or more than one panel is served by the same feeder. All multi-section panels shall be provided with a main circuit breaker for each section.
6. Tandem circuit breakers shall not be utilized.
7. Series rated circuit breakers shall be utilized.

D. Cabinets:

1. Cabinets shall be flush or surface-mounted, as shown or scheduled on the Drawings. Back box shall be of sufficient size to provide minimum gutter space in accordance with National Electrical Code New York City Electrical Code. Where feeder cables supplying the mains of a panel are carried through its box to supply other electrical equipment, the box shall be sized to include the additional required wiring space and provided with separate barrier for feeder cable passing through cabinet. At least four interior mounting studs with adjustable nuts shall be provided.
2. The rigidity and gauge of steel shall be as specified by Underwriters' Laboratories and approved for use in New York City.
3. Trim shall be fabricated of code gauge steel, hot-dip galvanized with hinged door, lock and catch and directory pocket covered with clear plastic shield over directory. Metal shall be chemically cleaned,

prime-painted, and finish-coat painted with the manufacturer's standard paint for the application. Trim shall be of door-in-door construction. Inner door shall be provided with lock and outer door shall be fastened with screws. All locks shall be common-keyed. Provide two keys per lock. Locks shall be Yale S511, each provided with two #47 keys.

4. A directory shall be provided inside each cabinet door. Furnish and install a typewritten circuit directory, not less than 5" x 8" with metal retainer and glass or substantial plastic cover. Ink, pencil, or handwritten directory will not be accepted. Note on each directory, the panel number or designation, the panel feeder size, and the following data for each circuit: Description of load, fuse or breaker size, conduit size and wire size.
5. Align, level and secure panelboards to the building structure. Provide framework of galvanized structural iron when required for installation or indicated on Drawings. Mounting height shall be in accordance with National Electrical Code or as shown on the Drawings.

2.02 FUSIBLE SWITCH POWER PANELS

- A. Protective devices shall be quick-make, quick-break fusible switches. Fusible switches rated 30 to 600 amperes shall have fuse clips suitable for Class (R) (J) fuses and shall be UL listed at 100,000 AIC. Fusible switches 800 amperes through 1200 amperes shall be furnished with Class L fuse clips and UL labels for 200,000 AIC. Switches shall incorporate safety cover interlocks to prevent opening of the cover with a switch in the "on" position or prevent placing the switch in the "on" position with a cover open-provide defeater for authorized personnel. Handles shall have provisions for padlocking and shall clearly indicate the "on" or "off" position.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where this equipment is to be installed, determine space conditions and notify

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Architect/Engineer in writing of conditions detrimental to proper and timely completion of the Work.

- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install equipment where shown in accordance with Manufacturer's written instructions and with recognized industry practices to ensure that equipment complies with requirements and serves intended purposes.
- B. Coordinate with other work as necessary to interface installation of panelboard with other equipment in the area.
- C. Installation shall comply with the requirements of the NEC, NYCEC and applicable portion of NECA's "Standard of Installation".
- D. Coordinate installation of panelboards and enclosures with cable and raceways installation work.
- E. Anchor panels and enclosures firmly to walls and structural surfaces, ensuring panels and enclosures are permanently and mechanically secured. Provide all angle unit and accessories for proper mountings.
- F. Complete typewritten circuit directory card upon completion of work.
- G. For all recessed panelboards, provide two (2) one-inch conduits stubbed up and capped 6 inches above ceiling.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of panelboards, and after connection to power source, test equipment to demonstrate compliance with requirements. When possible, field-correct malfunctioning equipment then retest to demonstrate compliance. Replace equipment which cannot be satisfactorily corrected.
- B. Close all breakers (and switches) to check for proper energization of all loads.

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PART 4 - APPROVED MANUFACTURERS

4.01 PANELBOARDS - LIGHTING AND DISTRIBUTION

- A. All City Switchboard
- B. Atlas Switchboard
- C. Electro-Tech Switchboard
- D. Metropolitan Electric

END OF SECTION 16470

SECTION 16510
LIGHTING FIXTURES

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of the Work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes the furnishing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the Owner, all lighting fixtures in accordance with Drawings, lighting fixture schedule and Specifications.

1.03 QUALITY ASSURANCE

- A. Manufacturers - Firms regularly engaged in manufacturer of lighting fixtures whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Lighting fixtures shall be listed and labeled by Underwriters Laboratories, Inc. and shall comply with standards of NEMA, ANSI, OSHA, and National Electrical Code (NFPA 70) for construction and installation.
- C. Ballasts shall comply with Certified Ballasts Manufacturers Association standards and shall carry the CBM mark on the label.
- D. Provide lighting fixtures whose performance under specified conditions is certified by the manufacturer.
- E. Provide lighting fixtures, ballasts, and lamps produced by a manufacturer listed as an Approved Manufacturers in this Section, or as scheduled on the Drawings.
- F. Alternate or substitute manufacturers may be included with the bid with separate adds or deducts from the base bid for each fixture type, subject to approval by the Architect. Substitute manufacturers must be

identified by name and may not be changed by the bidder after the bids are submitted.

- G. Special designs and/or unique applications of standard units may require samples and mock-ups and other developmental work which, is to be specifically provided for in the Contractors bid.

1.04 SUBMITTALS

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work, and submit shop drawings. Shop drawings for each lighting fixture type shall include:
1. Details of construction and finishes.
 2. Drawings to scale.
 3. Catalog cuts (without required details not acceptable).
 4. Electrical ratings, mounting, ballasts, lenses, and lamps.
 5. Certified photometric data.
 6. Clear indication of assigned fixture type.
 7. Installation instruction where required.
 8. Air conditioning data

1.05 GUARANTEE

- A. Refer to Section 15000 - Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS

2.01 LIGHTING FIXTURES - GENERAL

- A. Furnish, install and connect interior and exterior lighting fixtures as scheduled on the Drawings, and as required for a complete and satisfactory operating system.
- B. Actual location of fixtures shall be as shown on the architectural reflected ceiling plans, or as directed by the Architect. Spaces for fixture insertion will be provided under the Section that covers the ceiling installation. Plaster and other frames shall be turned over to the Section for General Construction for setting and installation. Contractor shall be

responsible for obtaining the latest architectural plans, and field verification. The Contractor's attention is directed to the requirements of the acoustical ceiling, particularly to the need for close coordination between the ceiling construction details and lighting fixture design. The Electrical Contractor shall be responsible for coordinating mounting hardware to match ceiling type.

- C. Lighting fixture catalog numbers shall be considered only as a guide. All fixtures must incorporate the general and particular requirements included in the Contract Documents. It may be necessary to modify the manufacturer's standard fixture corresponding to the designated type or catalog number.
- D. All methods of construction and details of workmanship, where not specifically described or shown on the Drawings, shall be satisfactory to the Architect and shall be subject to his approval.

2.02 LIGHTING FIXTURES - FABRICATION

- A. Provide required thickness of metal, plastic and composite materials so that all fixtures are rigid, stable, and will resist deflection, twisting, warping under normal installation, and relamping procedures.
 - 1. All luminaire housings minimum 20 gauge cold rolled steel, unless a heavier gauge is specified or required by NEC or Local Codes.
 - 2. All aluminum extrusion housing minimum $\frac{3}{16}$ " thick.
 - 3. All spun, hydroformed, or sheet aluminum reflectors fabricated from #12 aluminum sheets minimum, 15 gauge (.057") or heavier.
 - 4. All acrylic & polycarbonate lenses and/or diffusers minimum $\frac{1}{8}$ " thick.
 - 5. All glass lenses and diffusers, unless specifically noted otherwise, shall be water white borosilicate or Corning Pyrex #7740 finished as described in the Lighting Fixtures Schedule on Drawings. Greenish tint lenses and diffusers are not acceptable.
- B. Provide positive, durable, means of connection at all joints as required. No hollow rivets, unless specifically approved, are acceptable.

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- C. Provide neoprene, silicone, rubber, or other appropriate gasketing, stops, and barriers where required to prevent light leak, control sound and vibration, prevent water leaks and, if pertinent, water vapor penetration.
- D. Provide finished product with the following minimum qualities:
 - 1. Ground and/or burr free metal edges.
 - 2. Tight fitting connections, hinges and closures.
 - 3. Clean neat corners, edges, trims and frames.
- E. All cast parts, including die-cast members, shall be of uniform quality; free from blow holes, pores, hard spots, shrinkage defects, cracks or other imperfections that affect strength and appearance, or are indicative of inferior metals or alloys.

2.03 FINISHES

- A. Fixture finishes shall be applied in a manner that will assure a durable wear resistant surface.
 - 1. Prior to finishing, all surfaces must be free from foreign materials such as dirt, rust, oil, polishing compounds and mold release agents.
 - 2. Where necessary surface cleaned by accepted chemical means shall receive corrosion inhibiting (phosphating) treatment assuring positive paint adhesion.
 - 3. All castings and extrusions machined, sanded or similarly treated, and given minimum one coat of baked-on clear methacrylate lacquer, unless a painted finish is specified.
 - 4. Aluminum surfaces exposed to weather (other than anodized reflectors covered elsewhere) shall receive a duronodic or polyester powder paint finish as specified for corrosion resistance.
 - 5. Sheet steel fixture housings, iron and steel parts, which have not received phosphating treatment ("Bonderizing" or similar process) or are to be utilized in exterior applications, shall be made corrosion resistant by zinc or cadmium plating or hot-dip galvanizing.
 - 6. All exterior (visible) finishes must be approved by the Architect.

2.04 FIXTURE TRIMS

- A. Fixtures shall have finish trim designed as specified in the Lighting Fixture schedule. Reference Architect Specifications.
- B. Provide trim details as shown on the Drawings or as specified. The trim finish and dimensions are subject to the approval by the Architect.
 - 1. Mitered corners shall be smoothed before shop finish is applied. No lapping of trim metal for all flush mounted ceiling trims for rectangular or square recessed fixtures.
 - 2. All exposed ceiling trim and inside reveals on all fixtures shall be painted in a color to match the Architect's sample.

2.05 MARKING OF FIXTURES

- A. Fixtures designed for voltages other than 110-125 volt circuits shall be clearly marked. The furnishing of lighting fixtures with the appropriate ballast voltage shall remain the Contractors responsibility.

2.06 LAMP HOLDERS

- A. Screw base sockets for incandescent and high intensity discharge lamps shall be of heavy duty heat resistant porcelain with spring center contacts and plated screw shells. Incandescent base sockets shall be rated 600 Watts at 250 Volts.

2.07 LAMPS

- A. Provide new lamps for all luminaries specified and shown in Light Fixture Schedule on the Drawings.
- B. Fluorescent lamps shall have a correlated color temperature of 3500°K and a minimum CRI of 75 and initial lumen output per watt input of 90. Lamps shall have a T8 bulb and medium bipin bases. Fluorescent lamps shall be energy saving, similar to Sylvania Octron FO32/35K, or approved equal, for 48" long lamps, and of equivalent performance for lamps of other standard lengths.
- C. Incandescent lamps shall be rated at 130 volts, unless otherwise specified in Lighting Fixture Schedule.

2.08 ELECTRONIC BALLASTS

- A. Fluorescent lamp ballasts shall be high frequency electronic type, operating lamps at a frequency of 20 KHZ or higher with no detectable flicker. They shall conform to the following:
1. Ballasts shall be approved and listed by Underwriters Laboratories, Inc., shall comply with all applicable state and federal efficiency standards and with FCC and NEMA limits governing electromagnetic and radio frequency interference and shall not interfere with operation of other normal electrical equipment. Ballasts shall meet all applicable ANSI and IEEE standards regarding harmonic distortion and surge protection and shall not be affected by lamp failure and shall yield normal lamp life. Lamp current crest factor shall not exceed 1.6. 'THD' less than 20%.
 2. Ballasts shall operate at an input frequency of 60 HZ and an input voltage of 108 to 132 (120V units) and shall have power factor above 90%. Ballasts must be compatible with the fluorescent lamps used.
 3. Ballasts that operate as parallel circuits shall allow remaining lamp(s) to maintain full output if companion lamp(s) fail.
 4. All ballasts Class "P" indicating approved integral ballast protection.
 5. Fixture design, fabrication and assembly shall be designed to prevent overheating or cycling of lamps and ballasts under all conditions.
 6. Dimmer type ballasts shall be of design recognized and approved under the U.L. component program. These ballasts must coordinate with the dimming control devices specified for the particular application. Contractor to provide and install control wiring per manufacturer's specifications.
 7. Ballasts intended for outdoor uses shall be capable of lamp-starting under any temperature down to 0°F. At conclusion of the work, deliver to Owner a written certificate guaranteeing all fluorescent lamp ballasts for a full three (3) years after acceptance date. Guarantee shall also cover all material and installation costs of replacing the defective ballast with new.

8. Ballasts for three-lamp operation are acceptable where no dual switching is required.

2.09 EMERGENCY BATTERY PACKS

- A. Fluorescent fixtures designated for emergency use shall be equipped with self-contained emergency battery packs designed to light one lamp upon loss of normal power for 90 minutes unless otherwise noted. Batteries shall be sealed, maintenance-free nickel cadmium. Pack shall include fully automatic solid state charger, test switch and pilot light for remote mounting.

2.10 WIRING

- A. All wiring shall comply with the following standards:
 1. All wiring within lighting fixtures, or from the connection to the building wiring system, shall be as specified under Section 16123, "WIRE AND CABLE".
 2. Wire leads to the receptacle or connector of any side prong incandescent lamp or any "cool-beam" lamp, or any lamp 200 watts and over shall be SF-2 (silicone rubber insulated) stranded wire.
 3. Wiring within fixture housing is to be concealed, except where the fixture design or mounting dictates otherwise.
 4. Wiring channels and wireways shall be free from projections and rough or sharp edges throughout, and at points or edges over which conductors must pass and may be subject to injury or wear.
 5. Insulated bushings shall be installed at points of entrance and exit of flexible wiring.
 6. All joints between fixture wiring shall be made with Buchanan #2008S or Thomas and Betts solderless connectors.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide and install all lighting equipment described in the Contract Documents and/or as modified by approved shop drawings. Installation shall be carried out in accordance with N.E.C. and N.Y.C. Electrical Code requirements, manufacturer's instructions, and with recognized industry practices. Comply with, NEMA

standards and with applicable portions of NEMCA's "Standard of Installation".

1. Verify fixture locations with architectural plans, reflected ceiling plans and other references prior to installation.
 2. Check for adequate headroom and non-interference with other equipment, such as ducts, pipes, openings, etc.
 3. In Mechanical Equipment Rooms modify locations and mounting to suit conditions as directed.
 4. Install rows of fixtures in straight lines, except as noted. Install fixtures so that fixture doors open from same side.
 5. Notify Architect in writing of conditions detrimental to proper and timely completion of the work.
- B. The housing of recessed lighting fixtures shall be adequately protected during installation.
1. Provide internal blocking or framing to provide perfect linear alignment and to prevent distortion of sides or dislocation of matching parts.
- C. Housing installed directly in concrete shall be fabricated of hot dip galvanized steel or cast aluminum. Where cast aluminum housings are used, give two coats of asphaltum paint prior to installation. To prevent direct contact of housing to concrete, 3/4" thick x 2" diameter solid neoprene grommets shall be furnished at every point light fixture surfaces are mounted to concrete structure.

3.02 SUPPORTS

- A. Provide mounting frames (plaster frames for example) to other trades as required for installation and as called for under other sections of these Contract Documents. Frames are to be finished matte white baked enamel, unless otherwise noted.
- B. Provide bars, angles or other attachment devices for all recessed fixtures. Fixtures shall be securely attached so there is minimum possible movement up, down, or sideways. Fixtures shall be mounted to permit access of wiring. Fastening devices shall be of a positive, locking type, and will not require the use of special tools to apply or remove. Tie shall cannot be used in place of fastening devices.

- C. Fluorescent fixtures three feet in length or greater, or heavy incandescent fixtures shall not be supported directly from a suspended ceiling or the immediate hardware of a suspended ceiling (furring strips, inverted tees, Z-bar clips, etc.) from which the ceiling itself hangs. These fixtures shall be supported from the intermediate structural support system for the ceiling.
- D. Additional running bars, shall be furnished by the Contractor for support of recessed fixtures and shall be utilized by the Contractor for that support. Where additional running bars can be furnished, the Contractor shall support weight of the fixture from the main running bars (black iron) or from the structural steel, or concrete, by means of inserts, hanging rods, Kindorf or Unistrut channels.
- E. Surface mounted or pendant fixtures mounted on suspended ceilings shall be supported by approved running straps, bars or channels from the top of the ceiling outlet box to the black iron where it exists or to the structural steel or concrete. Surface mounted or pendant fixtures installed on an existing suspended ceiling shall be supported in conformance with existing conditions or as shown on the Drawings.
- F. Where necessary to meet Code requirements, enclosure housing shall be constructed to provide a one-hour fire rating.
- G. Contractor shall be responsible only for the necessary adjustments in ceiling required to install lighting fixtures. Contractor shall verify all ceiling conditions from the Architectural plans and furnish appropriate mounting details for each lighting fixture.
- H. Provide pendant or surface mounted fixtures with required mounting devices and accessories. Coordinate locations of fixtures in mechanical areas, and if required, modify locations and mounting to suit conditions as directed. Provide mounting stems on pendant fixtures of the correct length to uniformly maintain the fixture heights shown on the Drawings, or established in the field.

3.03 TWO-LEVEL LIGHTING

- A. Where branch circuit wiring calls for two-level lighting, four-lamp fixtures shall be circuited in a manner so that outer lamps can be switched separately from inner lamp(s), unless otherwise indicated on Drawings. Provide 2-2-lamp ballasts per fixture.

3.04 ADJUSTMENT

- A. After the installation of lighting fixtures is completed, fixtures so requiring (both interior and exterior units) shall be adjusted after dark under supervision of the Architect and/or Owner.

3.05 CLEANING

- A. Lighting fixture mounting frames, plaster rings, etc. are required to be installed prior to the finishing assembly which shall not be installed until the project is "broom clean". When the fixture location or construction cannot permit sequential installation, the Contractor shall carefully protect all reflectors, lenses, flanges, and other visible surfaces.
- B. Before final acceptance by the Architect, all protective (strippable) coatings, dust, finger marks, paint spots and any other materials deleterious to the appearance or functioning of the lighting fixtures must be removed. Abrasive cleaners are not permitted.

3.06 INSPECTION

- A. Contractor shall examine location where the lighting fixtures are to be installed, determine space conditions and notify Architect/ Engineer in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.
- C. Upon completion of the installation, lighting equipment must be in first class operating order and free from defects in condition and finish.
1. At time of final inspection, all fixtures and equipment must be installed and lamped with new lamps and side panels, louvers or other necessary components.
 2. Fixtures shall be completely clean and free from finger marks, dust, plaster or paint spots.
 3. Any reflectors, lenses, diffusers, side panels or other parts damaged prior to the final inspection shall be replaced at no expense to the Owner.
 4. Exterior fixtures shall be painted to match factory color where finish is scratched or damaged.

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5. Housings shall be rigidly installed and adjusted to a neat flush fit with the ceiling.
6. No light leaks shall be permitted at the ceiling line or from any visible part or joints.

3.07 FIELD QUALITY CONTROL

- A. Upon completion of installation of lighting fixtures, and after energization, test system to demonstrate compliance with the contract requirements. When possible, correct malfunctioning units at the site and retest. Otherwise, remove and replace with new units.

PART 4 - APPROVED MANUFACTURERS

4.01 LIGHTING FIXTURES

- A. For lighting fixtures
 1. As indicated in Lighting Fixture Schedule.
- B. For ballasts
 1. Advance Transformer Company
 2. Electronic Ballast Co.
 3. Magnetek Universal Manufacturing
 4. Motorola
- C. For lamps
 1. General Electric Company
 2. Philips Lighting Company
 3. Osram/Sylvania Electric Products
 4. Venture Lighting (H.I.D.)

Remark: The above listed lamp manufacturers are acceptable unless specified otherwise in the Lighting Fixture Schedule on Drawings.

END OF SECTION 16510

SECTION 16721
FIRE ALARM SYSTEM MODIFICATION

PART 1 - GENERAL**1.01 GENERAL REQUIREMENTS**

- A. This Section is to coordinate with and be complementary to the General Conditions and Supplementary General Conditions of work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - General Provisions for Mechanical and Electrical Work shall apply.
- C. Drawings are diagrammatic and are a graphic representation of contract requirements to the best available standards at the scale required.

1.02 SCOPE

- A. The work covered by this Section of the Specifications shall include all labor, equipment, materials, services, hardware and software programming to furnish and install a complete fire alarm system addition:
 - 1. Conduit and wire per New York City Building Code, NFPA, local codes and all applicable standards and regulations.
 - 2. Duct smoke detectors (supplied and wired by this contractor).
 - 3. Shutdown of local air handling fans.
 - 4. Alarm bells.
 - 5. Visual alarm strobe lights.
 - 6. All modification, modules, accessories, etc. to the existing fire alarm system as required to accommodate all devices.
 - 7. For connection to and integration with the existing fire alarm system, the following shall be provided:
 - a. All necessary conduit, wiring and connections.

- b. All necessary physical modifications and module additions to the existing Fire Alarm System.
 - c. All programming and testing of the existing fire alarm system. It is the responsibility of this contractor to retain the company servicing the base-building system (Firecom-Case/Acme 718-899-6100) for all necessary equipment, services and modifications conducted.
- 7. All fire watches as required.
 - 8. All equipment shall be new and latest state of the art product of a single manufacturer.
 - 9. Testing and certification.
- B. In addition to any items specified in Part 'A' above, the existing fire alarm system modifications shall include but not limited to: equipment added as required for strobe power, strobes, interface with the existing Fire Alarm Control Panel, hardware and software, all modifications to existing fire alarm system.

1.03 APPLICABLE LISTINGS, CODES AND STANDARDS

- A. All raceways and wiring shall be installed in compliance with all codes and regulations. All applicable portions of the Code shall be explicitly followed, in particular with regard to material type and quality, circuitry extensions from and connections to outlet and junction boxes, panel boards and similar appurtenances.
- B. All installation shall comply with all applicable requirements of the latest edition of the NYC Building Code, the applicable Rules and Regulations and Reference Standards, and all local authorities.
- C. All equipment and its installation shall comply with all other local codes and authorities having jurisdiction.
- D. The contractor is responsible for coordinating with the building fire alarm system and providing all work as required to interface with the existing system.

1.04 RELATED DOCUMENTS

- A. Prior to the commencement of work, the Electrical Trade shall obtain all required permits and be responsible for filing/expediting the forms and drawings necessary for installation of the work. All permit and filing costs and inspections fees shall be included as part of the required work.
- B. Local requirements shall be adhered to with regard to submitting riser diagrams, with sequence of operation for all related equipment. Responsibility for furnishing the quantities of copies of the related equipment drawings shall be included as part of the electrical work.
- C. The Electrical Trade shall submit a letter of approval of the installation, to the authority, before requesting final acceptance of the system.

1.05 RELATED WORK

- A. The Electrical Trade shall coordinate work in this Section with all related trades. Work and/or equipment provided in other Sections and related to the tenant fire alarm system shall include, but not be limited to:
 - 1. Duct smoke detectors to be installed by the Mechanical Trade. See Division 15. They shall be furnished, wired and connected to the fire alarm system by the Electrical Trade.
 - 2. Air handling system, fan and damper control and terminal points to be provided by the fan systems control equipment. See Division 15. They shall be wired and connected to the fire alarm system by the Electrical Trade.
 - 3. Existing Conditions:
 - a. The Contractor shall visit the site to determine and verify all existing conditions. Existing conditions that would, in the Contractor's opinion, prohibit or greatly delay construction progress shall be brought to the Owner's and Architect's attention in writing.

- b. The Contractor shall test the existing fire alarm system equipment in the work areas to verify their proper operation. Any failures discovered during such testing shall be brought to the Owner's and Engineer's attention in writing. All necessary repairs shall be the responsibility of the Owner. No connections between the existing building fire alarm system and any new devices/equipment shall be made until all failures have been repaired and re-tested as acceptable.
- c. The Contractor shall provide for all necessary connections between new and existing fire alarm equipment.
- d. The Contractor shall retain the services of a technician, trained by the manufacturer of the existing fire alarm system, to provide services including, but not limited, to the following:
 - 1) Define and supervise all connections between the existing fire alarm system all new devices/equipment.
 - 2) Provide all necessary modifications of the existing system, including all hardware and software changes.
 - 3) Define and supervise the connection of all new devices to the existing fire alarm system.
 - 4) Define and supervise the relocation of any existing fire alarm equipment and/or wiring in the renovation space. The Contractor shall tag all wires and record the panel and terminal from which the equipment or wire was removed. Re-connections shall be in accordance with the directions of said technician.
- e. Under no circumstances shall the existing fire alarm system be rendered inoperative for any period of time, without prior notification and approval of the Owner, at

least twenty-four (24) hours in advance of shutdown. Phasing of the work involving shutdowns shall be planned in close consultation with the school and local authorities having jurisdiction.

1.06 QUALITY ASSURANCE

- A. It is the intent of these Specifications to modify the existing fire alarm system and to comply in all respects with the requirements of all applicable codes and standards. Equipment, material, installation practices, etc. that do not meet these requirements or codes or do not meet the performance standards herein specified shall not be acceptable.
- B. All equipment furnished under this Specification shall be UL listed and FM approved, under the appropriate category.
- C. Numbers and types of fire alarm system devices or circuits shall be as shown on the Drawings and as herein described in this Section. Should any conflicts arise between any Drawings and/or this Section, regarding the quantities of devices or circuits, the higher quantity or more stringent application shall apply.
- D. The installer shall have NICET Level II (or higher) certified fire alarm or special hazard associate engineering technician.
- E. The adjustment of the fire alarm system addition equipment to be performed by a fire alarm system maintenance contractor licensed by New York State to install and service fire alarm systems.

1.07 SUBMITTAL REQUIREMENTS

- A. Prior to the start of work, provide a complete and comprehensive submittal for review by the Engineer, describing the proposed system and its equipment. Failure to provide a complete submittal shall be grounds for summary rejection of any incomplete submittal documentation. The complete submittal shall include, but not be limited to, all of the following material:
 - 1. Provide a list (bill of materials) of all types of equipment and components provided. Each type

of system panel and equipment shall have its New York City Board of Standards and Appeals (B.S.A.) and/or the New York City Building Department Materials and Equipment Acceptance (M.E.A.). Approval Calendar Numbers shall be clearly indicated.

2. Provide description of operation of the system, similar to that provided in Part 2 of this Section, to include any and all departures (exceptions, variances or substitutions) listed at the time of bid. Failure to submit all such departures from these specifications at the time of bid shall be cause for summary rejection of any submittal documents where additional departures are discovered.
3. Provide schedule of active (utilized) and spare addresses provided on each installed addressable circuit to substantiate compliance with circuit usage/spare requirements, described elsewhere in this section. A separate schedule shall be provided for each addressable circuit provided as part of the fire alarm system.
4. Provide system ampere load (during both normal and alarm conditions) and time calculations to substantiate compliance with battery back-up power requirements (battery Ampere-Hour capacity), described elsewhere in this section.
5. Provide manufacturer's printed product data, catalog pages and descriptions of any special installation procedures.
6. Provide the address and telephone number of the manufacturer's local service facility.
7. Provide shop drawings as follows:
 - a. Drawing or catalog page showing actual dimensions of the FACP.
 - b. Drawing or catalog page showing actual dimensions of any auxiliary panels and/or battery cabinet(s).
 - c. Single line riser diagram showing all equipment and type, all connections and number and size of all conductors.

8. Provide a schedule, for review and approval, of the proposed individual label for each alarm or supervisory point to be displayed at the FACP, prior to fabrication and installation.
9. Provide samples of various items when so requested.
10. Certification of compatibility of new devices to match existing system.

1.08 GUARANTEE

- A. The equipment supplier shall guarantee the fire alarm system addition equipment to the Owner for a period of one (1) year from the date of final acceptance of the system addition.
- B. The Contractor shall guarantee all installed fire alarm system addition wiring and raceways to be free from inherent mechanical or electrical defects for one (1) year from the date of final acceptance of the system addition.

PART 2 - PRODUCTS

2.01 SYSTEM ADDITION DESCRIPTION

- A. The fire alarm system addition shall be integrated into the existing fire alarm system so as to provide a sequence of operations that matches the existing fire alarm system.
- B. The fire alarm control sub-panel (FACP) central processing unit (CPU) shall provide an individual multiplex data address for each addressable device connected to the fire alarm system addition.
- C. Addressable data communications between the new FACP and the addressable devices shall be digital and shall be wired NFPA Standard 72 Style 4, two-wire (Class B). Connect no more than 100 devices or 80% of maximum addressable devices on any addressable loop.
- D. The system addition addressable data communications circuits shall support one hundred percent (100%) of the addressable devices in alarm or operated at the same time, during both primary (AC) and secondary (battery) power conditions.

- E. The fire alarm system addition panel(s) shall provide alarm bells and strobe lights with NFPA Standard 72 Style 4, two-wire (Class B) circuits, typically as follows:
1. New alarm bells: Provide a minimum of two (2) alarm bell circuits for each floor with said devices. No more than ten (10) alarm bells shall be connected to any single circuit.
 2. New alarm strobe lights: Provide a minimum of two (2) alarm strobe light circuits for each floor with said devices. No more than fourteen (14) alarm strobe lights shall be connected to any single circuit.

2.02 SYSTEM ADDITION OPERATION

A. System Addition Alarm Operation

1. Alarm activation of any new manual fire alarm station shall automatically:
 - a. Sound a pulsing audible signal and flash the general alarm LED indicator at the fire alarm control sub-panel (FACP). Pressing the alarm acknowledge key on the FACP shall silence the audible signal and continuously light the LED indicator, during the alarm condition. Subsequent alarm conditions shall resound the audible signal and again flash the LED. Each alarm condition must be individually acknowledged.
 - b. Display the custom label for the device reporting the alarm condition on the FACP alphanumeric display.
 - c. Enter the custom label for the device reporting the alarm condition with the time and date of alarm activation into the FACP historical alarm log for future recall/review.
 - d. Sound four (4) rounds of the alarm code for the device reporting the alarm condition on all alarm bells, both new and existing; throughout the building. Subsequent alarm conditions from other alarm initiating devices shall sound the appropriate alarm codes on the alarm bells.

- e. Flash all alarm strobe lights, both new and existing, throughout the building. The alarm strobe lights may be turned off during the alarm condition by operation of the FACP alarm silence switch or shall automatically be turned off after five (5) minutes of operation. Subsequent alarm conditions shall again turn on the alarm strobe lights.
 - f. All other existing automatic control functions activated by a manual fire alarm station alarm shall occur.
2. Alarm activation of any area or duct smoke detector or heat detector shall automatically:
 - a. Provide those operations as above listed in 2.02 A. 1.
 - b. Sound the smoke/heat alarm bell at the FACP. Pressing the alarm acknowledge key on the FACP shall silence the audible signal.
 - c. Shutdown all air handling systems or fan units shown on drawing E6.02, which are connected to the fire alarm system addition.
 - d. Close any fire/smoke dampers associated with the air handling systems.
- B. System Supervision For Trouble Conditions
1. The fire alarm system addition wiring (except control wiring to fans, door holders, security door unlock, etc.) shall be electrically supervised to automatically detect and report trouble conditions to the fire alarm control sub-panel (FACP).
 2. Any opens or grounds on alarm initiating or supervisory circuit wiring and any opens, grounds or shorts across addressable data communications, remote annunciator panel data communications, alarm signal, alarm horn or alarm strobe light circuit wiring shall initiate a sub-system trouble condition.
 3. Sub-system addressable devices shall be supervised for placement and normal operation. Removal of an

addressable device or the failure of its internal electronic circuitry shall initiate a sub-system trouble condition.

4. The following fire alarm system addition states shall initiate a system trouble condition:
 - a. Primary 120 VAC power loss.
 - b. Battery disconnect.
 - c. Battery low voltage.
5. Trouble conditions shall automatically:
 - a. Sound a pulsing audible signal and flash the general system trouble LED indicator at the fire alarm control sub-panel (FACP) and sound the trouble bell. Pressing the trouble acknowledge key on the FACP shall silence the audible signals and continuously light the LED indicator, until the trouble condition is repaired. Subsequent trouble conditions shall resound the audible signals and again flash the LED. Each trouble condition must be individually acknowledged.
 - b. Display a general trouble indication and system status summary (numbers of alarm, supervisory and/or trouble conditions) on the FACP alphanumeric display.
 - c. Enter the circuit/device custom label with time and date of trouble condition occurrence into the FACP historical trouble log for future recall/review.
 - d. Activate system relay to initiate the transmission of a trouble signal to the Central Station Agency transmitter (Provided by others).

2.03 SYSTEM ADDITION EQUIPMENT

A. Fire Alarm Control Sub-Panel (FACP):

The FACP shall be Firecom Model FC-610. The FACP shall be capable of annunciating a system minimum of 126 addressable points, expandable in 126 point increments to 504 points. The operating control switches and status indicators shall be located behind locked with New York City Fire Department Key #2642 steel door and

Plexiglas window assemblies. The keys shall be made available only to the New York City Fire Department and other authorized operating personnel. All control switches and LED indicators shall be labeled. All zone locations shall be identified, and the panel shall be provided with a set of permanently mounted operating instructions. The panel door and frame assembly shall be steel, with red finish and suitable for flush mounting. The panel shall contain necessary power supplies, data bus conductors, battery charger and all necessary function modules and components, including but not necessarily limited to the following:

1. A master control module shall be provided to act as a central processing unit for the control of the fire alarm system. The master control module shall provide the following indicators and controls:
 - a. Eighty (80) character alphanumeric display.
 - b. Alarm acknowledge button with "activated" LED indicator.
 - c. Trouble acknowledge button with "activated" LED indicator.
 - d. Supervisory acknowledge button with "activated" LED indicator.
 - e. Alarm silence button with "activated" LED indicator.
 - f. System reset button with "activated" LED indicator.
 - g. Device disable button with "activated" LED indicator.
 - h. Fifteen (15) key system control keypad.
 - i. Power "ON" LED indicator.
2. A manual fan systems restart keyswitch.
3. Battery Standby: The FACP shall be provided with adequate battery back-up capability to operate in the standby mode for at least twenty-four (24) hours and to operate in normal alarm mode for at least fifteen (15) minutes at the end of the twenty-four (24) hour standby period.

B. Signal Circuit Extender Panel(s):

1. The Signal Circuit Extender panel(s) shall be Firecom Model FPS-12/24-8. The panel door and frame assembly shall be steel, with red finish. The panel shall contain necessary motherboard, power supplies, battery charger and all necessary function modules and components. It shall provide signal circuits for alarm bells and alarm strobe lights and shall provide four (4) controllable alarm signal circuits rated at two amperes (2.0 A) @ 24 VDC. Each circuit shall be configured for NFPA Standard 72, Style 4, two-wire (Class B) supervised operation monitoring for opens, shorts or ground faults. Each signal circuit shall be protected by an individual over-current device.
2. Battery Standby: The panel shall be provided with adequate battery back-up capability to operate in the standby mode for at least twenty-four (24) hours and to operate in normal alarm mode for at least fifteen (15) minutes at the end of the twenty-four (24) hour standby period.

C. Existing Code Cards

All existing code cards shall be replaced with updated code cards that list new alarm initiating devices and their associated new alarm codes.

D. Manual Fire Alarm Stations

Shall be Firecom Model FCMS-95 double action manual station with built-in addressable monitor module. The station shall be of cast metal construction with normally open, single-pole, single-throw (SPST) general alarm contact. The station shall be supplied with a red trim plate painted with a one inch (1") wide white stripe running diagonally from the upper left corner to the lower right corner. The station shall be furnished for semi-flush mounting in finished areas or surface mounting with matching backbox in unfinished areas (where shown on drawings).

E. Code Cards and Holders

Provide a code card and holder at each new manual fire alarm station. The code card and its holder shall be sized to accommodate all fire alarm system alarm codes and locator descriptions. The holder shall be of metal construction with Plexiglas window to protect the code card from damage.

F. Photoelectric Area Smoke Sensors

Shall be Firecom Model F900-650 addressable, two-wire, 24VDC, photoelectric type. Each sensor shall utilize solid state components and shall be equipped with a fully regulated LED light source for long life reliability, a thirty (30) mesh insect screen and remote alarm LED output and shall obtain its operating power from the addressable data communications circuit wiring. Sensors shall be two part, base and head, with replaceable smoke sensor head for ease of maintenance and cleaning. Sensors shall provide four (4) levels of sensitivity, which shall be set at the FACP. The sensors shall indicate the need for cleaning at the FACP via a "Dirty" indication with audible signal. Sensors shall be provided with power-on/alarm led indicator and a surface mount, addressable base assembly. Smoke sensor trouble conditions shall also be reported to the FACP. Base assemblies shall provide for sensor twist-in capability.

G. Duct Smoke Sensors

Shall be Firecom Model F900-AA addressable, two-wire, 24VDC, photoelectric type. Each sensor shall utilize solid state components and shall be equipped with a fully regulated LED light source for long life reliability, a thirty (30) mesh insect screen and remote alarm LED output and shall obtain its operating power from the addressable data communications circuit wiring. Sensors shall be two part, base and head, with replaceable smoke sensor head for ease of maintenance and cleaning. Sensors shall be provided with power-on/alarm led indicator and addressable base assembly. Base assemblies shall provide for sensor twist-in capability. The sensor head/base shall be provided in a steel housing backbox with clear plastic cover, reference tube and sampling tube, sized according to duct width. Duct housings shall permit the sensor to sample duct air velocities of from 500 to 4,000 feet per minute. Sensors shall provide four (4) levels of sensitivity, which shall be set at the FACP. The sensors shall indicate the need for cleaning at the FACP via a "Dirty" indication with audible signal. Smoke sensor trouble conditions shall also be reported to the FACP. Duct sensors shall be provided with Firecom Model FMS-RA Remote red alarm LED on a single gang plate (surface or flush mounted).

H. Heat Detectors

Shall be Firecom Model F900-450 two-wire, 24VDC, 135° F fixed temperature detector. Heat detector shall utilize an electronic thermistor heat sensing element to sense its rated fixed alarm temperature. Heat detector shall be resettable after reporting an alarm condition with an alarm LED indicator. Heat detector shall utilize solid state components and shall be U.L. Standard 521 listed for a coverage of up to 3,600 square feet, installed 60 feet on center. Heat detectors shall be provided with, low profile, surface mount, base assembly and screw terminals for all connections. Base assemblies shall provide for detector head twist-in mounting.

I. Addressable Monitor Modules (Dry contact only)

Shall be Firecom Model FCPID-95 and shall consist of printed circuit board with discrete circuitry for monitoring normally-open dry contacts using NFPA Standard 72 Style B, two-wire (Class B) circuit supervision. The module shall respond to polling signals from the FACP and shall report alarm initiating/supervisory circuit status changes to it. The addressable monitor module shall draw its power from the addressable data communications circuit. The monitor module shall be mounted on a four inch (4") standard backbox and shall be provided for flush mounting in finished areas or surface mounting in unfinished areas (where shown on the drawings).

J. Addressable Control Modules

Shall be Firecom Model FCRCE-95 and shall consist of printed circuit board with discrete circuitry for controlling one (1) individually addressable control relay with single-pole, double-throw (SPDT) contacts rated at six-tenths Amperes (.6A) @120VAC and two Amperes (2.0) @ 30 VDC. The control relay module shall respond to control signals from the FACP. The control relay module shall draw its power from the FACP via a separate 24VDC power circuit. The control module shall be mounted on a four and eleven sixteenths inch (4-11/16") standard backbox and shall be provided for flush mounting in finished areas or surface mounting in unfinished areas (where shown on the drawings).

K. Addressable Signal Control Modules

Shall be Firecom Model FCSCE-95 and shall consist of printed circuit board with discrete circuitry for

controlling one (1) individually addressable, 24 VDC, signal circuit with circuit rated at two Amperes (2.0) @ 24 VDC. The signal control module shall respond to On/Off control signals from the FACP. The signal control module shall draw its power from the FACP via a separate 24VDC power circuit. The control module shall be mounted on a four and eleven sixteenths inch (4-11/16") inch (4-11/16") standard backbox and shall be provided for flush mounting in finished areas or surface mounting in unfinished areas (where shown on the drawings).

L. Load Interface Relays

Shall be Firecom Model FMR-201C and shall consist of multi-voltage coil (24 VDC, 24 VAC, 115 VAC and 230 VAC) relay with double-pole, double throw (DPDT) control contacts rated at ten Amperes (10 A.) @ 115 VAC. The load interface relay shall be provided in a surface mounted, metal enclosure and an "activated" LED indicator visible through the enclosure.

M. Alarm Bells

The alarm bell shall be red in color, have a ten inch (10") diameter gong shell. It shall operate at 24 VDC with a current draw of .100 Ampere and shall provide a minimum sound output of ninety-one decibels (85 Db).

N. Alarm Strobe Lights

Shall be Firecom FRS/FRSS Series. The alarm strobe light shall be rated at 24 VDC, 1.0 Hertz, strobe light with a clear, polycarbonate lens mounted in a red housing. The word "FIRE" shall be imprinted in one-half inch (1/2") high letters on the alarm strobe light housing. The strobe light shall have a minimum candela rating of 15 Candela for UL Standard 1971 and 75 Candela on axis for ADA compliance. The alarm strobe light shall be furnished for semi-flush mounting in finished areas or surface mounting in unfinished areas (where shown on the drawings). Synchronized strobes shall be provided.

O. Smoke/Heat Alarm Bell at the FACP

Shall be Model MBA-8-24 vibrating bell. The alarm bell shall be red in color, have an eight inch (8") diameter gong shell. It shall operate at 24 VDC with a current draw of .025 Ampere and shall provide a minimum sound output of eighty-seven decibels (87 Db). It shall be surface or semi-flush mounted so as to match

the mounting style of the FACP and be provided with a label, acceptable to the NYC Fire Department, indicating "Smoke/Heat Alarm".

P. Sub-System Trouble Bell at the FACP

Shall be Model MBA-6-24 vibrating bell. The alarm bell shall be red in color, have a six inch (6") diameter gong shell. It shall operate at 24 VDC with a current draw of .012 Ampere and shall provide a minimum sound output of eighty-seven decibels (87 Db). It shall be surface or semi-flush mounted so as to match the mounting style of the FACP and be provided with a label, acceptable to the NYC Fire Department, indicating "System Trouble".

Q. Fire Alarm System Fused Cut-out(s)

1. The Contractor shall provide an individual cartridge fused cut-out panel with a minimum of two (2) poles and a removable, solid copper, neutral bar in fuse gap for the FACP.
2. Fused cut-outs shall be provided with silver sand fuses, current limiting type with an interrupting capacity rating of 200,000 amps (r.m.s. symmetrical). The size of the fuses shall be a minimum of twenty amperes (20.0A).
3. The fused cut-out panel shall bear an engraved white-core phenolic or bakelite identification nameplate stating in minimum one-quarter inch (1/4") high white letters on a red background "FIRE ALARM FUSED CUT-OUT".
4. A three (3) wire feeder shall bring two phase 120/208 volt service to the fused cut-out. The feeder shall be tapped off the main building service ahead of the main service switch but after the Current Transformers (Metering Transformers).

PART 3 - EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall receive and store all material and equipment necessary for the completion of the Project.

3.02 INSTALLATION

- A. The entire ~~system~~ shall be installed in a workmanlike manner, in accordance with approved manufacturer's wiring diagrams and all applicable codes and regulations. The Contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation.
- B. Area Type ~~Smoke~~ Detectors.
1. The Contractor shall furnish and install area smoke detectors at locations where shown on the Drawings or called for in the Specifications.
 2. The Contractor shall furnish and install suitable flush or semi-flush backboxes to which the detector will be mounted.
 3. Do not install smoke detector heads until the Work (including cleaning) of all trades in the building has been completed. Protect all installed smoke sensor heads from airborne dust and debris, with plastic bags, until the final acceptance test. Any detector cleaning costs, necessitated by failure to protect the smoke detector, shall be the responsibility of the Contractor.
- C. Duct Smoke Detectors
1. The Contractor shall furnish and wire the duct smoke detectors.
 2. The Contractor shall co-ordinate with the Mechanical Trade (sheet metal tradesman) for the installation of the duct smoke sensor housings.
 3. The Mechanical Trade (sheet metal tradesman) is to provide holes in the ductwork for duct smoke detector sampling and reference tubes, where shown on the Drawings.
 4. The Mechanical Trade (sheet metal tradesman) is to provide the actual installation of the duct smoke detector housings and sampling and reference tubes on and into the ductwork, where shown on the Drawings.

5. The Electrical Trade shall consult the HVAC Drawings for locations of the duct smoke detectors, in order to provide adequate conduit, wiring and connections.
6. Do not install duct smoke detectors until the Work (including cleaning) of all trades in the building has been completed and the air handling systems have been run for a minimum of four (4) hours. Protect all installed duct smoke sensor heads from duct airborne dust and debris, with plastic bags, until the final acceptance test. Any sensor cleaning costs, necessitated by failure to protect the duct smoke sensor heads, shall be the responsibility of the Trade.

D. Visual Alarm Indicating Devices

1. The Contractor shall furnish and install visual alarm indicating devices, where shown on the Drawings.
2. The horizontal center line of an alarm strobe light and/or the horizontal center line of the alarm strobe light component of an audio/visual combination assembly shall be located eighty inches above the finished floor (80" AFF).

E. Wiring

1. All wiring shall be fire rated and as follows:
 - a. Of the size and configuration type recommended by the manufacturer for each type of circuit in the system and meet the requirements below.
 - b. Solid copper conductors only. Aluminum conductors or copper clad, plated or coated aluminum conductors shall not be acceptable.
 - c. Color coded throughout.
 - d. In conformance with the applicable Building Codes, and standards.
 - e. Approved by the local fire department having jurisdiction.

- f. A minimum of No. 16 AWG., unless otherwise noted.
 - g. Fire rated Teflon insulation.
 - h. Run in conduit.
- 2. All wires shall test free from grounds and crosses between conductors.
 - 3. Circuit wiring from the existing fire alarm control wiring to the new fire alarm control sub-panel shall be as indicated by the fire alarm system addition supplier, but a minimum of five (5) pairs of No. 14 AWG., copper conductors. Contractor is responsible for verifying and providing actual wiring requirements with manufacturer.
 - 3. Circuit wiring from the new fire alarm control sub-panel to the fire alarm system addition devices installed in the space shall be a minimum of as follows. Contractor is responsible for verifying and providing actual wiring requirements with manufacturer.
 - a. Each addressable device data circuit: Two (2) No. 16 AWG., twisted, copper conductors.
 - b. Each auxiliary 24 VDC power circuit: Two (2) No. 14 AWG., copper conductors.
 - c. Each alarm bell circuit: Two (2) No. 14 AWG., copper conductors.
 - d. Each alarm strobe light circuit: Two (2) No. 14 AWG., copper conductors.
- F. Conduit And Raceways
- 1. All penetrations of floor slabs and fire walls shall be fire stopped in accordance with all local fire codes.
 - 2. Fire alarm system terminal and junction locations shall be identified in accordance with NFPA Standard 70, Section 760-3. Terminal and junction boxes shall be painted red, preventing unintentional interference with the fire alarm

system addition wiring during testing, servicing and additional modifications to the system.

- G. End of line devices (resistors, diodes, capacitors, etc.) shall be furnished as required for mounting as directed by the manufacturer.
- H. System's Programming Requirements
 - 1. Addressable device description to be displayed on the fire alarm control sub-panel shall utilize room/space designations and numbers to be used by the facility after occupancy. Descriptors to be approved by Engineer.
- I. All final connections between system addition control equipment and the field circuit wiring shall be made under the supervision of a trained manufacturer's technical representative.

3.03 CLEAN UP

- A. Upon completion of the installation, all debris created by the installation shall be removed from the premises or disposed of as directed by the Owner.

3.04 TESTS

- A. Prior to the final acceptance test, the Contractor and a trained manufacturer's technical representative shall test the completed system addition for proper operation. The system addition shall be demonstrated to perform all of the functions as listed below. Any system addition equipment or wiring failures discovered during said test shall be repaired or replaced before requesting scheduling of the final acceptance test.
- B. The system shall be tested for final acceptance in the presence of the Owner's representative, Architect's representative, Engineer's representative, the local Code enforcement official, Contractor's representative and the Manufacturer's representative.
- C. During the final acceptance test:
 - 1. Every new manual fire alarm station shall be tested.

2. Every new smoke detector shall be tested.
 3. Every new audible alarm signaling device shall be sounded.
 4. Every new visual alarm signaling device shall be flashed.
 5. Every system control and monitor function shall be tested for its proper operation.
 6. All new supervised circuits shall be opened at two (2) locations to test for proper supervision.
 7. Correct or adjust items not found acceptable by authorized representative.
 8. Repeat tests to indicate corrected items.
- D. Upon successful completion of all final acceptance tests, the Contractor's and Manufacturer's representatives shall each author and sign a letter confirming the successful completion of testing. Two (2) copies of each letter shall be forwarded to the Owner's representative, the Architect's representative, the Engineer's representative and the local Code enforcement official.
- E. All final acceptance testing shall be done at a time convenient to the local Code enforcement official and the Owner's representatives and all testing costs shall be born by the Contractor as part of this Contract.
- F. Install fire alarm devices, wiring and equipment as indicated and in accordance with manufacturer's written instructions, requirements of applicable Standards, and NECA's "Standard of Installation," and in accordance with recognized industry practices to ensure that installation complies with requirements and serves intended function.
- G. Protect all equipment from dirt, moisture and construction debris, subsequent and during installation until project is accepted by Owner.
- H. Contractor to furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices

necessary for a complete installation. All wiring types as recommended by the manufacturer.

- I. A factory trained technician to supervise the final connections, tests and adjustments of all equipment upon completion. Each device to be tested by the manufacturer's representative in the presence of the Owner's representative; a test report completed in triplicate, and signed by the Owner's representative to indicate that he witnessed the testing of the system. A copy of the test report shall be posted adjacent to the emergency control equipment and enclosed in a glass directory frame with metal frame.
- J. This Contractor to provide and install visual fire alarm strobe devices in the locations shown on the drawings for indication of the activation of the building fire alarm system. Wire the devices to the new fire alarm control sub-panel. Provide all equipment and materials necessary to provide this operation.
- K. Guarantee
 - 1. All components, parts and assemblies supplied by the manufacturer to be guaranteed against defects in materials and workmanship for a period of twelve (12) months from Owner and Fire Department acceptance.
- L. Contractor to guarantee all wiring to be free from inherent mechanical and electrical defects for one year. The manufacturer to furnish a one-year maintenance contract, free of charge to the Owner effective from the date of installation for maintenance and inspections of the manufacturer's equipment; with a minimum of two inspections during the contract year. A local manufacturer's service department which stock standard parts to be available to the Owner. If required, maintenance is to be performed during normal working hours at no cost to the Owner for a period of twelve (12) months from the completion date of the installation, unless damage is caused by misuse, abuse or accident.

3.05 DOCUMENTATION AND TRAINING

- A. The Contractor shall, with the assistance of the manufacturer, compile and provide to the Owner, six

(6) complete manuals on the finished system addition to include:

1. Operating instructions for this specific system addition to include operator instructions for each required mode of operation and routine troubleshooting procedures.
 2. Preventive and required maintenance schedules for each type of system addition equipment and/or accessory.
 3. Manufacturer's catalog pages of all equipment and components provided.
 4. Manufacturer's suggested spare parts list.
 5. All as-built, floor wiring and conduit diagrams. Floor plan diagrams shall indicate actual locations of each item of fixed equipment, and show interconnecting wiring.
- B. In addition to the above manuals, the Contractor shall provide the services of a trained manufacturer's employee for two (2) periods of four (4) hours each, during normal business hours, to instruct the building's designated personnel on the operation and maintenance of the entire system.
- E. System documentation shall be furnished to the Owner and shall include but not be limited to the following:
1. System record drawings and wiring details including one set of reproducible masters and drawings on 3-1/2" floppy disks in a DXF format suitable for use in a CAD drafting program.
 2. System operation, installation and maintenance manuals.
 3. Written documentation for all logic modules as programmed for system operation with a matrix showing interaction of all input signals with output commands.
 4. Documentation of system voltage, current and resistance readings taken during the installation, testing and ATP phases of the system installation.

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5. System program showing system functions, controls and labeling of equipment and devices. Also provide a 3.5" floppy diskette with system file.

3.06 SERVICE AND MAINTENANCE

- A. The equipment manufacturer shall make available a fully equipped service organization, capable of guaranteeing an on-site service response time within eight (8) hours to a service request call. Said service shall be available twenty-four (24) hours per day and seven (7) days per week.
- B. The equipment manufacturer shall make available, to the Owner, a price quotation for a one (1) year maintenance and testing agreement for the system addition, to take effect on the date of final acceptance.

END OF SECTION 16721

CONTINUATION SHEET

Sound Proofing of Monsignor McClancy H.S.

Owner's Rep.	John Ciardullo Associates, P.C.	Application Number:	14
Contractor:	NAGAN / CONAIR JV.	Application Date:	September 28, 2007
Address:	226 Wanser Avenue, Inwood, NY 11096	Period to:	October 1, 2007
		Project Number:	Sound Proofing of Monsignor McClancy H.S.

A Item No	B Description of Work	C Scheduled Values	D Work Completed		F Materials Presently Stored (Not in D or E)	G Total Completed and Stored to date (D+E+F)	H % (G/C)	I Balance to Finish (C-G)	J Retainage 5.636%
			From Previous Application (D+E+F)	This Period					
00.01	Insurance	\$ 182,810.26	\$ 182,810.26	\$ -		\$ 182,810.26	100%	\$ -	\$ 10,302.54
00.02	Bond	\$ 62,430.00	\$ 62,430.00	\$ -		\$ 62,430.00	100%	\$ -	\$ 3,518.33
02.01	Relocate and Restore CU#1	\$ 48,000.00	\$ 48,000.00	\$ -		\$ 48,000.00	100%	\$ -	\$ 2,705.11
02.02	Remove storage containers	\$ 3,759.74	\$ 3,759.74	\$ -		\$ 3,759.74	100%	\$ -	\$ 211.89
02.03	Excavation and backfill for electric lines, conduit and property box	\$ 75,000.00	\$ 75,000.00	\$ -		\$ 75,000.00	100%	\$ -	\$ 4,226.73
02.04	Relocate CU #2	\$ 24,400.00	\$ -	\$ -		\$ -	0%	\$ 24,400.00	\$ -
02.05	Excavation for electrical & mechanical room extension	\$ 18,000.00	\$ 18,000.00	\$ -		\$ 18,000.00	100%	\$ -	\$ 1,014.42
02.06	Pile drilling for electrical & mechanical room extension	\$ 72,000.00	\$ 72,000.00	\$ -		\$ 72,000.00	100%	\$ -	\$ 4,057.66
02.07	Site removals at the location of chiller unit	\$ 5,000.00	\$ 5,000.00	\$ -		\$ 5,000.00	100%	\$ -	\$ 281.78
02.08	Install fencing around chiller unit	\$ 26,400.00	\$ -	\$ -		\$ -	0%	\$ 26,400.00	\$ -
02.09	Remove ceiling at Mall Classroom	\$ 28,800.00	\$ 28,800.00	\$ -		\$ 28,800.00	100%	\$ -	\$ 1,623.07
02.11	Ceiling and Wall Removal at locker rooms and weight room	\$ 24,000.00	\$ 20,000.00	\$ 4,000.00		\$ 24,000.00	100%	\$ -	\$ 1,352.55
02.12	Remove brick wall at chase locations	\$ 101,200.00	\$ 10,120.00	\$ 91,080.00		\$ 101,200.00	100%	\$ -	\$ 5,703.27
02.13	Sawcut slab at chase openings and roof	\$ 30,000.00	\$ 13,000.00	\$ 17,000.00		\$ 30,000.00	100%	\$ -	\$ 1,690.69
02.14	Remove Ceilings at corridors and classrooms	\$ 19,500.00	\$ 19,500.00	\$ -		\$ 19,500.00	100%	\$ -	\$ 1,098.95
02.15	Remove exterior brick at UV locations	\$ 66,000.00	\$ 66,000.00	\$ -		\$ 66,000.00	100%	\$ -	\$ 3,719.53
02.16	Site restoration	\$ 24,400.00	\$ 12,200.00	\$ 12,200.00		\$ 24,400.00	100%	\$ -	\$ 1,375.10
03.01	Concrete work at electrical & mechanical room extension	\$ 88,000.00	\$ 88,000.00	\$ -		\$ 88,000.00	100%	\$ -	\$ 4,959.37
03.02	Concrete pad for chiller unit	\$ 22,500.00	\$ 22,500.00	\$ -		\$ 22,500.00	100%	\$ -	\$ 1,268.02
04.01	CMU work at electrical & mechanical room extension	\$ 32,400.00	\$ 32,400.00	\$ -		\$ 32,400.00	100%	\$ -	\$ 1,825.95

CONTINUATION SHEET

Sound Proofing of Monsignor McClancy H.S.

Owner's Rep. John Ciardullo Associates, P.C. Application Number: 14
 Contractor: NAGAN / CONAJR JV. Application Date: September 28, 2007
 Address: 226 Wanser Avenue, Period to: October 1, 2007
Inwood, NY 11096 Project Number: Sound Proofing of Monsignor McClancy H.S.

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			From Previous Application (D+E+F)	This Period					
04.02	Brick work at electrical & mechanical room extension	\$ 105,000.00	\$ 105,000.00	\$ -		\$ 105,000.00	100%	\$ -	\$ 5,917.43
04.03	Brick work at chase openings	\$ 120,000.00	\$ 42,300.00	\$ 77,700.00 0		\$ 120,000.00	100%	\$ -	\$ 6,762.77
04.04	Brick work at UV's	\$ 39,000.00	\$ 28,600.00	\$ 10,400.00	✓	\$ 39,000.00	100%	\$ -	\$ 2,197.90
04.05	Cast stone	\$ 7,600.00	\$ 4,750.00	\$ -		\$ 4,750.00	63%	\$ 2,850.00	\$ 267.69
05.01	Structural steel at electrical & mechanical room extension	\$ 29,600.00	\$ 29,600.00	\$ -		\$ 29,600.00	100%	\$ -	\$ 1,668.15
05.02	Misc. metal work at electrical and mechanical room extension	\$ 17,100.00	\$ 17,100.00	\$ -		\$ 17,100.00	100%	\$ -	\$ 963.70
05.03	Structural steel installation at Gymnasium	\$ 100,000.00	\$ 100,000.00	\$ -		\$ 100,000.00	100%	\$ -	\$ 5,635.64
05.04	Structural steel supports for CU#3	\$ 20,000.00	\$ 20,000.00	\$ -		\$ 20,000.00	100%	\$ -	\$ 1,127.13
05.05	Exterior access and misc work for CU #3	\$ 31,400.00	\$ 3,140.00	\$ 10,100.00 0		\$ 16,328.00	52%	\$ 15,072.00	\$ 920.19
05.06	Installation of dunnage for AC-1 and AC-2	\$ 28,000.00	\$ 28,000.00	\$ -		\$ 28,000.00	100%	\$ -	\$ 1,577.98
05.07	Install metal enclosure around UV piping at classrooms	\$ 135,000.00	\$ -	\$ 135,000.00 0		\$ 135,000.00	100%	\$ -	\$ 7,608.12
07.01	Roof work at electrical & mechanical room extension	\$ 25,000.00	\$ 25,000.00	\$ -		\$ 25,000.00	100%	\$ -	\$ 1,408.91
07.02	Roof installation at existing building	\$ 17,200.00	\$ 14,620.00	\$ -		\$ 14,620.00	85%	\$ 2,580.00	\$ 823.93
08.01	Doors and hardware at electrical & mechanical room extension	\$ 10,000.00	\$ 9,000.00	\$ -		\$ 9,000.00	90%	\$ 1,000.00	\$ 507.21
08.02	Window replacement	\$ 1,000,000.00	\$ 975,000.00	\$ -		\$ 975,000.00	98%	\$ 25,000.00	\$ 54,947.54
08.03	Acoustic door and hardware installation	\$ 74,300.00	\$ -	\$ 37,150		\$ -	0% 50%	\$ 74,300.00	\$ -
08.04	Louvers	\$ 13,000.00	\$ -	\$ 12,220.00	✓	\$ 12,220.00	94%	\$ 780.00	\$ 688.68
08.05	Access doors	\$ 12,000.00	\$ 9,000.00	\$ 600.00 0		\$ 9,600.00	80%	\$ 2,400.00	\$ 541.02
09.02	Install GWB ceiling at Mall Classroom	\$ 57,000.00	\$ 53,200.00	\$ 3,800.00 0		\$ 57,000.00	100%	\$ -	\$ 3,212.32
09.04	Install GWB ceiling at Gymnasium	\$ 120,000.00	\$ 120,000.00	\$ -		\$ 120,000.00	100%	\$ -	\$ 6,762.77

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09.05	Interior access and finishes for CU#3	\$ 13,600.00	\$ 1,360.00	\$ 12,240.00 0	-	\$ 13,600.00	100%	\$ -	\$ 766.45
09.06	Paint window and door frames to remain in place	\$ 33,000.00	\$ 29,700.00	\$ -	-	\$ 29,700.00	90%	\$ 3,300.00	\$ 1,673.79
09.07	Noise Abatement and Painting for Window No 17	\$ 31,500.00	\$ 31,500.00	\$ -	-	\$ 31,500.00	100%	\$ -	\$ 1,775.23
09.08	Install Acoustical Ceiling Suspension system and tiles at corridors and classrooms	\$ 45,500.00	\$ 45,500.00	\$ -	-	\$ 45,500.00	100%	\$ -	\$ 2,564.22
09.09	Paint GWB surfaces	\$ 45,000.00	\$ 45,000.00	\$ -	-	\$ 45,000.00	100%	\$ -	\$ 2,536.04
15.01	Air Outlets	\$ 40,000.00	\$ 36,000.00	\$ 4,000.00	✓	\$ 40,000.00	100%	\$ -	\$ 2,254.26
15.02	Fans	\$ 50,000.00	\$ 50,000.00	\$ -	-	\$ 50,000.00	100%	\$ -	\$ 2,817.82
15.03	Chiller	\$ 365,000.00	\$ 365,000.00	\$ -	-	\$ 365,000.00	100%	\$ -	\$ 20,570.10
15.04	UV/FC/UH/VAC1,2	\$ 280,000.00	\$ 280,000.00	\$ -	-	\$ 280,000.00	100%	\$ -	\$ 15,779.81
15.05	Piping	\$ 1,150,000.00	\$ 1,150,000.00	\$ -	-	\$ 1,150,000.00	100%	\$ -	\$ 64,809.92
15.06	Piping Specialities	\$ 80,000.00	\$ 80,000.00	\$ -	-	\$ 80,000.00	100%	\$ -	\$ 4,508.52
15.07	Ductwork	\$ 415,000.00	\$ 373,500.00	\$ 41,500.00	✓	\$ 415,000.00	100%	\$ -	\$ 23,387.93
15.08	Insulation	\$ 180,000.00	\$ 171,000.00	\$ 9,000.00	✓	\$ 180,000.00	100%	\$ -	\$ 10,144.16
15.09	Controls	\$ 110,000.00	\$ 104,500.00	\$ 5,500.00 0	-	\$ 110,000.00	100%	\$ -	\$ 6,199.21
15.10	Control Wiring	\$ 175,000.00	\$ 175,000.00	\$ -	-	\$ 175,000.00	100%	\$ -	\$ 9,862.38
15.11	Rigging	\$ 40,000.00	\$ 40,000.00	\$ -	-	\$ 40,000.00	100%	\$ -	\$ 2,254.26
15.12	Demolition	\$ 40,000.00	\$ 40,000.00	\$ -	-	\$ 40,000.00	100%	\$ -	\$ 2,254.26
15.13	Water Treatment	\$ 30,000.00	\$ 30,000.00	\$ -	-	\$ 30,000.00	100%	\$ -	\$ 1,690.69
15.14	Vibrator Isolation	\$ 20,000.00	\$ 20,000.00	\$ -	-	\$ 20,000.00	100%	\$ -	\$ 1,127.13

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15.15	Boiler Specialties	\$ 75,000.00	\$ 75,000.00	\$ -		\$ 75,000.00	100%	\$ -	\$ 4,226.73
15.16	Start-up	\$ 25,000.00	\$ 12,500.00	\$ 12,500.00 6,000		\$ 25,000.00	100%	\$ -	\$ 1,408.91
15.17	Test for Balance	\$ 20,000.00	\$ -	\$ -		\$ -	0%	\$ 20,000.00	\$ -
15.18	Close out	\$ 5,000.00	\$ -	\$ -		\$ -	0%	\$ 5,000.00	\$ -
15.21	Plumbing Demolition / Removals, Roughing	\$ 50,000.00	\$ 50,000.00	\$ -		\$ 50,000.00	100%	\$ -	\$ 2,817.82
15.22	Plumbing Gas Piping	\$ 95,100.00	\$ 85,590.00	\$ 9,510.00		\$ 95,100.00	100%	\$ -	\$ 5,359.50
15.23	Plumbing Fdrain / Adrain work	\$ 10,000.00	\$ 10,000.00	\$ -		\$ 10,000.00	100%	\$ -	\$ 563.56
15.24	Plumbing Other Work	\$ 7,000.00	\$ 7,000.00	\$ -		\$ 7,000.00	100%	\$ -	\$ 394.50
16.01	Building Permit and Advisory Board Approval Plans	\$ 9,100.00	\$ 9,100.00	\$ -		\$ 9,100.00	100%	\$ -	\$ 512.84
16.02	Install 11'6"x4'6"x6" property end line box	\$ 17,700.00	\$ 17,700.00	\$ -		\$ 17,700.00	100%	\$ -	\$ 997.51
16.03	4" Sleeves for new ConEd service line	\$ 2,200.00	\$ 2,200.00	\$ -		\$ 2,200.00	100%	\$ -	\$ 123.98
16.04	4" Conduits for new service	\$ 78,000.00	\$ 78,000.00	\$ -		\$ 78,000.00	100%	\$ -	\$ 4,395.80
16.05	4000 A service equipment	\$ 97,500.00	\$ 97,500.00	\$ -		\$ 97,500.00	100%	\$ -	\$ 5,494.75
16.08	Wiring for 4000A service	\$ 167,100.00	\$ 167,100.00	\$ -		\$ 167,100.00	100%	\$ -	\$ 9,417.16
16.07	1600A DB-AC	\$ 69,700.00	\$ 69,700.00	\$ -		\$ 69,700.00	100%	\$ -	\$ 3,928.04
16.08	1200A MDP	\$ 46,900.00	\$ 46,900.00	\$ -		\$ 46,900.00	100%	\$ -	\$ 2,643.12
16.09	LP-UV1; LP-UV2; LP-UV3	\$ 9,300.00	\$ 9,300.00	\$ -		\$ 9,300.00	100%	\$ -	\$ 524.11
16.10	3" Conduits for chiller CH-1	\$ 58,800.00	\$ 58,800.00	\$ -		\$ 58,800.00	100%	\$ -	\$ 3,313.76
16.11	2" Conduit for remote chiller	\$ 4,700.00	\$ 4,700.00	\$ -		\$ 4,700.00	100%	\$ -	\$ 264.88
16.12	Power line for AC-1	\$ 23,800.00	\$ 23,800.00	\$ -		\$ 23,800.00	100%	\$ -	\$ 1,341.28

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Sound Proofing of Monsignor McClancy H.S.

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16.13	Power line for AC-2	\$ 23,800.00	\$ 23,800.00	\$ -		\$ 23,800.00	100%	\$ -	\$ 1,341.28
16.14	Power line for CP-1 & CP-2	\$ 1,200.00	\$ 600.00	\$ -		\$ 600.00	50%	\$ 600.00	\$ 33.81
16.15	24 Power outlets - Mall light fixtures	\$ 9,600.00	\$ 9,600.00	\$ -		\$ 9,600.00	100%	\$ -	\$ 541.02
16.16	Light fixtures in Mall	\$ 19,200.00	\$ 19,200.00	\$ -		\$ 19,200.00	100%	\$ -	\$ 1,082.04
16.17	Temporary aerial power for CU#1	\$ 4,100.00	\$ 4,100.00	\$ -		\$ 4,100.00	100%	\$ -	\$ 231.06
16.18	Power line for CU#2	\$ 11,300.00	\$ 11,300.00	\$ -		\$ 11,300.00	100%	\$ -	\$ 636.83
16.19	Temporary power and light in crawl space	\$ 2,900.00	\$ 2,900.00	\$ -		\$ 2,900.00	100%	\$ -	\$ 163.43
16.20	Power lines for control circuits	\$ 8,000.00	\$ 8,000.00	\$ -		\$ 8,000.00	100%	\$ -	\$ 450.85
16.21	Demo existing conduits; boxes and equipment . 1st floor	\$ 3,600.00	\$ 3,600.00	\$ -		\$ 3,600.00	100%	\$ -	\$ 202.88
16.22	Power lines and switches for fan units	\$ 30,800.00	\$ 30,800.00	\$ -		\$ 30,800.00	100%	\$ -	\$ 1,735.78
16.23	Power for receptacles on 1st floor	\$ 2,400.00	\$ 2,400.00	\$ -		\$ 2,400.00	100%	\$ -	\$ 135.26
16.24	Power for HWP-1; HWP-2; HWP-3; HWP-4	\$ 2,400.00	\$ 2,400.00	\$ -		\$ 2,400.00	100%	\$ -	\$ 135.26
16.25	Power for CHWP-1 and CHWP-2	\$ 3,000.00	\$ 3,000.00	\$ -		\$ 3,000.00	100%	\$ -	\$ 169.07
16.26	Power for EF-1; EF-2; EF-6; EF-7	\$ 1,600.00	\$ 800.00	\$ 800		\$ 800.00	50% 100%	\$ 800.00	\$ 45.09
16.27	Power for EF-3; EF-4	\$ 1,200.00	\$ 1,200.00	\$ -		\$ 1,200.00	100%	\$ -	\$ 67.63
16.28	Power for EF-5	\$ 800.00	\$ 800.00	\$ -		\$ 800.00	100%	\$ -	\$ 45.09
16.29	Power for KX-1	\$ 600.00	\$ 600.00	\$ -		\$ 600.00	100%	\$ -	\$ 33.81
16.30	Power for LE-1 & LE-2	\$ 1,000.00	\$ 1,000.00	\$ -		\$ 1,000.00	100%	\$ -	\$ 56.36
16.31	Power for GX-1	\$ 1,500.00	\$ 1,500.00	\$ -		\$ 1,500.00	100%	\$ -	\$ 84.53
16.32	Power for GX-2	\$ 600.00	\$ 600.00	\$ -		\$ 600.00	100%	\$ -	\$ 33.81

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16.33	Power for GX-3	\$ 1,200.00	\$ 1,200.00	\$ -		\$ 1,200.00	100%	\$ -	\$ 67.63
16.34	Wiring for chiller control	\$ 400.00	\$ 400.00	\$ -		\$ 400.00	100%	\$ -	\$ 22.54
16.35	ATC panel wiring	\$ 500.00	\$ 500.00	\$ -		\$ 500.00	100%	\$ -	\$ 28.18
16.36	UH-1	\$ 500.00	\$ -	\$ 500.00	✓	\$ 500.00	100%	\$ -	\$ 28.18
16.37	SF-1	\$ 300.00	\$ -	\$ -		\$ -	0%	\$ 300.00	\$ -
16.38	Wiring for sump pumps	\$ 1,000.00	\$ 1,000.00	\$ -		\$ 1,000.00	100%	\$ -	\$ 56.36
16.39	Power for receptacles on 2nd floor	\$ 21,600.00	\$ 21,600.00	\$ -		\$ 21,600.00	100%	\$ -	\$ 1,217.30
16.40	Power for receptacles on 3rd floor	\$ 10,400.00	\$ 10,400.00	\$ -		\$ 10,400.00	100%	\$ -	\$ 586.11
16.41	Exsiting fixtures & emergency light to clean and reinstall	\$ 29,200.00	\$ 28,000.00	\$ 1,200.00	✓	\$ 29,200.00	100%	\$ -	\$ 1,645.61
16.42	Fire alarm units	\$ 60,000.00	\$ 57,000.00	\$ 3,000		\$ 57,000.00	95% 100%	\$ 3,000.00	\$ 3,212.32
16.43	Fire alarm control panel	\$ 14,000.00	\$ 7,000.00	\$ 7,000		\$ 7,000.00	50% 100%	\$ 7,000.00	\$ 394.50
SUB TOTAL - ORIGINAL CONTRACT		\$ 7,200,000.00	\$ 6,512,080.00	\$ 473,138.00	\$ -	\$ 6,985,218.00	97%	\$ 214,782.00	\$ 393,662.08
CO01	Property Line Box	\$ 30,869.76	\$ 30,869.76	\$ -		\$ 30,869.76	100%	\$ -	\$ -
CO02	Access Doors at Mail Classroom	\$ 6,048.03	\$ 6,048.03	\$ -		\$ 6,048.03	100%	\$ -	\$ -
CO03	New Steel Configuration at Mail Classroom Ceiling	\$ 8,298.24	\$ 8,298.24	\$ -		\$ 8,298.24	100%	\$ -	\$ -
CO05	Backboard Pulley	\$ 5,997.20	\$ 5,997.20	\$ -		\$ 5,997.20	100%	\$ -	\$ -
CO06	Controls For Gas Booster	\$ 9,328.20	\$ 4,664.10	\$ 4,664.10		\$ 4,664.10	50% 100%	\$ 4,664.10	\$ -
CO07	Unit Ventilators	\$ 17,998.50	\$ -	\$ -		\$ -	0%	\$ 17,998.50	\$ -
CO08	Con Edison fee	\$ 59,971.01	\$ 59,971.01	\$ -		\$ 59,971.01	100%	\$ -	\$ -

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CO10	MPR Roofs above the stage	\$ 17,325.00	\$ -	\$ -		\$ -	0%	\$ 17,325.00	\$ -
CO13	Steel supports for expansion tanks in MER	\$ 5,870.00	\$ -	\$ -		\$ -	0%	\$ 5,870.00	\$ -
CO14	Install new gas meter and strainer	\$ 2,962.76	\$ -	\$ -		\$ -	0%	\$ 2,962.76	\$ -
CO15	Redesigned gym ductwork	\$ 9,261.95	\$ -	\$ -		\$ -	0%	\$ 9,261.95	\$ -
CO17	Replacement motorized valves	\$ 6,354.00	\$ -	\$ -		\$ -	0%	\$ 6,354.00	\$ -
CO18	Extra stage work	\$ 630.00	\$ -	\$ -		\$ -	0%	\$ 630.00	\$ -
SUB TOTAL - CHANGE ORDERS		\$ 180,914.65	\$ 115,848.34	\$ -	\$ -	\$ 115,848.34	64%	\$ 65,066.31	\$ -
GRAND TOTAL		\$ 7,380,914.65	\$ 6,627,928.34	\$ 473,138.00	\$ -	\$ 7,101,066.34	96%	\$ 279,848.31	\$ 393,662.08

SECTION 16902
ELECTRIC CONTROLS AND RELAYS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Section is to coordinate with and be complementary to the General Conditions and Special Conditions of the work, wherever applicable to Mechanical and Electrical Work.
- B. Section 15000 - Special Requirements for Mechanical and Electrical Work shall apply.
- C. Section 16000 - General Provisions for Electrical Work shall apply.

1.02 DESCRIPTION OF WORK

- A. The work includes providing of all labor, materials, equipment, accessories, services, and tests necessary to complete and make ready for operation by the Owner, control equipment as required, as shown on the Drawings, and hereinafter specified.
- B. The work includes, but is not limited to, remote control switches, contactors, relays, low voltage control power transformers, timers, photocells, and breakglass switches.

1.03 QUALITY ASSURANCE

- A. "Manufacturers" - Firms regularly engaged in manufacture of type of equipment required for the application, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Provide equipment whose performance under specified conditions is certified by the Manufacturer.
- C. Control equipment shall comply with applicable standards of NEMA, and shall be listed and labeled by Underwriters Laboratories.
- D. Comply with NEC (NFPA 70) and New York City Electrical Code for construction and installation of remote control equipment.
- E. Provide remote control equipment produced by a manufacturer listed as an approved Manufacturer in this Section.

1.04 SUBMITTALS

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work and submit shop drawings.

1.05 GUARANTEE

- A. Refer to Section 15000, Special Requirements for Mechanical and Electrical Work.

PART 2 - PRODUCTS**2.01 RELAYS**

- A. Relays, unless otherwise noted or required, shall be magnetically held, A.C. solenoid type, with operating voltage 120V., 60 Hz.
- B. Contacts shall be double-break, total enclosed, silver alloy, rated 20 amp. at 600 V.A.C. and capable of easy conversion or replacement in field to normally open or normally close. Number of contacts as shown on Drawings, and as required.
- C. Enclosures shall be indoors, NEMA 1A; outdoors, NEMA 4, with black and white laminated nameplates screwed to enclosure with engraved identification.
- D. Fusing, low voltage transformers, and additional accessories shall be provided as required for relays to perform their intended function, and in accordance with the NEC.

2.02 LOW VOLTAGE CONTROL POWER TRANSFORMER

- A. Provide transformers as required for low voltage power used to actuate remote control equipment. Transformers shall be rated as required for voltage, momentary volt-amp. load, continuous volt-amp. load, and shall be suitable for the intended application.
- B. Provide primary and secondary overcurrent protection with fused switches in accordance with the NEC.

2.03 TIMERS

- A. Time switch shall be synchronous motor type. The switch shall be of the single or multi-circuit type as shown on the Drawings and as required, with "on" and "off" times of each circuit separately adjustable. The circuits may be controlled by either one time element or by separate time elements. Time switch shall be installed adjacent to associated panel, unless shown

otherwise on drawings, and provided with locks. The switch contacts shall be of at least 30-ampere capacity. Time switches controlling exterior lighting circuits shall have astronomical dials. Voltage and rating shall be as required.

- B. Time switches shall be for operation on 120 volts, 60 cycles, unless otherwise required, and shall be furnished with by-pass devices.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Contractor shall examine location where control equipment is to be installed and notify Architect/Engineer in writing of conditions detrimental to proper and timely completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install control equipment as shown on Drawings or otherwise required, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that the installation complies with requirements and serve intended purposes.
- B. Coordinate with other work as necessary to harmonize installation of remote control equipment with other equipment in the area.
- C. Installation shall comply with the requirements of NEC, applicable portions of NECA's "Standard of Installation", and NEMA standards.
- D. All components shall be mounted in cabinets suitable for installation with all necessary bus bars and terminal strips. Steel barrier shall separate low and high voltage sections, in accordance with NEC.
- E. Installation shall comply with NEMA standards, the requirements of NEC, and applicable portions of NECA's "Standard of Installation".
- F. This Contractor shall provide all accessories, wiring, and conduit, required to provide a complete system. Accessories shall include, but not be limited to, terminal strips, rectifiers, switches, and fuses, for systems to perform their intended function, and in accordance with the NEC.

10/31/03

Soundproofing of Msgr. McClancy Mem. H.S.

3.03 FIELD QUALITY CONTROL

- A. Upon completion of installation of control equipment and after control equipment has been energized, test equipment to demonstrate compliance with requirements. When possible, correct malfunctioning equipment at the site, then retest to demonstrate compliance; otherwise, remove and replace with new equipment and proceed with retesting.

3.04 APPROVED MANUFACTURERS

- A. Remote Control Switches and Contactors, Relays:

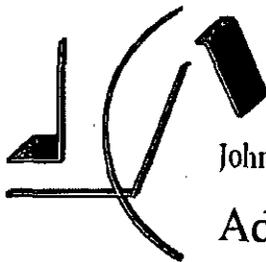
1. ASCO
2. General Electric
3. Square 'D'
4. As indicated on Drawings.

- B. Timers and Photocells:

1. Tork Time Controls, Inc.
2. Paragon Electric Co.
3. Intermatic

END OF SECTION 16902

MONSIGNOR McCLANCY Memorial High School



John Ciardullo Associates, P.C.

Addendum #1

221 West 57th St
New York, NY 10019
New York
T. (212) 245-0010
www.jca-architecture.com

date: January 17, 2005

to: All Bidders

tel:

fax:

from: Nelson Parra

cc:

re: Monsignor McClancy Memorial High School Soundproofing - Asbestos Removal

This is to inform you that the following dates have been changed for the above project.

The Bid Due Date: Changed from 02/17/05 to **Thursday March 31, 2005.**

The Pre-Bid Conference Date : Changed from 01/19/05 to **Wednesday February 23, 2005.**

Questions submitted to architect by: Changed from 01/28/05 to **Friday March 4, 2005.**

The above date changes comprise Addendum #1 and are hereby amended to and made part of the construction documents.

Please sign and date below and fax this letter to us at (212) 245-0020 to confirm receipt of this notice

Please call if you have any questions.

Nelson Parra

Name: _____

Company: _____

Signature: _____

Date: _____

**ASBESTOS REMOVAL
IN CONNECTION WITH
THE SOUNDPROOFING OF
MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**Specification
Book-1 of 1**

Issue For Bid January 10, 2005

Owner:

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
In the Borough of Queens
In the City of New York**

Architect:

**John Ciardullo Associates
221 West 57th Street
New York, New York 10019**

Mech/Elec Engineer:

**Lakhani & Jordan Engineers, P.C.
50 East 42nd Street
New York, NY 10017**

Asbestos Engineer:

**ATC Associates, Inc.
104 East 25th Street
New York, NY 10010**

Acoustic Engineer:

**Peter George Associates
P.O. Box 688
Millbrook, NY 12545**

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January 10, 2005

**Asbestos Removal - Monsignor McClancy Memorial High School
REQUEST FOR BID PROPOSALS**

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NY 11370**

Public notice is hereby given that sealed Bid Proposals for Asbestos Removal work as prescribed by the Plans and Specifications Bid Documents for the Soundproofing of Monsignor McClancy Memorial High School, East Elmhurst, New York will be received at the Monsignor McClancy Memorial High School 71-06 31st Avenue East Elmhurst, New York 11370, in the General Office before 10:30 AM on *February 17, 2005* when Bidding will be closed and the packages publicly opened and read aloud. No late Bid Proposals will be accepted and incomplete or non-compliant Bid Proposals will be rejected.

Bids shall be for Asbestos Removal work on the basis of a Stipulated Lump Sum Contract.

Complete sets of Bid Documents, prepared by the Architect, John Ciardullo Associates, 221 West 57 Street, New York, N. Y. 10019, 212/245-0010 will be available to General Contractors at the Architect's office on or after *January 10, 2005* upon receipt of a non-refundable payment of \$25.00 per set. Only cash or certified checks payable to the order of John Ciardullo Associates will be accepted. When purchasing Bid Documents, all General Contractors must be prepared to provide the following information: Complete company name, mailing and street address, telephone numbers, facsimile number and responsible contact person.

Complete sets or parts of sets of Bid Documents will not be issued to Subcontractors, material suppliers, or manufacturers. They are requested to arrange for copies with their respective General Contract Bidders. A list of Bidders will be made available through the Architect's office upon request.

All Bids must be submitted in accordance with the INFORMATION TO BIDDERS section of the Specification. The Bid Proposal, with all other required information must be submitted in a sealed opaque inner envelope marked "ASBESTOS REMOVAL, SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL - A.I.P. PROJECT NO. NY-LGA 80-02 and NY-LGA 98-03" A larger outer envelope containing the Bid Proposal shall be addressed to Monsignor McClancy Memorial High School, Attention Brother Robert Connolly, 71-06 31st Avenue East Elmhurst, New York 11370 with the Contractor's return address and project name indicated on the outer envelope.

The Bidder must submit with his Bid Proposal a notarized affidavit including the firm's legal status, a list itemizing projects that are currently under contract, contract amounts and the name and telephone numbers of project contacts on the attached Current Contract Form and that there have been no material adverse changes in his qualification information or the total amount of uncompleted work on contracts at this time.

Bidders are alerted to the Information for Bidders Section 11 - F.A.A. Requirements, 14.3% DBE Participation Goal.

Bidders are required to comply with the requirements of P.L. 1975, C 127-Affirmative Action Regulation and Executive Order #11246 for Federal Equal Employment Opportunity.

The successful Bidder shall be required to pay at least the US Department of Labor Davis Bacon Prevailing Wage Rates or The City of NY Office of the Comptroller Prevailing Wage Schedule Rates whichever is greater. (See appendix 3 & 4).

According to Public Law, Chapter 15, Title 40 and Chapters 32 and 33, Title 52, the Contractor shall agree that in the performance of construction, only domestic materials and manufacturers will be used when available.

Bidders are alerted that "Approval of Subcontractors" is required for all subcontract work. The work under this

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

solicitation requires Asbestos Removal work. Therefore Subcontractor Approval Application forms and Request for Subcontractor Approval forms are required for each of the above referenced trades or portions of trades. If the bidder intends to perform any of the above work with its own forces, it must complete the subject forms using its company name and related information.

Each Bid Proposal must be accompanied by a certified check, or Bid Bond in the amount of 10% of the Bid amount. Additionally each Bidder shall include as part of his Bid Proposal the cost of a Performance and Labor and Material Payment Bond in the amount of 100% of the Contract Price. The Bid must also be accompanied by a certificate from a Surety Company authorized to do business in the State of New York, certifying that said Surety Company will be providing the Bidder with a Performance Bond and Labor and Material Payment Bond which shall remain in force to cover the three year guarantee period after the completion of construction.

A Pre-Bid Conference will be held at 11:00 AM on *January 19, 2005* in the Second Floor Office of Monsignor McClancy Memorial High School to review the existing conditions. This invitation is extended to Bidders only and their associated subcontractors. Participation is strongly advised. Bidders are to confirm their attendance by facsimile to the Architect's office. All questions regarding this Request for Bid Proposals must be submitted in writing and transmitted by facsimile to the Architect no later than *4:00 PM January 28, 2005*.

The Owner reserves the right to reject any and all bids or to waive any immaterial defects or informality in any bid should it be deemed to the best interest or discretion of the Owner to do so.

Any inquiries or questions relating to this Request for Bid Proposals should be directed, in writing, to Mr. Richard Piacentini and faxed to John Ciardullo Associates, 221 West 57 Street - 9th Floor, New York, N.Y. 10019, telephone (212) 245-0010, facsimile (212) 245-0020.

January 10, 2005

**Asbestos Removal - Monsignor McClancy Memorial High School
INFORMATION FOR BIDDERS**

1. FORM AND SUBMISSION OF BIDS

The Monsignor McClancy Memorial High School, hereinafter called the "Owner", invites Proposals in the annexed form. Proposals will be received until the time and date indicated on the attached Addendum in the General Office, at the Monsignor McClancy Memorial High School, East Elmhurst, New York. Each proposal must be sealed in an envelope which shall conspicuously endorsed with the Bidder name and the Title of this Contract on the front.

The proposal must be submitted upon the blank forms bound herewith and must give all information required. The proposal must be signed and the acknowledgment taken on the appropriate form following the Proposal.

Submission of the completed forms and required supplemental documents shall signify complete agreement and acceptance of the terms and conditions contained, described or required in the complete set of bid documents including both contract specification books, contract drawings and addenda by the bidder.

No effort is made to emphasize any particular provision of the Contract, but bidders must familiarize themselves with every provision and its effect.

The Owner, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non discrimination in Federally-Assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that any contract entered into pursuant to this advertisement, minority business enterprise will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of sex, race, color, or national origin in consideration for an award.

In addition, this Contract is subject to the requirements of Part 23 of Title 49 of the Code of Federal Regulations, Participation by Minority Business Enterprise in Department of Transportation programs, Part 60-4 of Title 41 of the Code of Federal Regulations, (Department of Labor) Construction Contractors, Affirmative Action Requirements.

Bids shall not contain any recapitulation of the work to be done. No oral, telegraphic or telephonic bids or modifications shall be considered.

Bids that are illegible or that contain omissions, alterations, additions or items not called for in the bidding documents may be rejected as not responsive. Any bid which modifies, limits, or restricts all or any part of such bid, other than as expressly provided for in the Contract Documents, may be rejected as not responsive.

The Owner may reject any bid not made, prepared and submitted in accordance with the provisions of the Contract Documents. The Owner also reserves the right to reject any and all bids or to waive any immaterial defects or informality in any bid should it be deemed in his best interest to do so.

Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof and any bid received after such time and date shall not be considered.

No Bidder may withdraw a bid for sixty (90) days after the actual date of the opening thereof.

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Asbestos Removal - Monsignor McClancy Memorial High School

2. PAPERS ACCOMPANYING PROPOSALS

Each Proposal must be accompanied by the following papers, which, unless otherwise indicated, should be enclosed with the Proposal:

(1) Bid and Contract Agreement (with Acknowledgment)

The Form of Contract bound herewith, including the bidder's prices inserted in the clause thereof entitled "Contract Sums". The amount must be given both in figures and in writing, and in the case of discrepancy, the writing shall control. The Contractor shall complete the correct acknowledgment form for the entity or individual submitting the proposal.

If the bidder be a corporation: (a) a statement of the name and residence of its president or chief executive officer, which may be on the last page of the agreement.

If the bidder be a partnership, a statement of the name and residence of a partner, which may be on the last page of the agreement.

If the bidder be an individual, a statement of his residence, which may be on the last page of the agreement.

(2) Bid Bond and Surety Co. Certification

Either the Bid Bond bound herewith, duly executed by the bidder as a principal and by one or more surety companies duly authorized to carry on the business of surety ship in the state of New York, whose names appears on the current list of the Treasury Department of the United States as acceptable as sureties upon federal contracts; or in lieu of a Bid Bond:

A certified check payable to the order of the Owner, in the amount of 10 % of the Base Bid Amount appearing in the Bid and Contract Agreement, which check shall be separately delivered, prior to the time of bid opening, to the Monsignor McClancy Memorial High School, 71-06 31ST Avenue, East Elmhurst, New York 11370; Attention Brother Robert Connolly . The bidder will be given proper receipt for his check.

Bid bond shall stipulate and certify that the Surety will issue upon award of contract, a performance and material payment bond in the full amount of the contract price as stipulated therein.

(3) Bidder's Net Worth

A balance sheet showing the net worth of the bidder as of a date not earlier than forty-five days prior to the opening of the Proposals; or in lieu thereof, a balance sheet showing the net worth of the bidder not earlier than the end of a preceding fiscal year, together with a statement in writing, signed by a duly authorized representative of the bidder, that the present financial condition of the bidder is at least as good as that shown on the balance of the sheet submitted and that the net worth of the bidder is in excess of 10% of the current cumulative project value. The balance sheet or statement shall also note the name and address of the bidder's chief bank with the name of the representative handling the account.

***(4) Contractor's Qualifications**

Bidders current Contracts shall be certified and itemized noting contract date, contract amount, anticipated project completion date, project contact individual and the individual's telephone number. Provide all information and certifications indicated on the form provided.

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Asbestos Removal - Monsignor McClancy Memorial High School

- a. Submit evidence that the bidder has acted as the General Contractor for a minimum of 7 years. The documentation shall include a list of projects on the attached form indicating Project Cost, Location, Architect of Record, Owner, Owner's contact person, phone number and Date of Substantial Completion on the attached Data Sheet.
- b. Submit evidence that the bidder has successfully completed at least 5 projects of comparable size and scope within the last 5 years. The documentation shall include a list of projects on the attached form indicating Project Cost, Location, Architect of Record, Owner, Owner's contact person, phone number and Date of Substantial Completion.
- c. The Bidder shall certify that there has been no unsatisfactory evaluation filed on any of the work performed by the bidder on any past or present projects by any client or agency.

***(5) Addenda**

One copy of each addendum, if any, issued during the bidding period shall be initialed and attached to the proposal, but any Proposal submitted without such addendum installed and attached will nevertheless be construed as though such addendum had been initialed and attached.

(6) Request for subcontractor approval form.

On the form provided, indicate all proposed subcontractors to be used on all phases of the work

(7) Subcontractor approval applications.

On the form provided, submit data for each proposed subcontractors to be used on any phase of the work.

***(8) Progress Schedule**

The bidder's progress schedule and analysis of the bid filled in on the form furnished herewith. The Contractor will be required to furnish a more detailed progress schedule and analysis of the bid at a later date in accordance with the requirements of the Clause entitled "Progress Schedule and Analysis of Bid".

***(9) Certificate of Non-Segregated Facilities**

A Certification of Non-Segregated Facilities filled in on the form provided herein.

***(10) Asbestos Acknowledgment**

***(11) DBE participation form**

Asbestos acknowledgment form provided, and attached hereto, shall be submitted by Contractor and all subcontractors performing Work of any type whatsoever, prior to commencement of that Work.

* Items noted with an asterisk (*) shall be submitted within 72 hours of a request for this information by the owner.

3. QUALIFICATION INFORMATION

Contractor and Subcontractors shall and will certify that they are Reputable Contractors in good standing and provide tradesmen licensed offer the services required by and contracted for under this Contract. The Owner may make any investigation as the Owner may deem necessary to determine the responsibility of any Bidder

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

or to determine the ability of any Bidder to perform the Work. The Bidders shall furnish to the Owner all information and data required by the Owner, including complete financial data, within the time and in the form and manner required by the Owner. The Owner reserves the right to reject any bid if the information required by the Owner is not submitted as required or if the information submitted by or the investigation of any bidder fails to satisfy the Owner that the Bidder is responsible, or is able or qualified to carry out the obligations of the Contract or to complete the work as contemplated. The owner shall be the sole judge of the Qualifications of the contractor to perform the work in a manner consistent with contract requirements. Unqualified bids will be judged defective.

4. SUBCONTRACTOR INFORMATION REQUIREMENTS

- A. These provisions are in addition to the provisions of the General Conditions under which the Owner reserves the rights of approval and acceptance of the use of any subcontractors that the contractor proposes to use on the project.
- B. Each Bidder shall within 72 Hrs. of a request by owner a separately sealed envelope containing , completed Subcontractor Approval Application forms (form attached) for the proposed plumbing, VAC. and electrical subcontractors. In the same envelope which contains the Subcontractor Approval Application, the Bidder shall submit a completed Request for Subcontractor Approval Form (form attached) indicating the names of the above-proposed subcontractors and the estimated value of the work to be performed.

5. ACCEPTANCE OR REJECTION OF PROPOSAL

Within sixty (60) days after the opening of the proposals, the Owner will accept one of the Proposals, if it accepts any. The acceptance of a Proposal will be only by mailing to or delivering at the office designated in the Proposal, a notice in writing specifically indicating acceptance signed by an authorized representative on behalf of the Owner. No other act of the Owner, its agents, or employees shall constitute acceptance of a Proposal. Such notice will state whether or not the Owner elects to require the bidder to furnish a Performance and Payment Bond. Rejection of a proposal will be by only either (a) a notice specifically stating that the Proposal is rejected, signed by an authorized representative on behalf of the Owner and mailed to or delivered at the office designated in the Proposal or (b) omission of the Owner to accept a Proposal within 60 days after the opening of Proposals; and no other act of the Owner, its agents or employees shall constitute rejection of a Proposal, including any counter offer or other act of the Owner its agents or employees.

In the selection of the successful bid, the owner shall select the combined Base Bid and Item 1 Bid most advantageous to the owner.

The Owner reserves the unqualified right, in its sole and absolute discretion, to reject any bid proposal and/or to waive minor defects in any Proposal.

In the event that a successful bidder defaults upon the Contract by failing to furnish a satisfactory Performance and Payment Bond, or failing to adequately demonstrate through submitted documentation or subsequent investigation, adequate Qualifications of the bidder's capacity or experience to perform the work of the contract and the Owner terminates the Contract, the Owner reserves the option to subject the Proposal of the each of the next lowest bids in turn to the same tests and accept the next lowest bid within sixty (60) days after the opening of Proposals, in which case such acceptance shall have the same effect as to such other bidder as though he were the original lowest bidder.

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Asbestos Removal - Monsignor McClancy Memorial High School

6. RETURN OF CERTIFIED CHECKS

Within ten (10) days after the opening of the Proposals, the Owner will return all certified checks deposited by the bidders, except those deposited by three bidders to be selected by the Owner, which will be returned within three (3) days after the satisfactory Performance and Payment Bond is furnished to the Owner; or if all Proposals are rejected, not later than three (3) days after such rejection. The return of a bidder's check shall not however, be deemed to be a rejection of his Proposal.

7. INSPECTION OF SITE AND CONTRACT DOCUMENTS

Prospective bidders shall examine the contract documents carefully, before bidding. A pre-bid walk-through is scheduled for the date included in the cover letter attached at Monsignor McClancy Memorial High School, 71-06 31st Avenue East Elmhurst, New York 11370 The bidder shall, at the time of bid opening, be presumed to have read and to be familiar with all the Contract Documents and to have inspected the site and be familiar with field conditions.

For site visits other than the pre-bid walk-through each bidder or his authorized representative must make proper arrangements with the Architect before inspecting the construction site. (Richard Piacentini of John Ciardullo Associates, 221 West 57 Street - 9th Floor, New York, N.Y. 10019, telephone 212/245-0010, facsimile 212/245-0020.

8. QUESTIONS BY BIDDERS

Prospective Bidders shall examine the Contract Documents carefully and, before bidding, shall make a written request to the MMMHS's Representative for clarification of any ambiguity, or correction of any inconsistency or error therein. Every request for such clarification must be received at least ten (10) days prior to the date fixed for the opening of the bid. Such clarifications or corrections as well as any additional Contract Provisions as the Owner shall decide to include shall be issued in writing by the Owner or the Owner's representative as an addendum, which shall be sent by certified or registered mail or by telegraph or delivered to each prospective Bidder recorded as having received a copy of the Contract Documents from the Architect's office, and shall be available at the places where the Contract Documents are available for inspection by prospective bidders. Upon such mailing or delivery and making available for inspection, such addendum shall become a part of the Contract Documents and shall be binding on all bidders whether or not the Bidder receives or acknowledges the actual notice of such addendum. The requirements contained in all the contract documents shall apply to all addenda.

Questions may be addressed to Mr. Richard Piacentini of John Ciardullo Associates, (212) 245-0010). Neither he nor any employee of the Architect or owner is authorized to give interpretations of any portion of the Contract. Accordingly, nothing contained herein and no representation, statement or promise, oral or in writing, of the Owner, its representatives, agents or employees shall impair or limit the effect of the warranties and guarantees of the bidder. The provisions of this clause shall apply to questions addressed by prospective bidders both before and after their receipt of Contract Documents.

9. NON-COLLUSIVE BIDDING CERTIFICATION

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in case of a joint bid each party thereto certifies as to its own organization that: (a) the prices in his bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting completion, as to any matter relating to such prices with any other bidder or with any competitor; (b) the prices quoted in his bid have not been and will not be knowingly disclosed, directly or indirectly by the bidder prior to the official opening of such bid to any other bidder or to any competitor; (c) no attempt has been

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Asbestos Removal - Monsignor McClancy Memorial High School

made and none will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

The foregoing certification, if made by a corporate bidder, shall be deemed to have been authorized by the Board of Directors of the bidder, and such authorization shall be deemed to include the signing and submission of the certificate as to non-collusion and Code of Ethics as the act and deed of the corporation.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor.

10. CERTIFICATION OF NO INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT OR TERMINATION

By bidding on this Contract, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that the bidder has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred or otherwise disqualified from entering into contracts with any governmental agency; and (c) had a contract terminated by any governmental agency for breach of contract or for any cause related directly or indirectly to an indictment or conviction.

In any case where the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefore.

11. F.A.A. REQUIREMENTS

The contractor shall include the terms and conditions of this section in every subcontract entered for performance of contract work on this project. The Attachments titled "FAA REQUIREMENTS" and "49 CFR PART 23" apply to all contract and subcontract work on this project and are furnished in their entirety for the purpose of inclusion in all subcontracts.

A. D.B.E. PROGRAM

This Contract is subject to the United States Department of Transportation regulations on Disadvantaged Business Enterprise ("DBE'S") contained in Part 23 of Title 49 of the Code of Federal Regulations. The following goal for D.B.E. participation has been set for this Contract:

Seventeen percent (17%) of the value of the Contract for firms owned and controlled by socially and economically disadvantaged individuals.¹

By bidding on this Contract, the bidder assures that it will meet the foregoing goal. If the bidder determines that he cannot make this assurance, he may nevertheless submit a bid but in such event he shall submit with the bid a separate writing which contains a statement of the percentage of DBE participation he anticipates.

In order to facilitate identifying DBE's the Port Authority of New York and New Jersey has a list of certified firms which is available on request.

Within Three (3) working days of the opening of bids, the bidder shall submit to the Owner the names and

¹ Individuals who are rebuttably presumed to be socially and economically disadvantaged include women, Blacks, Hispanics, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. A bidder may meet the DBE goal by using any combination of disadvantaged businesses.

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addresses of DBE firms, a description of the work each is to perform, and the dollar value of each proposed DBE subcontract. The bidder shall also submit the completed form labeled "Schedule A" and "Schedule B" (if appropriate) for any firm he proposes as a DBE.

If a bidder proposes to use the services of a subcontractor who has not been previously certified, then it must submit the name of the proposed DBE and the other information required by the Office, to the Port Authority's Office of Business and Job Opportunity for certification.

In the event that the bidder for this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met.

A bidder who fails to meet the DBE goal for this Contract and fails to demonstrate to the Board that the Bidder has made good faith efforts to meet same shall not be eligible to be awarded the Contract. The following are illustrative of good faith efforts:

- (i) Attendance at a pre-bid meeting, if any, scheduled to inform DBE's of subcontracting opportunities under a solicitation;
- (ii) Advertisement in a general circulation media, trade association publications and minority focused media for at least 20 days before bids or proposals are due. If 20 days are not available, publication for a shorter reasonable time is acceptable;
- (iii) Written notification to DBE's that their interest in the Contract is solicited;
- (iv) Efforts made to select portions of the work proposed to be performed by DBE's in order to increase the likelihood of achieving the stated goal;
- (v) Efforts to negotiate with DBE's for specific sub-bids including at a minimum;
 - (a) The names, addresses and telephone numbers of DBE's that were contacted;
 - (b) A description of the information provided to DBE's regarding the plans and specifications for the portions of the work to be performed; and
 - (c) A statement of why additional agreements with DBE's were not reached;
- (vi) Concerning each DBE, the bidder contacted but rejected as unqualified, and the reason for the rejection;
- (vii) Efforts made to assist the DBE's contacted that needed assistance in obtaining bonding or insurance required by the bidder or Owner.

B. STANDARD EEO SPECIFICATION

The following constitutes Standard Federal Equal Opportunity Construction Contract Specifications (Executive Order 11246, as amended). These specifications should be included in all AIP assisted construction contracts or subcontracts (including the Solicitations for Bids) in excess of \$10,000.00 in geographical areas designated by the Director.

Standard Federal Equal Opportunity Construction Contract Specifications (Executive Order 11246, as amended).

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A.

As used in these specifications:

- (1) "Covered Area" means the geographical area described in the solicitation from which this contract resulted;
- (2) "Director" means Director, office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
- (3) "Employer identification number" means the Federal Social Security Number used on the Employers's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
- (4) "Minority" includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic Origin);
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South America, or other Spanish culture regardless of race);
 - (c) Asian or Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (d) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation of community identification.

B. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and the female participation which is set forth in the solicitations from which this contract resulted.

C. If the contractor is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through association, in its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with the plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in the compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

D. the Contractor shall implement the specific affirmative action standards provided in paragraphs G (1) through (16) to these specifications. The goal set forth in the solicitation

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from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilizations that the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress towards its goals in each craft during the period specified.

- E. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, as amended, or the regulations promulgated pursuant thereto.
- F. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
- G. The Contractor shall take specific affirmative actions to ensure EEO. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:
 - (1) Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other on site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - (2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.
 - (3) Maintain a current file of the names, addresses, and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union, or, if referred, not employed by the contractor, this shall be documented in the file with the reason, therefore, along with whatever additional actions the contractor may have taken.
 - (4) Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

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- (5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under G(2) above.
- (6) Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- (7) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment lay-off, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foreman, etc. prior to the initiation of construction work at any job sites. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- (8) Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.
- (9) Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. No later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- (10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on site and in other areas of the contractor's workforce.
- (11) Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

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- (12) Conduct, at least annually, an inventory and evaluation, at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc, such opportunities.
 - (13) Ensure the seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractors obligations under these specifications are being carried out.
 - (14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user access toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - (15) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - (16) Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.
- H. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations under G(1) through G(16). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under G(1) through G(16) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's non-compliance.
- I. A single goal for minorities and a separate goal for women have been established. The contractor, however, is required to provide EEO and to make affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).
- J. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
- K. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246, as amended.
- L. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive

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- M. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction grade, union affiliation if any, employee identification number when assigned, social security number, race, sex status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status (e.g. worked per week in the indicated trade), rate of pay, and locations the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that the existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- N. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

REQUIRED NOTICE FOR CONTRACTS FOR 50 OR MORE EMPLOYEES AND A CONTRACT OF \$50,000 OR MORE

The prime contractor and each of his subcontractors who have 50 or more employees and a contract of \$50,000 or more shall, within 120 days from contract commencement, be required to develop and maintain a written affirmative action compliance program for each of its establishments.

In addition, the following will be required:

- A. Compliance Reports. Within 30 days after award of this contract, the contractor shall file a compliance report (Standard Form (SF) 100) with the Joint Reporting Committee if:
- (1) The contractor has not submitted a complete compliance report within 12 months preceding the date of award, and
 - (2) The contractor is within definition of "employer" in paragraph 2e (3) of the instructions included in SF 100.
- B. The contractor shall require the subcontractor on any first tier subcontracts, irrespective of dollar amount, to file SF 100 within 30 days after award of the subcontract if the above two conditions apply. SF 100 is normally furnished contractors annually, based upon a mailing list currently maintained by the Joint Reporting Committee. In the event a contractor has not received the form, he may obtain it by writing to the following address:
- Joint Reporting Committee
1800 G Street
Washington, D.C. 20506
- C. The contractor shall after commencement of contract work submit the Monthly Manpower Utilization Report (SF 257) to the OFCCP regional office, on or before the fifth working day of each month, reporting the activity of the previous month. If no work was accomplished, the form should be submitted stating that fact. A form is to be submitted for the last month of activity stating that the work has been completed.

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SPECIAL PROVISIONS, NOTICES AND CERTIFICATIONS CONCERNING NONSEGREGATED FACILITIES

SPECIAL PROVISIONS RELATING TO AIP ASSISTED CONSTRUCTION PROJECTS IN EXCESS OF \$10,000

The sponsor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan insurance, or guarantee the following equal opportunity clause.

During the performance of this contract, the contractor agrees as follows:

- A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising, layoff or termination, rate of pay or other forms of compensations; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices (to be provided) setting forth the provisions of this non-discrimination clause.
- B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- C. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice (to be provided) advising the said labor union or worker's representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- D. The contractor will comply with all provisions of Executive Order 11246, as amended, of 24 September 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- E. The contractor will furnish all information and reports required by Executive Order 11246, as amended, of 24 September 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rule, regulations, and orders.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order 11246, as amended, of 24 September 1965, and such other sanctions may be imposed as remedies invoked as provided in Executive Order 11246, as amended, of 24 September 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- G. The Contractor will include the portion of the sentence immediately preceding paragraph A and the provisions of paragraphs A through G in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, of 24 September 1965, so that such provisions will be binding upon each subcontractor or vendor. the contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however that in the

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event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY (FOR CONSTRUCTION CONTRACTS EXCEEDING \$10,000).

BIDDERS NAME

ADDRESS

INTERNAL REVENUE SERVICE EMPLOYER IDENTIFICATION NUMBER
NONSEGREGATED FACILITIES

NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS:

- a. A certification of Nonsegregated Facilities must be submitted prior to the award of a Federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.
- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

CERTIFICATION OF NONSEGREGATED FACILITIES

The Federally-assisted construction contractor certifies that he does not maintain or provide for his employees any *segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained.* The Federally-assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not allow his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor agrees that a breach of his certification is a violation of the equal opportunity clause in his contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and any other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or any other reason. The Federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause, and that he will retain such certifications in his files.

NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR CERTIFICATION FOR NON SEGREGATED FACILITIES

A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding

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\$10,000 which is not exempt from the provisions of the equal opportunity clause.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATION ON NONSEGREGATED FACILITIES

- a. A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.
- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

C. A.I.P. REQUIREMENTS

REQUIRED LANGUAGE IN AIP CONSTRUCTION CONTRACTS, WAGE, LABOR, EEO AND SAFETY REQUIREMENTS

SECTION A. LABOR, EQUAL EMPLOYMENT OPPORTUNITY AND SAFETY REQUIREMENTS FOR ALL CONSTRUCTION CONTRACTS AND SUBCONTRACTS

- A-1 AIP PROJECT - The work in this contract is included in AIP Project No. NY-LGA 80-02 and NY-LGA 98-03, which is being undertaken and accomplished by The Port Authority of New York and New Jersey and the United States, under the Airport and Airway Improvement Act of 1982 (AAIA)(P.L. 97-248, 49 U.S.C. 2201 et seq.) and Part 152 of the Federal Aviation Regulations (FAR) 14 CFR part 152, pursuant to which the United States has agreed to pay a certain percentage of the costs of the projects that are determined to be allowable project costs under that Act. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.
- A-2 CONSENT TO ASSIGNMENT - The Contractor shall obtain prior written consent of the and the Monsignor McClancy Memorial High School to any proposed assignment of any interest in or part of this contract.
- A-3 VETERAN'S PREFERENCE - In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to veterans of the Vietnam era and disabled veterans. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

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- A-4 FAA INSPECTION AND REVIEW - The contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.
- A-5 HEALTH AND SAFETY REQUIREMENTS - It is a condition of this Contract, and shall be made a condition of each subcontract entered into pursuant to this Contract, that the Contractor and any subcontractor shall not require any laborer or mechanic employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under Construction Safety and Health Standards Title 29 CFR Part 1926 and other occupational and health standards (29 CFR Part 1910) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (CWHSSA).
- A-6 CONTRACT TERMINATION - A breach of paragraph A-4 may be grounds for termination of the contract.

SECTION B. SECRETARY OF LABOR REQUIREMENTS

B-1 MINIMUM WAGES

1. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate of any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents therefore) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1 (b) (2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to laborers and mechanics, subject to the provisions of subparagraph a. (4) below; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5 (a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under a. (2) of the section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.
2. (a) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and

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- 2 The classification is utilized in the area by the construction industry; and
- 3 The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers or mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, US Department of Labor, Washington, DC 20210. The Administrator or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the view of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30 day period that additional time is necessary.

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (2)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under the this contract from the first day on which is performed in the classification.

3. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly wage rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
4. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

B-2 WITHHOLDING - The Federal Aviation Administration shall upon its own action or upon written request of any authorized representative of Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation

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Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

B-3 PAYROLLS AND BASIC RECORDS

1. *Payrolls and basic records relating thereto will be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records will contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5 (a)(1) (iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated providing benefits under a plan or program described in Section 1 (b) (2) (B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification or trainee programs, the registration of the apprentices and trainees, and the rates and wage rates prescribed in the applicable programs.*

2. (a) The contractor shall submit weekly for each week in which any contract work is performed, a copy of all payrolls to the Sponsors. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5 (a)(3) (I) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), US Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance", signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

- 1 That the payroll for the payroll period contains the information required to be maintained under paragraph 5.5 (a)(3) (I) of Regulations, 29 CFR Part 5 and that such information is correct and complete;
- 2 That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that not deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;
- 3 That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of

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work performed, as specified in the applicable wage determination.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission on the "Statement of Compliance" required by paragraph B-3 (2)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

3. The contractor and subcontractor shall make the records required under paragraph B-3 (2) (b) of this section available for inspection, copying or transcription by authorized representatives of the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

B-4 APPRENTICES AND TRAINEES

1. Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the US Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid not less than the rate specified in registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. The apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at least than the applicable predetermined rate for the work performed until an acceptable program is approved.

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2. **Trainees** - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification, by the United States Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of trainee program. If the trainee does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
3. **Equal Employment Opportunity** - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

- B-5 **COMPLIANCE WITH COPELAND ACT REQUIREMENTS** - The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in its contract.
- B-6 **SUBCONTRACTS** - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5 (a) (1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.
- B-7 **CONTRACT TERMINATION DEBARMENT** - A breach of contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for the debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- B-8 **COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- B-9 **DISPUTES CONCERNING LABOR STANDARDS** - Disputes arising out of labor standards provisions of this contract (sponsor) shall not be subject to the general disputes clause of this contract (sponsor). Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause includes disputes between the contractor (or any of its subcontractors) and the contracting agency, the US Department of Labor, or the employees or their representatives.

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B-10 CERTIFICATION OF ELIGIBILITY

1. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is ineligible to be awarded Government contracts by virtue of Section 3 (a) of the Davis-Bacon Act or 29 CFR 5.12 (a)(1).
2. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3 (a) of the Davis-Bacon Act or 29 CFR 5.12 (a)(1).
3. The penalty for making false statements is prescribed in the US Criminal Code, 18 U.S.C. 1001.

C-1 CONTRACT WORK HOURS AND SAFETY STANDARD ACT - Note: As used in the following, the terms "laborers" and "mechanics" include watchmen and guards.

1. Overtime Requirements - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of eight hours in any calendar day or in excess of 40 hours in such work week unless such laborer or mechanic receives compensation at a rate not less than 1 1/4 times his basic rate of pay for all hours worked in excess of eight hours in any calendar day or in excess of 40 hours in such work week, whichever is greater.
2. Violations, Liability for Unpaid Wages, Liquidated Damages - In the event of any violation of the clause set forth in subparagraph (1) of the paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed, with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10.00 for each calendar day on which such individual was required or permitted to work in excess of eight hours or in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph (10) of this paragraph.
3. Withholding for Unpaid Wages and Liquidated Damages The FAA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy and liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.
4. Subcontracts - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier contractor with the

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clauses set forth in subparagraph (1) through (4) of this paragraph.

C-2 CONTRACTS SUBJECT ONLY TO CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

1. The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.
2. The records to be maintained under paragraph (1) above shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

SECTION D - (HEALTH AND SAFETY REQUIREMENTS) CONTRACTS EXCEEDING \$2,000

- D-1 It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the contractor and any subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under Construction Safety and Health Standards Title 29 CFR Part 1926 and other occupational and health standards (29 CFR Part 1910) promulgated by the United States Secretary of Labor, in accordance with Section 107 of the OWHSSA.

SECTION E - CLEAN AIR AND WATER POLLUTION CONTROL REQUIREMENTS FOR CONSTRUCTION CONTRACTS AND SUBCONTRACTS

- E-1 Contractors and subcontractors agree (for any contract/ subcontract exceeding \$100,000):
- a. That any facility to be used in the performance of the contract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities.
 - b. To comply with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations issued thereunder.
 - c. That as a condition for award of a contract he will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be utilized for performance of or benefit from the contract is under consideration to listed on the EPA List of Violating Facilities.
 - d. To include or cause to be included in any contract or subcontract which exceeds \$100,000 the aforementioned criteria and requirements.
- E-2 For all projects, contractors and subcontractors agree:

That in the performance of this contract agrees that he will adhere to all state and local regulations concerning air and water pollution controls (unless contrary to Federal requirements), secure necessary

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permits, inspections, and conduct his operations so as to minimize affects on the surrounding environment.

BID GUARANTEE AND BONDING/INSURANCE CLAUSES (FOR BID AND/PR CONTRACTS IN EXCESS OF \$100,000.)

For all bid documents for contracts include:

The requirements for a bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidders will, upon acceptance of his bid, execute contractual documents as may be required within the time specified.

For contracts include:

- A. The contractor agrees to furnish a performance bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
- B. The contractor agrees to furnish a payment bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of work provided for in the contract.

NONDISCRIMINATION IN FEDERALLY-ASSISTED PROGRAMS OF THE DEPARTMENT OF TRANSPORTATION

During the performance of this contract, the contractor for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

- A. Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations), Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations); which are herein incorporated by reference and made part of this contract.
- B. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.
- D. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the

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Federal Aviation Administration to be pertinent information required of a contractor is in the exclusive possession of one another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the Federal Aviation Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

- E. Sanctions for Noncompliance. In the event of the contractor's noncompliance with nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including but not limited to:
- (1) withholding of payments to the contractor under the contract until the contractor complies, and/or
 - (2) cancellation, termination, or suspension of the contract, in whole or in part.
- F. Incorporation of Provisions. The contractor shall include in provisions paragraph 1 through 5 in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Regulations or directives issues pursuant thereto: The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sections for noncompliance. Provided, however, that, in the event a contractor becomes involved in, or is threatened with litigation with a sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.
- G. Breach of Contract Terms - Sanctions. Any violation or breach of the terms of this contract on the part of the contractor/subcontractor may result in the suspension or termination of this contract or such other action which may be necessary to enforce the rights of the parties of this agreement.
- H. Certification - Foreign Trade Restrictions

The Contractor by submitting a proposal on this Contract certifies that it:

- a. is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against the U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. has not knowingly entered into any contract or subcontract for this project that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country said list.
- c. has not procured any product nor subcontracted for the supply of any product that is produced in a foreign country said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 59 CFR 30.17, no contract shall be awarded to a Contractor who is unable to certify the above. Thereafter, if the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the MMMHS, cancellation of the Contract at no cost to the Government or the MMMHS.

Further, the Contractor agrees that, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The Contractor may rely upon the certification of a prospective subcontractor unless is has knowledge that the certification is erroneous.

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The Contractor shall provide immediate written notice to the MMMHS if the Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate notice to the Contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the Contractor or Subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the Monsignor McClancy Memorial High School cancellation of the Contract or Subcontract for default at no cost to the Government or the Monsignor McClancy Memorial High School.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

POLICY OF THE DEPARTMENT OF TRANSPORTATION (DOT) REGARDING MINORITY BUSINESS ENTERPRISE

Minority business enterprises shall have the fullest possible participation in the performance of this contract.

Policy - The policy of the Department of Transportation (DOT) that minority business enterprises as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in performance or contracts financed in whole or in part with Federal funds under this agreement. Consequently, the MBE requirements of 49 CFR Part 23 are made part of this agreement.

Objective - The contractor agrees to ensure that minority business enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds provided under this agreement. In this regard, all contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that minority business enterprises have the maximum opportunity to compete for and perform contracts. Contractors shall not discriminate on the basis of race, color, national origin or sex in the award and performance of DOT assisted contracts.

All bidders*, potential contractors*, or subcontractors* for this DOT assisted contract are hereby notified that failure to carry out the DOT policy and DBE obligation, as set forth in the above, shall constitute a breach of contract which may result in termination of the contract or such other remedy as deemed appropriate by the Monsignor McClancy Memorial High School (recipient) *Includes firms owned and controlled by minorities and firms owned and controlled by women.

Sub-Contract Clauses. All bidders and potential contractors hereby assure that they will include the clauses in all sub-contracts which offer further sub-contracting opportunities.

The apparent successful bidder will be required to submit, at a time before award of the contract designated by Monsignor McClancy Memorial High School (recipient) concerning the Minority Business Enterprise participation in the contract:

- (A) The names and addresses of DBE firms that will participate in the contract:
- (B) A description of the work of each named DBE firm will perform;
- (c) The dollar amount of participation by each named DBE firm.

If the Disadvantaged Business Enterprise participation submitted in response to (A) above does not meet Disadvantaged

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Business Enterprise goals, information to satisfy the Monsignor McClancy Memorial High School that the bidders made good faith to meet these goals. The successful bidder shall establish and maintain records and submit reports, as required, which will identify and assess the efforts made to achieve DBE subcontract goals and other DBE affirmative action efforts.

Meeting Minority Business Enterprise goals or making good faith efforts to do so is a condition of being awarded a DOT assisted contract for which contract goals have been established.

D. ORIGIN OF MATERIALS AND EQUIPMENT

The parties agree that the following provision shall be incorporated into all Construction Contracts for the project:

That contractor and subcontractors shall include the clause "BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS" in all solicitations for contractors and subcontractors in accordance with the "BUY AMERICAN CLAUSE" in APPENDIX A.

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CHAPTER I
GENERAL PROVISIONS**

1. DEFINITIONS

To avoid undue repetition, the following terms whenever they occur in this Form of Contract or any of the other papers forming a part of the Contract shall be construed as follows:

"Contract" and "Contract Documents" shall mean, in addition to the Contract Form, the Information for Bidders, the Owner's acceptance, the General Conditions, the Specifications and the Contract Drawings (including written Addenda issued over the name of the Architect), all of which are made part hereof as though herein set forth in full. The Contract as so defined shall constitute the complete and exclusive statement of the terms of the agreement between the parties and the Contract may not be explained or supplemented by course of dealing, usage of trade or course of performance.

"Bidder" and "Contractor" shall mean the person, persons, corporation or other entities submitting this proposal for bidding and contract.

The term "days" or "calendar days" in reference to a period of time shall mean consecutive calendar days, Saturdays, Sundays and holidays, included.

The term "construction site" or words of similar import shall mean the Owner's Monsignor McClancy Memorial High School, for the Monsignor McClancy Memorial High, East Elmhurst, New York 11370 and the vicinity thereof.

"Work" shall mean all structures, equipment, plant, labor, materials (including materials and equipment, if any, furnished by the Owner) and other facilities and all other things necessary or proper for or incidental to furnishing and installing noise suppression materials, systems and components at Monsignor McClancy Memorial High School, the Monsignor McClancy Memorial High, East Elmhurst, New York 113; and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things.

"Work required by the Contract Drawings and Specifications in their present form" or words of similar import shall include all Work required by the Specifications in their present form (whether or not mentioned in the Specifications) and all the Work involved in or incidental to the accomplishment of the results intended by the Specifications and Contract Drawings in their present form (whether or not mentioned therein or shown thereon).

"Extra Work" shall mean Work required by the Owner which is in addition to that required by the Contract Drawings and Specifications in their present form.

"Contract Drawings" shall mean the Contract Drawings designated in the clause of the Specifications entitled "Contract Drawings" and except as used in the phrase "Contract Drawings in their present form" shall include any future alterations and revisions of said drawings.

"Owner", "MMMHS" and "Monsignor McClancy Memorial High School" shall mean the Monsignor McClancy Memorial High Chief executive officer or his successor in duties acting personally or through one of his authorized representatives for the purposes of this Contract.

"MMMHS Representative" and "Monsignor McClancy Memorial High Representative" are used interchangeably in the contract documents and shall mean the supervising and design Architects, John Ciardullo Associates, for the administration of this contract in all matters concerning the work.

"Architect" shall mean the Architect, John Ciardullo Associates, John Ciardullo, President, acting personally or his representative acting within the scope of the particular authority vested in him.

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The term "Permanent Construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, existing or furnished by the Owner) to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Owner) after the completion of the Work (whether or not they are yet delivered or installed), even though they are subsequently to be removed by others. The terms, "permanent installation", "permanent structure", "permanent materials", and words or similar import shall have the same meaning as the term "permanent construction".

"Subcontractor" shall mean anyone who performs Work (other than or in addition to the furnishing of materials, plant or equipment) at or about the construction site, directly or indirectly for or in behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnishes his own personal labor or his own personal services or who performs Work which consists only of the operation of construction equipment of which he is the lessor.

"Materialman" shall mean anyone who furnishes materials, plant, or equipment to the Contractor or any subcontractor for use at or about the construction site in the performance of Work.

"Materialman" or "subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor of the parent or of the subsidiary of the Contractor has a substantial interest, provided however, that for the purpose of the clause hereof entitled "Assignments And Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor himself.

"Workingman" or "worker" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"Lump Sum" shall mean the amount stipulated in the clause hereof entitled "General Agreement".

"Notice" shall mean a written notice.

Whenever they refer to the Work or its performance, "directed", "required", "permitted", "ordered", "designated", "prescribed" and words of similar import shall mean directed, required, permitted, ordered, designated, or prescribed by the MMMHS Representative; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by, acceptable or satisfactory to the MMMHS Representative; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgement of the MMMHS Representative.

Whenever "including", "such as", or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of things preceding such words.

"Owner" and "Monsignor McClancy Memorial High" shall mean the Monsignor McClancy Memorial High Inc., 71-06 31ST Avenue, East Elmhurst, New York 11370 "Custodian" shall mean the Principal of Monsignor McClancy Memorial High School or his designed.

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CONTRACT FORMS

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**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

**BID AND
CONTRACT AGREEMENT**

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Description: Aircraft Noise Abatement Project

Pursuant to and in compliance with the invitation for bids dated January 10, 2005 and the Contract Documents relating hereto, the undersigned hereby submits a binding offer to furnish all plant, labor, materials, supplies, equipment and all other facilities things, matters, and work necessary, proper or incidental to all work required by and in strict accordance with the applicable provisions of the referenced solicitation documents which include, but are not limited to, the plans, specification and all of the addenda thereto issued by the MMMHS and sent to the undersigned by U.S. mail, electronic transmission or other appropriate means or delivered to the Bidder prior to the date of opening the bids, whether received by the undersigned or not; for the total sum indicated on page 3 of this document in the "Base Bid Amount" blocks.

Notice of Award will be mailed, telegraphed or delivered to the successful bidder at its address listed on page three (3):

The Contractor shall commence Work under this Contract at a date to be specified in a Notice to Proceed letter issued by the MMMHS and shall complete Work on the Project, on or before 740 Consecutive Calendar Days, as indicated in Section 00900 - Milestone Schedule of the Specification, from the date in the above referenced Notice to Proceed letter.

Liquidated damages in the amount of five hundred dollars (\$500.00) per day shall be assessed against the Contractor for every calendar day exceeding the calendar days allowed in Section 00900 - Milestone Schedule or times as extended in accordance with the clause entitled "Extensions of Time" of the Specification.

Non-Collusive Bidding Certification:

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies on behalf of its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

- A. The prices in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- B. Unless otherwise required by law, the prices which have been quoted in the bid have not been knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder to any competitor; and
- C. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Representations of the Bidder:

The Bidder represents and certifies that:

- A. The Bidder is financially solvent and competent to perform the Work;
- B. That the Bidder is familiar with all Federal, State, or other laws, ordinances, orders, rules and regulations, which may in any way affect the Work;

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- C. That the Bidder has carefully examined the Contract documents and the Site of the Work and is satisfied as to the nature and location of the Work, the character quality and quantity of surface and subsurface materials likely to be encountered, the character or type of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other materials or items which may affect the Work;
- D. That the Bidder is an independent contractor and not an employee of the MMMHS. Unless the Contract specifically provides otherwise, the conduct and control of the Work shall be entirely the Bidder's responsibility at all times; and
- E. That Fair and Ethical Business Practices will be strictly adhered to during the life of this contract. During the term of this Contract, neither the Bidder nor any director, partner, principal, officer or employee shall:
1. File with a government office or employee, a written instrument which intentionally contains a false statement or false information;
 2. Intentionally falsify business records;
 3. Give, or offer to give, money or any other benefit to a labor official with intent to influence that labor official with respect to any of his or her acts, duties or decisions as a public servant; and
 4. Give, or offer to give, money or any other benefit to a public servant with intent to influence that public servant with respect to any of his or her acts, duties or decisions as a public servant; and
 5. Knowingly participate in the criminal activities of any organized crime group, syndicate or "family", nor shall any person employed by or associated with any such organized crime "family", syndicate or group participate through criminal means in any of the business affairs of the Bidder.
- F. If it becomes known that any director, partner, officer, employee of the Bidder, or any shareholder owning 5% or more of the Bidder's stock:
1. is subject of investigation involving any violation of criminal law or other federal, state or local law or regulation by any governmental agency; or
 2. is arrested, indicted or named as an unindicted coconspirator in any indictment or other accusatory instrument; or
 3. is convicted of any felony under state or federal law and/or any misdemeanor involving a business related crime.
- the bidder shall immediately notify the MMMHS of any such event.**
- G. That any Subcontract executed pursuant to this Contract will include the representations above as part of the Subcontract Agreement.

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(Print or Type ALL Information)

The Bidder's authorized representative on this project shall be:

Name:

Address:

Phone:

The following Addenda* are acknowledged by the Bidder.

Addendum No.					
Date of issue					

* The terms Addendum & Amendment may be used by the MMMHS interchangeably.

Base Bid Amount:

(Excluding Item 1 work)

\$

Amount in words

Amount in figures

Item 1 Bid Amount:

\$

Amount in words

Amount in figures

Bid Prepared By:

Firm Name:

Address:

City, State:

Zip :

By:

Title:

Name (Print or Type)

(Print or Type)

(Signature)

Telephone:

Date:

Tax ID No.

ACKNOWLEDGMENT OF THE BIDDER

STATE OF NEW YORK)

) ss:

COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the representative of the Above Named Bidder and that he/she signed his/her name thereto by order of the Individual, Partners or Board of Trustees of Named Corporation.

Notary Public

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This Section to be Completed by the Contractor If a Partnership

AFFIDAVIT IF A PARTNERSHIP

Company: _____

By: _____ Date: _____

(Signature of Partner)

Title: _____

STATE OF _____, County of _____

as:

_____ being duly sworn,

says:

I am a member of _____ of the above named partnership whose name is subscribed to and which executed the foregoing bid. I reside at _____ I have full knowledge of the matters pertaining thereto.

(Signature of the person who signed the Bid)

STATE OF _____) ss:

COUNTY OF _____)

On the __ day of _____, in the year 20__, before me personally came _____, to me known and known to me to be a member of the firm _____; described in and who executed the foregoing instrument; and he/she duly acknowledged to me that he/she executed the same for and in behalf of said firm for the uses and purposes mentioned therein.

Notary Public

If a Partnership, bidder must complete both Affidavit and acknowledgment sections and submit this page with its Bid.

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This Section to be Completed by Contractor, If an Individual

AFFIDAVIT OF CONTRACTOR, IF AN INDIVIDUAL

By: _____ Date: _____
(Signature of Individual)

Title: _____

STATE OF _____, County of _____

as: _____ being duly sworn,
says:

I am the person who submitted the foregoing bid. I reside at _____
_____. I have full knowledge of the matters
pertaining thereto.

(Signature of the person who signed the Bid)

ACKNOWLEDGMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF NEW YORK)
) ss:
COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, to me
known and known to me to be the person described in and who executed the foregoing instrument, and he/she duly
acknowledged to me that he/she executed the same.

Notary Public

**If an Individual, bidder must complete both Affidavit and Acknowledgment sections and submit this page with
its Bid.**

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THIS SECTION TO BE COMPLETED BY THE MMMHS

OWNER'S AFFIDAVIT

Bid Accepted by MMMHS

By:

Date:

(Signature of Authorized Officer)

Title:

ACKNOWLEDGMENT OF MMMHS

STATE OF _____)

) ss:

COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the _____ of the MMMHS and that he/she signed his/her name thereto by order of the Board of Trustees of said corporation.

Notary Public

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Asbestos Removal - Monsignor McClancy Memorial High School

Asbestos Removal in Connection With the Soundproofing Monsignor McClancy Memorial High School

BIDDER'S IDENTIFICATION AND EMERGENCY PHONE NUMBERS

Please provide the following information:

Principal:

Address:

City, State:

Zip :

Signed By:

Title:

Signature

Name - (Print or Type)

(Print or Type)

Telephone:

Emergency Phone #

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Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

FORM OF BID BOND

ASBESTOS REMOVAL IN CONNECTION WITH THE SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____
(Bidder's Legal Title)
as principal and _____
(Surety's Legal Title)

as Surety, are hereby held and firmly bound unto the Monsignor McClancy Memorial High School 71-06 31st Avenue, East Elmhurst, New York in the penal sum of ten percent of the total bid amount indicated on page 3 of Form #1 as the Base Bid Amount, or in the full and just sum of the difference between the total base bid of the Principal and the total base bid of the Bidder submitting the next lowest bid, whichever sum shall be higher, for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Executed this ___ day of _____, 20__.

The condition of the above obligation is such that whereas the Principal has submitted to the Monsignor McClancy Memorial High School 71-06 31st Avenue, East Elmhurst, New York, a certain bid, attached hereto and made a part hereof to enter into a Contract in writing for the Monsignor McClancy Memorial High School.

NOW, THEREFORE,

- (a) If said bid shall be rejected or in the alternate
- (b) If said bid shall be accepted and the Principal shall, for value received, furnish a Performance and Material Payment bond in the amount of 100% of the Contract Price which shall remain in force to cover the three year guarantee period after the completion of construction. as herein stated for the faithful performance of said Contract by the Principal, this Bid bond shall be terminated..

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and said Surety's bond in no way shall be impaired or affected by any extension of time within which the MMMHS may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS THEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by the proper officers, the day and year first set forth above.

(SEAL)

_____(L.S)
Principal

Surety

(SEAL)

By: _____

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ACKNOWLEDGMENT OF SURETY

STATE OF NEW YORK)
) ss:
COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, who being by me duly sworn, did depose and say that he/she resides in _____; that he/she is the _____ of the corporation described in and which executed the above instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.

Notary Public

If an a Corporation, bidder must complete both Affidavit and Acknowledgment sections and submit this page with its Bid.

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Asbestos Removal - Monsignor McClancy Memorial High School

This Section to be Completed, If a Partnership

AFFIDAVIT IF A PARTNERSHIP

Company: _____

By: _____

Date: _____

(Signature of Partner)

Title: _____

STATE OF _____, County of _____

as:

_____ being duly sworn,

says:

I am a member of _____
of the above named partnership whose name is subscribed to and which executed the foregoing bid. I reside at _____

I have full knowledge of the matters pertaining thereto.

(Signature)

STATE OF _____) ss:

COUNTY OF _____)

On the ___ day of _____, in the year 20___, before me personally came _____, to me known and known to me to be a member of the firm _____; described in and who executed the foregoing instrument; and he/she duly acknowledged to me that he/she executed the same for and in behalf of said firm for the uses and purposes mentioned therein.

Notary Public

If a Partnership, bidder must submit this page with its Bid.

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Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

BIDDER'S NET WORTH PACKAGE

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School East Elmhurst, NY

Description: Aircraft Noise Abatement Project

BIDDERS NET WORTH

(INSERT DATA BELOW - ATTACH ADDITIONAL SHEETS AS NECESSARY)

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Asbestos Removal - Monsignor McClancy Memorial High School

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

CONTRACTOR QUALIFICATIONS

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Instructions

This form shall be completed by all bidders. It should be completed by an officer who is knowledgeable about the past and present operations of the applicant.

All questions must be answered fully and accurately. If necessary, additional pages should be attached. If changed circumstances require different answers subsequent to the submission of this application, the bidder must promptly notify the MMMHS in writing of such changes.

(Each person identified in response to question B must file a certification, in the form attached, attesting to the truth of the answers and information submitted.)

GENERAL INFORMATION

1. Empt. Tax Id #: _____
2. Name of Firm: _____
3. Street Address: _____
City, St, Zip _____
4. Phone No: _____ Fax No: _____
5. Previous Address (if less than 5 years at current address)
Street Address: _____
City, St, Zip _____
6. Type of Firm: Corporation () Partnership () Limited ()
Sole Proprietorship () General ()
Joint Venture () Names: _____
7. Category of Firm: MBE () Certified by: _____
Date: _____
WBE () Certified by: _____
Date: _____

8. Principals and Owners of firm (Directors, partners, officers, and holder's of more than 5% interest):

	PERSON/FIRM #1	PERSON/FIRM #2	PERSON/FIRM #3	PERSON/FIRM #4
NAME				
DATE OF BIRTH				
SS#				
TITLE				
YEARS WITH FIRM				
% OF OWNERSHIP				

If Contractor is owned by another firm, provide Employer I.D.# for that firm _____

9. Type of business (GC, HVAC, etc.)

10. Under what other current or former names has the firm done business?

NAME	LOCATION	YEARS

11. List of comparable projects completed in last 5 years

Owner and Address	Architect of Record	Date Complete	Contact's Phone Number	Project Cost

(Attach additional pages if necessary)

12. List all current projects.

Owner and Address	Architect of Record	Start Date	% Complete	Contact's Phone Number	Project Cost

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:
- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| a. Been cited for violation of Labor Law 220? | () | () |
| b. Been cited by OSHA or other safety violations? | () | () |
| c. Been defaulted on any contract? | () | () |
| d. Been suspended, disqualified or barred from bidding? | () | () |
| e. Been deemed unsatisfactory or a poor performer by any governmental agency? | () | () |
| f. Had a contract terminated? | () | () |
| g. Been denied an award of a contract for any reason? | () | () |

Explain any "Yes" answer(s) for question a - g below. Attach additional pages if necessary.

14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:

- | | Yes | No |
|--|-----|----|
| a. Been the subject of and investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency? | () | () |
| b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument? | () | () |
| c. Been convicted of any felony under state of federal law and/or for any misdemeanor involving business-related crimes? | () | () |

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Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

15. Within the past ten years, has the firm or any person identified in response to question 8:

- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Intentionally falsified business records? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions? | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Engaged in collusive bidding practices? | <input type="checkbox"/> | <input type="checkbox"/> |

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

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CERTIFICATION BY CONTRACTOR

I certify that, to the best of my knowledge, information and belief, I have supplied full, complete and truthful information and answers to each question in this application. I acknowledge and recognize that this application is being submitted for the purpose of inducing the MMMHS to approve me/my firm as contractor. I further acknowledge that the MMMHS may, by means of its own choosing, determine the truth and accuracy of all statements made.

A MATERIAL FALSE STATEMENTS OR OMISSION MADE IN CONNECTION WITH THIS APPLICATION WILL RESULT IN DISAPPROVAL OF THE APPLICANT, THEREBY PRECLUDING IT FROM PERFORMING WORK AS THE SUBCONTRACTOR. IN ADDITION, SUCH FALSE SUBMISSION MAY SUBJECT THE PERSON AND/OR ENTITY MAKING THE FALSE STATEMENT TO CRIMINAL CHARGES, INCLUDING NEW YORK STATE PENAL LAW SECTION 175.35 (OFFERING A FALSE STATEMENT FOR FILING) AND 210.40 (SWORN FALSE STATEMENT) AND/OR TITLE 18 U.S.C. SECTIONS 1001 (FALSE OR FRAUDULENT STATEMENT AND 1341 (MAIL FRAUD).

Subscribe and sworn to before me
this ___ day of ___, 20__

Signature

Print Name

Notary Public

Title

Date

Phone #

(EACH PERSON IDENTIFIED IN RESPONSE TO QUESTION 8 MUST FILE A CERTIFICATION, ATTESTING TO THE TRUTH OF THE ANSWERS AND INFORMATION SUBMITTED.)

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MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

ADDENDA LIST

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Description: Aircraft Noise Abatement Project

Addenda

Number	Description	Date

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Asbestos Removal - Monsignor McClancy Memorial High School

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

REQUEST FOR SUBCONTRACTOR APPROVAL

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

I hereby request approval of Monsignor McClancy Memorial High School for the following subcontractors:

1.

Name
Tax ID #: _____
Estimated Value of Work: \$ _____

2.

Name
Tax ID #: _____
Estimated Value of Work: \$ _____

3.

Name
Tax ID #: _____
Estimated Value of Work: \$ _____

(Bidders Signature) (Print Name)

(Title) (Phone #) (Date)

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Tax I.D. # _____
Prime Contractor's Name _____
Estimate* \$ _____

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370

SUBCONTRACTOR APPROVAL APPLICATION

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

Instructions

This application shall be completed by all subcontractors selected by prime contractors. It should be completed by an officer of the subcontractor who is knowledgeable about the past and present operations of the applicant. The completed form must be returned to the prime contractor to be submitted for its approval of the subcontractor.

All questions must be answered fully and accurately. If necessary, additional pages should be attached. If changed circumstances require different answers subsequent to the submission of this application, the subcontractor must promptly notify the MMMHS in writing of such changes.

LICENSES:

Trade subcontractors must submit a copy of their licenses for the work they intend to do. No subcontractor will be processed without a copy of the licenses.

(Each person identified in response to question B must file a certification, in the form attached, attesting to the truth of the answers and information submitted.)

*This estimate should be the same as the estimate on the request form.

GENERAL INFORMATION

1. Empt. Tax Id #: _____
2. Name of Firm: _____
3. Street Address: _____
City, St, Zip _____
4. Phone No: _____ Fax No: _____
5. Previous Address (if less than 5 years at current address)
Street Address: _____
City, St, Zip _____
6. Type of Firm: Corporation () Partnership () Limited ()
General ()
Sole Proprietorship ()
Joint Venture () Names: _____

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7. Category of Firm: MBE Certified by: _____
Date: _____
WBE Certified by: _____
Date: _____

8. Principals and Owners of firm (Directors, partners, officers, and holder's of more than 5% interest):

	PERSON/FIRM #1	PERSON/FIRM #2	PERSON/FIRM #3	PERSON/FIRM #4
NAME				
DATE OF BIRTH				
SS#				
TITLE				
YEARS WITH FIRM				
% OF OWNERSHIP				

If Subcontractor is owned by another firm, provide Employer I.D.# for that firm

9. Type of business (GC, HVAC, etc.)

10. Under what other current or former names has the firm done business?

NAME	LOCATION	YEARS

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11. Describe the relationship of the firm to the prime contractor. (E.g. subsidiary, affiliate, etc.):

Specific Information

12. List all current projects.

OWNER	LOCATION	DATE STARTED	% COMPLETED	# EMPLOYEES

(Attach additional pages if necessary)

13. Within the past 5 years, has the firm:	<u>Yes</u>	<u>No</u>
a. Been cited for violation of Labor Law 220?	()	()
b. Been cited by OSHA or other safety violations?	()	()
c. Been defaulted on any contract?	()	()
d. Been suspended, disqualified or barred from bidding?	()	()
e. Been deemed unsatisfactory or a poor performer by any governmental agency?	()	()
f. Had a contract terminated?	()	()
g. Been denied an award of a contract for any reason?	()	()

Explain any "Yes" answer(s) for question a - g below. Attach additional pages if necessary.

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14. Within the past ten years, has the firm, or any person identified in the answer to question 8 above:

- | | Yes | No |
|---|--------------------------|--------------------------|
| a. Been the subject of an investigation of any alleged violation of a criminal law or federal, state or local law or regulation by any governmental agency? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Been arrested, indicted, named as an unindicted co-conspirator, or otherwise mentioned by name in an indictment or other accusatory instrument? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Been convicted of any felony under state or federal law and/or for any misdemeanor involving business-related crimes? | <input type="checkbox"/> | <input type="checkbox"/> |

Explain any "yes" answer(s) for question 14 a-c below. (State name of agency, person or entity involved, nature of investigation and/or charges, dates of arrest and/or indictment, status or disposition, and date of conviction.)

15. Within the past ten years, has the firm or any person identified in response to question 8:

- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Filed with a government office or employee a written instrument which intentionally contained a false statement or false information? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Intentionally falsified business records? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Given, or offered to give, money or any other benefit to a labor official or to a public official with intent to influence him/her with respect to any of his/her official acts, duties or decisions? | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Engaged in collusive bidding practices? | <input type="checkbox"/> | <input type="checkbox"/> |

Explain any "yes" answer(s) for question 15 a-d below. Attach additional pages if necessary.

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NONSEGREGATED FACILITIES

NOTICE TO PROSPECTIVE FEDERALLY-ASSISTED CONSTRUCTION CONTRACTORS:

- a. A certification of Nonsegregated Facilities must be submitted prior to the award of a Federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.
- b. Contractors receiving Federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause will be required to provide for the forwarding of the notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the equal opportunity clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
CERTIFICATION OF NONSEGREGATED FACILITIES**

The Federally-assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not allow his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Federally-assisted construction contractor agrees that a breach of his certification is a violation of the equal opportunity clause in his contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and any other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or any other reason. The Federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause, and that he will retain such certifications in his files.

**NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR CERTIFICATION FOR NON
SEGREGATED FACILITIES**

A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the equal opportunity clause.

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please type)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

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Asbestos Removal - Monsignor McClancy Memorial High School

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
71-06 31ST AVENUE
EAST ELMHURST, NEW YORK 11370**

STATEMENT FOR WORK PERMIT

Asbestos Removal in Connection With the Soundproofing of Monsignor McClancy Memorial High School.

I understand that there are asbestos containing materials at Monsignor McClancy Memorial High School in East Elmhurst, N.Y. where I am about to perform work. I have toured the Facility with the building Administrator and have been shown all areas known to have asbestos containing materials present.

I fully understand and agree that at any time during the course of my work, if I or persons or personnel under my direction discover a material which is known or suspected to contain asbestos which is not in my contract and interferes with the performance of contract work, I will cease all such work immediately and report this condition to the building administrator. At no time will I in any way disturb, damage, attempt to clean up, or repair materials which are known or suspected to contain asbestos.

I further understand that any disturbance of asbestos containing material which I, or persons under my direction, cause could result in contamination of the building and asbestos exposure to building occupants. Any disturbance of asbestos containing materials or asbestos contamination which occurs due to an action taken by myself, or persons under my direction, is fully and solely my responsibility and I will be directly responsible for the cost of repairing the disturbed asbestos containing material and associated building decontamination to the satisfaction of the building owner.

Contracting Firm:

Print or Type Name:

Print or type Title:

Authorized Signature:

Date:

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DBE PARTICIPATION PLAN

Instructions: The Apparent Low Bidder shall submit this Form to the Architect.

Contract No: Contractor: Mailing Address:	Work Description: Contract Amount:			
Name Address and Phone Number of DBE Subcontractor (Including Name of Contact Person)	DBE (Indicate DBE)	Description of Work, Services to be provided. Where applicable specify "supply" or "install" or both "supply and install"	Approximate Dollar Amount of Subcontract	DBE % of Total Contract Amount

Signature: _____ Date: _____
(Bidder)

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Asbestos Removal - Monsignor McClancy Memorial High School
CHAPTER II

ADJUSTMENTS AND PAYMENTS

1. ADJUSTMENTS TO LUMP SUM.

If any Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced, the Architect shall have full authority on behalf of both parties to make such adjustment by way of reduction in the Lump Sum as he may in his sole discretion deem equitable and reasonable, and in making such adjustment, no allowance to the Contractor shall be made for anticipated profits.

The MMMHS Chief Executive Officer shall have authority to agree in writing with the Contractor for adjustments by way of reduction in the Lump Sum in lieu of those for which provision is heretofore made in this numbered clause.

2. COMPENSATION FOR EXTRA WORK.

The MMMHS Chief Executive Officer shall have the authority to agree in writing with the Contractor upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause.

If such agreement on compensation is not made, and Extra Work be performed, the Contractor's compensation shall be increased by the following amounts and such amounts only:

- (a) In the case of Extra Work performed by the Contractor personally, an amount equal to the actual net cost in money of the labor and materials required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work with such overhead and profit as the Architect deems reasonable.
- (b) In the case of Extra Work performed by a subcontractor, an amount equal to the actual net cost in money of the labor and materials required for such net cost plus such rental for equipment (other than small tools) required for such Extra Work as the Architect deems reasonable, plus 5% of the sum of the foregoing cost, percentage of cost, and rental.

As used in this numbered clause (and in this clause only):

"Labor" means foremen, surveyors, laborers, mechanics and other employees below the rank of superintendent, exclusive of timekeepers, directly employed at the construction site, whether employed by the Contractor or by the subcontractors, subject to the Owner's representative's authority to determine what employees of any category are "required for Extra Work and as to the portion of their time allotted to Extra Work: and "cost of labor" means the wages actually paid to and received by such employees plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages. "Employees" as used above means only the employees of one employer.

"Materials" means temporary and consumable materials as well as permanent materials; and "cost of materials" means the price (including taxes actually paid by the contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the construction site in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

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"Work day" in reference to an item of equipment, means a day other than a Saturday, Sunday or legal holiday except that if the particular item of equipment is actually utilized at the construction site by the Contractor or subcontractors under this or any other Contract with the Owner on a Saturday, Sunday or legal holiday said day shall be deemed a work day.

The rental for equipment, whether owned by the Contractor or subcontractors or rented from others and notwithstanding the actual price of any rental or actual costs associated with such equipment, shall be computed by the Architect on the basis of the following, and to all such payments shall be added ten percent (10%) of such rental costs;

- (1) (a) Hourly rental for those items of equipment listed in the "Green Book" (the publication of the Associated Equipment Distributors of 615 West 22nd Street, Oakbrook, Illinois 60523) shall be 100% of the applicable rates as listed in said book, reduced to an hourly basis (see formula below).
- (b) Hourly rental for those items of equipment not listed in the "Green Book" shall be 100% of the applicable rates given in the "Blue Book" (published by Equipment Guide Book Co., 3980 Fabian Way, Palo Alto, California 94303), reduced to an hourly basis (see formula below). The editions of these publications to be used shall be those in effect on the date of the actual rental of the equipment. None of the provisions of the "Green Book" or the "Blue Book" shall be deemed referred to or included in this Contract excepting only the aforesaid rates.
- (c) If no listing of rates for the item of equipment is made in either of the foregoing publications, the Architect shall determine the reasonable rate of rental of the particular item of equipment by such other means as he finds appropriate.
- (2) (a) In instances where the rate appearing in the "Green Book" or the "Blue Book" are utilized, the Architect shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:
 - (b) The rate to be applied for an item of equipment used on a particular Extra Work Order shall be the daily, weekly or monthly rates from the foregoing publications based on the total number of workdays or portions thereof that a particular item of equipment is at the construction site for use by the Contractor or subcontractor. The number of work days in the period for each rate shall be as indicated below:

Three work days or less - daily rate.

More than three work days but not more than fifteen workdays - weekly rate.

More than fifteen work days.

The pro rata portion which one hour bears to the applicable rate shall be determined in accordance with the following formula:

Hourly rate based on daily rental	1/8 (100% x daily rental from "Green Book") or 1/8 (100% x daily rental from "Blue Book") or
Hourly Rate based on weekly rate based	1/40 (100% x weekly rental from "Green Book") or 1/40 (100% x weekly rental from "Blue Book") or
Hourly rate based on monthly rental	1/176 (100% x monthly rental from Green Book) or 1/176 (100% x monthly rental from Blue Book)

- (c) If the Architect should determine that the nature or size of the equipment used by the Contractor in connection with Extra Work is larger or more elaborate, as the case may be, than the size

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or nature of the minimum equipment determined by the Architect to be suitable for the Extra Work, the reasonable rental will not be based upon the equipment used by the Contractor but will be based upon the smallest or least elaborate equipment determined by the Architect to have been suitable for the performance of the Extra Work.

- (3) If the case of the equipment utilized only for Extra Work: (a) in addition to amounts determined as provided in subparagraphs (1) and (2) above, there will be added to the rental as computed above the taxes on the rental actually paid by the Contractor or subcontractor and the reasonable cost of transporting such equipment to and from the construction site, and (b) notwithstanding the number of hours during which such equipment is utilized, the minimum rental therefore will be for a period of eight hours.

In computing the Contractor's compensation insofar as it is based upon Extra Work, and notwithstanding any provision to the contrary appearing in the Green Book and the Blue Book, no consideration shall be given to any items of cost or expense not expressly set forth above, it being expressly agreed that the costs and percentage additions hereinbefore provided to cover items of cost and expense to the Contractor of any type whatsoever, including administration, overhead, taxes (other than those enumerated above), clean-up, consumable including gas and oil, drafting including printing or other reproduction), coordination, field measurements, maintenance, repairs, insurance, profit to the Contractor and small tools.

Whenever any Extra Work is performed (whether by the Contractor directly or through a subcontractor), the Contractor shall, at the end of each day submit to the Monsignor McClancy Memorial High School Representative (a) daily time slips showing the name and social security number of each workman employed on such Work the number of hours which he is employed thereon, the character of his' duties, and the wages to be paid to him, (b) a memorandum showing the State and Federal taxes based on such wages, and vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages (c) a memorandum showing the amount and character of the materials furnished for such Work, from whom they were purchased and the amount to be paid therefor, and (d) a memorandum of equipment used in the performance of such Work, together with the rental claimed therefor. Such memoranda and time slips are for the purpose of enabling the Monsignor McClancy Memorial High School Representative to determine the amounts to be paid by the Owner under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor to furnish them with respect to any Work shall constitute a conclusive and binding determination on his part that such Work is not Extra Work and shall constitute a waiver by the Contractor of claims for payment for such Work. In the event that the Director and the Contractor shall agree in writing upon a lump sum or other compensation for Extra Work in lieu of compensation as provided in the second paragraph of this clause, the daily time slips and memoranda required by this paragraph shall not be required subsequent to the date on which such agreement has been reached.

3. FINAL PAYMENT

After the rendition of the Certificate of Final Completion and upon receipt from the Contractor of such information as may be required, the Architect shall certify in writing to the Owner and to the Contractor the total compensation earned by the Contractor.

If so required, the Contractor shall thereupon (i) certify to the Owner in writing that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by the clause hereunder entitled "Prevailing Rate of Wage" and(ii) furnish to the Owner a detailed sworn statement of all claims, just or unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe thereafter be made on account of the Work.

Within sixty days after issuance of such certificate of total compensation earned (or within sixty days after receipt of the documents required), the Owner shall pay to the Contractor by check the amount stated in said certificate, less all other

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payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments shall be subject to correction in this payment, which is throughout this Contract called the Final Payment.

The acceptance by the Contractor, or by anyone claiming by or through him, of Final Payment shall be and shall operate as a release to the Owner of all claims and of all liability to the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the Owner and others relating to or arising out of the Contract, including claims arising out of breach of contract and claims based on claims of third persons, excepting only his claims for reimbursement for certain sales taxes as hereinbefore provided. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations in connection with this Contract or the Performance or Payment Bond.

The Contractor's agreement as provided in the immediately preceding paragraph above shall be deemed to be based upon the consideration forming part of this Contract as a whole and not to be gratuitous: but in any event even if deemed gratuitous and without consideration, such agreement as provided in the immediately preceding paragraph above shall nevertheless be effective. Such release shall include all claims, whether or not in litigation and even though still under consideration by the Owner or the Architect. Such release shall be effective notwithstanding any purported reservation of right by the Contractor to preserve such claim. The acceptance of any check designated as "Final Payment" or bearing similar designation shall be conclusively presumed to demonstrate the intent of the Contractor that such payment was intended to be accepted as final, with the consequences provided in this numbered clause, notwithstanding any purported reservation of rights.

The Contractor agrees that he shall not be entitled to, and hereby waives any right he might otherwise have to, and shall not seek any judgement whether under this Contract or otherwise for any such Final Payment or for an amount equivalent thereto or based thereon, or for any part thereof, if such judgement would have the effect of varying, setting aside, disregarding or making inapplicable the terms of this numbered clause or have the effect in any way of entitling the Contractor to accept such Final Payment or an amount equivalent thereto or based thereon or any part thereof other than in the same fashion as a voluntary acceptance of a Final Payment subject to all the terms of this Contract including this numbered clause, unless and until the Contractor should obtain a judgement on any claim arising out of or in connection with this Contract (including a claim based on breach of contract) for an amount not included in said Final Payment. In any case in which interest is allowable on the amount of the Final Payment, such interest shall be at the rate of 2% per annum for the period, if any, in which such interest is due.

4. WITHHOLDING OF PAYMENTS.

If (1) the Contractor fails to perform any of his obligations under this contract or any other agreement between the Owner and the Contractor (including his obligation to the Owner to pay any claim lawfully made against him by any materialman, subcontractor or workman or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Owner, or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor is made against the Owner or (3) any subcontractor under this Contract or any other agreement between the Owner and the Contractor fails to pay any claims lawfully made against him by any materialman, subcontractor, workman or other third person which arises out of or in connection with this Contract or any other agreement between the Owner and the Contractor or if in the opinion of the Director any of the aforesaid contingencies is likely to arise, then the Owner shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payment has already been certified as due) such sums as the Director may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Director may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Owner to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Owner does not intend to exercise its right to such contingency. Neither the above provisions for the rights of the Owner to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Owner shall create any obligation of

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any kind to such materialman, subcontractors, workmen or other third persons.

Until actual payment to the Contractor, his right to any amount to be paid under this Contract (even though such amount has already been certified as due) shall be subordinate to the Rights of the Owner under this numbered clause. If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Owner, the Owner shall pay the Contractor interest thereon at the rate of 2% per annum for the period of delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

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CHAPTER III

PROVISIONS RELATING TO TIME

1. TIME FOR COMPLETION.

The Contractor shall complete the performance of all Work under this Contract as follows:

Monsignor McClancy Memorial High School complex - Complete all Work required within 740 calendar days after receipt of the Notice to Proceed.

The Contractor shall not commence the performance of the Work until the later of the following dates:

- (a) If a Performance and Payment Bond is required, the date of receipt by him or notice from the Owner that the Performance and Payment Bond furnished by him is satisfactory;
- (b) The date of receipt by him of notice from the Owner that the insurance procured by him pursuant to the insurance clause is satisfactory, as evidenced by the certificate to be furnished in accordance with said insurance clause.

The time for completion shall not be extended on account of the time required to furnish the documents referred to in subparagraphs (a) and (b) above, but the Owner shall give notice to the Contractor within ten days after receipt of the Performance and Payment Bond or certificate of insurance as to whether or not such bond or insurance is satisfactory.

The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. The Contractor guarantees that he can and will complete the performance of the Work within the time hereinbefore stipulated or within the time as extended in accordance with the clause hereof entitled "Extensions of Time".

2. EXTENSIONS OF TIME.

The time above provided for the completion of any part of the Contract shall be extended (subject, however, to the provisions of this numbered clause) only if in the opinion of the Architect the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

1. Such cause is beyond the Contractor's control and arises without his fault;
2. Such cause comes into existence after the opening of Proposals on this Contract and neither was nor could have been anticipated by investigation before such opening.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated before the opening of such Proposals on this Contract except to the extent that the actual monthly average temperature varies from a temperature and except to the extent that the actual number of days of precipitation (of 0.1 inch or more) per month exceeds a number equal to two plus the normal number of precipitation per month.

In any case, the variations in temperature and precipitation described in the immediately preceding sentence will be cause for an extension of time only if occurring between the actual time of commencement of the Work at the construction site and the time for completion stipulated in the clause hereof entitled "Time for Completion" (or such time as extended as provided for herein). In the case of portions of months the number of days will be pro-rated by the Architect. Temperature and precipitation shall be as recorded by the U.S. Weather Bureau in its publications, including that entitled

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"Local Climatological Data with Comparative Data", which is applicable to the area in which the Work is to be performed, and in the case of precipitation, the normal number of days of precipitation (of 0.1 inch or more) per month as abstracted from the aforementioned publications are as follows:

<u>Month</u>	<u>Normal Number of days per month on which precipitation exceeds 0.1"</u>
January	7
February	7
March	8
April	7
May	6
June	6
July	5
August	7
September	6
October	6
November	7
December	7

In any event, even though a cause of delay meets all the above conditions, an extension shall be granted only to the extent that (i) the performance of the Work is actually and necessarily delayed and (ii) the effect of such cause cannot be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling), whether before or after the occurrence of the cause of delay, and an extension shall not be granted for a cause of delay which would not have affected the performance of the Contract were it not for the fault of the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include subcontractors and materialmen, whether or not in privity of contract with the Contractor, and employees and others performing any part of the Contract and all the foregoing shall be considered as agents of the Contractor.

The period of any extension of time shall be that necessary to make up the time actually lost, subject to the provisions of this numbered clause, and shall be only for the portion of the Contract actually delayed. The Architect may defer all or part of his decision on an extension may be rescinded or shortened if it subsequently is found that delays can be overcome or reduced by the exercise of reasonable precautions, efforts and measures.

As a condition precedent to an extension of time, the Contractor shall give written notice to the Architect within 48 hours after the time when he knows or should know of any cause which might under any circumstances result in delay for which he claims or may claim an extension of time (including those causes which the Owner is responsible for or has knowledge of), specifically stating that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at the time, the nature and expected duration of the delay and its effect on the various portions of the Contract. Since the possible necessity for an extension of time may materially alter the scheduling, plans and other actions of the Owner, and since, with sufficient opportunity, the Owner might if it so elects attempt to mitigate the effect of a delay for which an extension of time might be claimed, and since merely oral notice may cause disputes as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations and failure of the Contractor to give written notice as above required shall be a conclusive waiver of an extension of time. It shall in all cases be presumed that no extension, or further extension, of time is due unless the Contractor shall affirmatively demonstrate to the satisfaction of the Architect that it is. To this end the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, the foregoing presumption shall be deemed conclusive.

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3. DELAYS TO CONTRACTOR.

As between the Contractor and the Owner, the Contractor assumes the risk of all suspensions of, or delays in performance of the Contract, regardless of the length thereof, arising from all causes whatsoever, whether or not relating to this Contract, including wrongful actions or omissions of the Owner, its Chief executive officer, agents, employees and contractors, except only to the extent, if any, that compensation or an extension of time may be due as expressly provided for elsewhere in this Contract for such suspension or delays, and, subject only to such exception, the Contractor shall bear the burden of all costs, expenses and liabilities which he may incur in connection with such suspensions or delays, and all such suspensions, delays, costs, expenses and liabilities of any nature whatsoever, whether or not provided for in this contract, shall conclusively be deemed to have been within the contemplation of the parties.

Notwithstanding any provisions of this Contract, whether relating to time of performance or otherwise, the Owner makes no representation or guaranty as to when the construction site or any part thereof will be available for the performance of the Contract or as to whether conditions at the construction site will be such as to permit the Contract to be performed thereon without interruption or by any particular sequence or method or as to whether the performance of the Contract can be completed by the time required under this Contract or by any other time.

Wherever in connection with this Contract it is required, expressly or otherwise, that the Owner shall perform any act relating to the Contract, including making available or furnishing any real property, materials, or other things, no guaranty is made by the Owner as to the time of such performance and the delay of the Owner in fulfilling such requirement shall not result in liability of any kind on the part of the Owner except only to the extent, if any, that an extension of time or compensation may be due as expressly provided for elsewhere in this Contract.

4. CANCELLATION FOR DELAY.

If in the performance of the Contract or any portion of it shall, in the opinion of the Monsignor McClancy Memorial High School, be materially delayed, whether or not through the fault of the Contractor, by any cause which affects the Contractor's ability to perform the Contract without affecting to the same degree the Owner's own ability to perform it, either directly or through others, the Owner shall have the right at any time during the existence of such delay to cancel this Contract as to any portion not yet performed, without prejudice to the rights, liabilities and obligations of the parties under this Contract arising out of portions already performed, provided, however, that such right of cancellation shall not exist if the delay be due to any wrongful act or omission of the Owner. In the event of such cancellation, no allowance shall be made for anticipated profits.

5. LIQUIDATED DAMAGES.

Liquidated damages in the amount of five hundred dollars (\$500.00) per day shall be assessed against the Contractor for every calendar day exceeding the calendar days allowed in Section 00900 - Milestone Schedule or times as extended in accordance with the clause entitled "Extensions of Time" of the Specification.

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CHAPTER IV

CONDUCT OF CONTRACT

1A. AUTHORITY OF THE MMMHS

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner in which the Owner acting through the Monsignor McClancy Memorial High School chief executive officer, deems best, the MMMHS shall have absolute authority to determine what is or is not necessary or proper for or incidental to the portion thereof specified in the clause hereof entitled "General Agreement" and the Contract Drawings and Specifications shall be deemed merely his present determination on this point. In the exercise of his authority, he shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required of them in their present form, even though of a totally different character from that now required; and to vary, increase and diminish the character, quantity and quality of, or to countermand any Work now or hereafter required. Such variation, increase, diminution or countermanding need not be based on necessity but may be based on convenience.

If at any time it shall be, from the viewpoint of the Owner impractical or undesirable in the judgement of the MMMHS chief executive officer to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Owner, he shall have authority to suspend performance of any part or all of the Contract until such time as he may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Owner, impracticable or undesirable in the judgement of the MMMHS chief executive officer to proceed with or continue the performance of the Contract or any part thereof for reasons beyond the control of the Owner, he shall have authority to cancel this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered. Such cancellation shall be without prejudice to the rights and obligations arising out of portions already performed, but no allowance shall be made for anticipated profits.

1. AUTHORITY OF THE MMMHS REPRESENTATIVE.

To resolve all disputes and to prevent litigation the parties to this Contract authorize John Ciardullo, acting personally, to decide all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and Claims of a type which are barred by the provisions of this Contract) and his decision shall be conclusive, final and binding on the parties. His decision may be based on such assistance as he may find desirable. The effect of his decision shall not be impaired or waived by any negotiations or settlement offers in connection with the question decided, whether or not he participated therein himself, or by any prior decision of others, which prior decisions shall be deemed subject to review, or by any termination or cancellation of this Contract.

All such questions shall be submitted in writing by the Contractor to the MMMHS Representative, acting personally, for his decision, together with all evidence and other pertinent information in regard to such questions, in order that a fair and impartial decision may be made. In any action against the Owner relating to any such questions the Contractor must allege his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information may be introduced or relied upon in such an action that has not been so presented to the MMMHS Representative personally. Neither the requirements of this paragraph nor the time necessary for compliance therewith, however, shall affect the time when the Contractor's cause of action shall be deemed to have accrued for the purposes of any statute controlling actions against the Owner, and the time of such accrual shall be determined without reference to this paragraph.

In performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the MMMHS Representative and shall perform the Contract to the satisfaction of the MMMHS Representative at such times and places, by such methods and in such manner and sequence as he may require, and the Contract shall at all stages be subject to

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his inspection. The MMMHS Representative shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Contract Drawings, Specifications and any orders for Extra Work. The Contractor shall employ no equipment, materials, methods or workers to which the MMMHS Representative objects, and shall remove no materials, equipment, or other facilities from the construction site without permission. Upon request, the MMMHS Representative shall confirm in writing any oral order, direction, requirements or determination.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgement, discretion or determination of the MMMHS Representative shall control or in which the Contractor shall be performed to his satisfaction or subject to his inspection, shall not imply that only the matters of a nature similar to those enumerated shall be so governed and performed.

2. NOTICE REQUIREMENTS.

No claim against the Owner shall be made or asserted in any action or proceeding at law or in equity, and the Contractor shall not be entitled to allowance of such claim, unless the Contractor shall have complied with all requirements relating to the giving of written notice of the information with respect to such claim as provided in this numbered clause. The failure of the Contractor to give such written notice and information as to any claim shall be conclusively deemed to be a waiver by the Contractor of such claim, such written notice and information being conditions precedent to such claim. As used herein "claim" shall include any claim arising out of, under or in connection with, or in any way related to or on account of, this Contract (including claims in the nature of breach of Contract or fraud or misrepresentation before or subsequent to acceptance of the Contractor's Proposal and claims of a type which are barred by the provisions of this Contract) for damages, payment or compensation of any nature or for extension of any time for performance of any part of this Contract.

The requirements as to the giving of written notice and information with respect to claims shall be as follows:

1. In the case of any claims for extra work, extension of time for completion, idle salaried workers and equipment, or any other matter for which requirements are set forth elsewhere in this Contract as to notice and information, such requirements shall apply.
2. In the case of all other types of claim, notice shall have been given to the MMMHS Representative, personally, as soon as practicable, and in any case, within 48 hours, after occurrence of the act, omission, or other circumstance upon which the claim is or will be based, stating as fully as practicable at the time all information relating thereto. Such information shall be supplemented with further information as soon as practicable after it becomes or should become known to the Contractor, including daily records showing all costs which the Contractor may be incurring or all other circumstances which will affect any claim to be made, which records shall be submitted to the MMMHS Representative, personally.

The above requirements for notices and information are for the purpose of enabling the Owner to avoid waste of funds by affording it promptly the opportunity to cancel or revise any order, change its plans, mitigate or remedy the effects of circumstances giving rise to a claim or take such other action as may seem desirable and to verify any claimed expense or circumstances as they occur, and the requirements herein for such notice and information are essential to this Contract and are in addition to any notice required by statute with respect to suits against the Owner.

The above referred to notices and information are required whether or not the Owner is aware of the existence of any circumstances which might constitute a basis for a claim and whether or not the MMMHS Representative has indicated it will consider a claim.

No act, omission, or statement of any kind shall be regarded as a waiver of any of the provisions of this numbered clause or may be relied upon as such waiver except only a written statement signed by the chief executive officer of the MMMHS expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more

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particularly no discussion, negotiations, considerations, correspondence, or requests for information with respect to a claim by any officer, employee or agent of the Owner shall be construed as a waiver of any provision of this numbered clause or as authority or apparent authority to effect such a waiver.

Since merely oral notice or information may cause disputes as to the existence or substance thereof, and since notice, even if written, to other than the Owner's representative above designated to receive it may not be sufficient to come to the attention of the representative of the Owner with the knowledge and responsibility of dealing with the situation only notice and information complying with the express provisions of this numbered clause shall be deemed to fulfill the Contractor's obligation under this Contract.

3. EXTRA WORK ORDERS.

No Extra Work shall be performed except pursuant to written orders of the MMMHS expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, exclusive of Extra Work expressly authorized by the chief executive officer of the MMMHS, the chief executive officer of the MMMHS shall have authority to order any item of Extra Work, if the cost thereof to the Owner together with the cost of all other Extra Work previously ordered and not expressly authorized as aforesaid will not be in the aggregate in excess of the sum specified in the letter of acceptance of the Contractor's Proposal as the limit on such authority to order extra work; provided, however, that Extra Work in excess of such aggregate amount may be ordered by the MMMHS as above provided to the extent expressly authorized in a writing signed by the MMMHS indicating the approval of funds for the Extra Work is available and approved by the MMMHS.

In the absence of such an order signed by the MMMHS, if the MMMHS Representative shall direct, order or require any Work whether orally or in writing, which the Contractor deems to be Extra Work, the Contractor shall nevertheless comply therewith, but shall within 24 hours give written notice thereof to the MMMHS and MMMHS Representative, stating why he deemed it to be Extra Work, and shall moreover furnish to the MMMHS Representative time slips and memoranda as required by the clause hereof entitled "Compensation for Extra Work". Said notice, time slips and memoranda are for the purpose of affording to the MMMHS an opportunity to verify the Contractor's claim at the time and (if he desires so to do) to cancel promptly such order, direction or requirement of the MMMHS Representative, of affording the MMMHS Representative an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Owner an opportunity to take such action as it may deem desirable in light of the Contractor's claims. Accordingly, the failure of the Contractor to serve such notice or to furnish such time slips and memoranda shall be deemed to be a conclusive and binding determination on his part that the direction, order or requirement of the MMMHS Representative does not involve the performance of Extra Work, and shall be deemed to be a waiver by the Contractor of all claims for additional compensation or damages by reason thereof, such written notice, time slips and memoranda being a condition precedent to such claims.

4. PERFORMANCE OF EXTRA WORK.

The provisions of this Form of Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

5. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Owner upon delivery at the construction site or upon being especially adapted for use in or as a part of the permanent construction, whichever may first occur, subject however to the Contractor's assumption of risk under the clause hereof entitled "Risks Assumed by Contractor", subparagraph (a).

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The Contractor shall promptly furnish to the Owner such bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, assuring to it title to such materials, free of encumbrances and shall mark or otherwise identify all such materials as the property of the Owner.

6. ASSIGNMENTS AND SUBCONTRACTS.

Any assignment or other transfer by the Contractor of this Contract or any part hereof or of any of his rights hereunder or of any monies due or to become due hereunder and any delegation of any of his duties hereunder without express consent in writing of the Owner shall be void and of no effect as to the Owner, provided, however, that the Contractor may subcontract portions of the Work to such persons as the MMMHS Representative may, from time to time, expressly approve in writing. For each individual, partnership or corporation proposed by the Contractor as a subcontractor, the Contractor shall submit to the Owner a certification or, if a certification cannot be made, a statement by such a person, partnership or corporation to the same effect as a certification or statement required from the Contractor pursuant to the clauses of the "Information For Bidders" entitled "Certification of No Indictment, Conviction, Suspension, Debarment or Termination" and "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee". All further subcontracting by any subcontractor shall also be subject to such approval of the MMMHS Representative. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without cost to the Owner, of a surety bond guaranteeing payment by the subcontractors of claims of materialmen, subcontractors, workmen and other third persons arising out of the subcontractor's performance of any part of the Work.

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor of any of his obligations; no subcontract, no approval of any subcontractor and no act or omission of the Owner or the MMMHS Representative shall create any rights in favor of such subcontractor and against the Owner; and as between the Owner and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes be deemed to be agents of the Contractor. Moreover, all subcontracts and all approvals of subcontractors shall be and, regardless of their form, shall be deemed to be conditioned upon performance by the subcontractor in accordance with this Contract; and if any subcontractor shall fail to perform the Contract to the satisfaction of the MMMHS Representative, the MMMHS Representative shall have the absolute right to rescind his approval forthwith and to require the performance of the Contract by the Contractor personally or through other approved subcontractors.

7. CLAIMS OF THIRD PERSONS.

The Contractor undertakes to pay all claims lawfully made against him by subcontractor, materialmen and workmen, and all claims lawfully made against him by other third persons arising out of or in connection with or because of the performance of this Contract and to Cause all subcontractors to pay all such claims lawfully made against them.

8. CERTIFICATES OF PARTIAL COMPLETION.

If at any time prior to the rendition of the Certificate of Final Completion, any portion of the permanent construction has been satisfactorily completed, and if in the judgement of the MMMHS Representative such portion of the permanent construction is not necessary for the operations of the Contractor but will be immediately useful to and is needed by the Owner for other purposes, the MMMHS Representative may render to the Owner and to the Contractor a certificate in writing to that effect (herein called a Certificate of Partial Completion), and thereupon or at any time thereafter the Owner may take over and use the portion of the permanent construction described in such Certificate and exclude the Contractor therefrom.

The rendition of a Certificate of Partial Completion shall not be construed to constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates in the event that he has failed to complete the same in accordance with the terms of this Contract. Moreover, the acceptance of a Certificate of Partial Completion

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by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

9. CERTIFICATE OF FINAL COMPLETION.

After the satisfactory completion of all Work whatsoever required and the making of such tests and inspections as may be necessary or desirable, the Architect shall render to the Owner and to the Contractor a certificate in writing (herein called the Certificate of Final Completion) certifying that in his opinion all work under this Contract, including Extra Work, has been completed in accordance with the Contract Drawings and Specifications and the requirements of the Architect, and certifying the date as of which it was so completed.

The rendition of the Certificate of final completion shall not be construed to constitute an extension of the Contractor's time for performance in the event that he has failed to complete the Work in accordance with the terms of this Contract. Moreover, the acceptance of the Certificate of Final Completion by the Owner shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bond.

10. AFFIRMATIVE ACTION PROGRAMS.

The Contractor assures that it will undertake an affirmative action program as required by 14 CRF Part 152, Subpart E, to insure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CRF Part 152, Subpart E. The Contractor assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this Subpart. The Contractor assures that it will require that its covered sub-organizations provide assurances to the Contractor that they will undertake affirmative action programs and that they will require assurances from their sub-organizations, as required by 14 CRF Part 152, Subpart E, to the same effect.

11. PREVAILING RATE OF WAGE.

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or their workmen, laborers and mechanics (who are employed by him or them to work on an hourly or daily basis at any trade or occupation at or about the construction site) at least the prevailing rate of Wage and supplements for others engaged in the same trade or occupation in the minimum Federal Wage Rates.

The provision of this numbered clause are inserted in this Contract for the benefit of such workmen, laborers and mechanics as well as for the benefit of the Owner; and if the Contractor or any subcontractor shall pay or provide any such workmen, laborer or mechanic less than the rates of wages and supplements above described, such workman, laborer or mechanic shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he is entitled under this clause. If such workmen, laborer or mechanic is employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of at least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and supplements) such workman, laborer or mechanic shall have a direct right of action against the Contractor. The Owner shall not be a necessary party to any action brought by the any workman, laborer or mechanic to obtain a money judgement against the Contractor or any subcontractor pursuant to this numbered clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates of wages or providing higher supplements than the minimum hereinbefore prescribed; and nothing herein contained shall be construed to constitute a representation or guarantee that the Contractor or any subcontractor can obtain workmen, laborers and mechanics for the minimum hereinbefore prescribed.

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12. MINIMUM WAGE RATES.

At the direction of the Federal Aviation Administration, the attention of bidders is directed particularly to the Schedule of Minimum Wage Rates attached to the Contract and made a part hereof.

The minimum wage rates as established by the Secretary of Labor are subject to change at any time before the award of the Contract except that if the change is made within 30 days after the bids are opened, or ninety days after the date of the wage decisions, whichever is earlier, the change is not effective. Such a change is necessary in order to comply with a decision of the U.S. Department of Labor.

13. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, the Contractor agrees as follows:

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin, and will take affirmative action to insure that they are afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin. Such action shall be taken with reference, but not be limited to: recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination, rates of pay or other forms of compensation, and selection for training or retraining, including apprenticeship and on-the-job training.
- (b) The Contractor shall send to each labor union or representative of workers with which he has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commission for Human Rights, advising such labor union or representative of the Contractor's agreement under clauses (a) through (h) (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negotiation of the Contract, the Contractor shall request such labor union or representative to furnish him with a written statement that such labor union or representative will not discriminate because of race, creed, sex, color or national origin and that such labor union or representative either will affirmatively cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these non-discrimination clauses or that it consents and agrees that recruitment, employment, and the terms and conditions of employment under this Contract, shall be in accordance with the purposes and provisions of these non-discrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commission on Human Rights of such failure or refusal.
- (c) The Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commission for Human Rights setting forth the substance of the provisions of clauses (a) and (b) and such provisions of the States laws against discrimination as the State Commission for Human Rights shall determine.
- (d) The Contractor shall state, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, sex, color or national origin.
- (e) The Contractor shall comply with the provisions of Sections 291-299 of the Executive law and Civil Rights Law, shall furnish all information and reports deemed necessary by the State Commission for Human Rights under these non-discrimination clauses and such sections of the Executive law, and shall permit access to his books, records and accounts by the State Commission For Human Rights,

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the Attorney General and the Industrial Commissioner for the purposes of investigation to ascertain compliance with these non-discrimination clauses and such sections of the Executive Law and Civil Rights Law.

- (f) This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commission for Human Rights that the Contractor has not complied with these non-discrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State, the Port Authority, or other public authority or agency of the State, as well as the Owner, until he has satisfied the State Commission for Human Rights that he has established and is carrying out a program in conformity with the provisions of these non-discrimination clauses. Such finding shall be made by the State Commission for Human Rights after conciliation efforts by the Commission have failed to achieve compliance with these non-discrimination clauses and after a verified complaint has been filed with the Commission, notice thereof has been given to the Contractor by the Commission and an opportunity has been afforded him to be heard publicly before the State Commissioner of Human Rights or his designed. Such Sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.
- (g) The Contractor shall include the provision of clauses (a) through (f) in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to operations to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such subcontract or purchase order as the Owner may direct including sanctions or remedies for non-compliance. If the Contractor becomes involved in or is threatened with litigation with a subcontractor or vendor as a result of such direction of the Owner, the Contractor shall promptly notify the chief executive officer of the Owner, requesting him to intervene and protect the interests of the Owner.
- (h) The provisions of this numbered clause which refer to the "State Commission for Human Rights", the "Attorney General" and the "Industrial Commissioner" are inserted in this Contract for illustrative purposes only, for the benefit of the Owner, the Contractor shall substitute the applicable State of New York commissions and authorities who shall have a direct right of action against the Contractor to effectuate the intent of this clause.

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CHAPTER V

WARRANTIES MADE AND LIABILITY ASSUMED
BY THE CONTRACTOR

1. CONTRACTOR'S WARRANTIES.

The Contractor represents and warrants:

- (a) That he is financially solvent, that he is licensed by the State of New York, experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and if the Contractor be a corporation, that it is authorized to perform this Contract;
- (b) That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examination, analysis, inspection and investigations was adequate;
- (c) That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform it in strict accordance with such provisions and requirements;
- (d) That no officer, agent, consultant or employee of the Owner is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder;
- (e) That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Owner, its officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith; and

Moreover, the Contractor accepts the conditions at the Construction site as they may eventually be found to exist and warrants and represents that he can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at his own cost and expense, anything in this Contract to the contrary notwithstanding.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Owner as to the feasibility of performance of this Contractor any part thereof. Moreover, the Owner does not warrant or represent either by issuance of the Contract Drawings and Specifications or by any provision of this Contract as to time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

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The Contractor further represents and warrants that he was given ample opportunity and time and by means of this paragraph was requested by the Owner to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Owner consent to enter into this Contract and without such provisions, the Owner would not have entered into this Contract.

2. RISKS ASSUMED BY THE CONTRACTOR.

The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions (whether negligent or not) of the Contractor, the Owner, or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise solely from affirmative acts done by the Owner subsequent to the opening of Proposals on this Contract with actual and wilful intent to cause the loss, damage and injuries described in subparagraphs (a) through (c) below:

- (a) The risk of loss or damage to the permanent construction prior to the rendition of the Certificate of Final Completion (other than loss or damage to the portions of the permanent construction with respect to which Certificates of Partial Completion have been issued), and the Contractor shall forthwith repair, replace and make good any such loss or damage to the permanent construction without cost to the Owner;
- (b) The risk of claims, fines or penalties, just or unjust, made by third persons or assessed by courts or governmental agencies or entities against the Contractor or the Owner on account injuries (including wrongful death), loss, damage or liability of any kind whatsoever arising or alleged to arise out of or in connection with the performance of the Work (whether or not actually caused by or resulting from the performance of the Work) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Owner premises, including claims against the Contractor or the Owner for the payment of workers' compensation, whether such claims, fines or penalties are made or assessed and whether such injuries, damage, loss and liability are sustained at any time both before and after the rendition of the Certificate of Final Completion;
- (c) The risk of loss or damage to any property of the Contractor, and of any claims made against the Contractor or the Owner for loss or damage to any property of subcontractors, materialmen, workmen and others performing the Work, occurring at any time prior to completion of removal of such property from the construction site or Owner premises or the vicinity thereof.

The Contractor shall indemnify the Owner against all claims described in sub-paragraphs (b) and (c) above and for all expense incurred by it in the defense, settlement or satisfaction thereof, including expenses of attorneys, except where indemnity would be precluded by New York State Laws, or any other applicable law. Unless a claim is one which the Contractor is not required to indemnify the Owner against as described in the first sentence of this paragraph, such defense shall be at the Contractor's cost.

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The provisions of this numbered clause shall also be for the benefit of the MMMHS's, officers, agents, employees and consultants of the Owner so that they shall have all the rights that they would have under this numbered clause if they were named at each place above at which the Owner is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Owner may at any time in its sole discretion and without liability on its part cancel the benefit conferred on any of them by this numbered clause, whether or not the occasion for invoking such benefit has already arisen at the time of such cancellation.

Neither the issuance of a Certificate of Completion nor the making of Final Payment shall release the Contractor from his obligations under this numbered clause. Moreover, neither the enumeration in this numbered clause nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which he is responsible shall be deemed (a) to limit the effect of the provisions of this numbered clause or of any other clause of this Contract relating to such risks or claims, (b) to imply that he assumes or is responsible for risks or claims only of the type enumerated in this clause or in any other clause of this Contract, or (c) to limit the risks which he would assume or the claims for which he would be responsible in the absence of such enumerations.

3. NO THIRD PARTY RIGHTS.

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by the use of the words "Benefit" or "direct right of action".

CHAPTER VI

RIGHTS AND REMEDIES

1. RIGHTS AND REMEDIES OF THE OWNER.

The Owner shall have the following rights in the event the chief executive officer shall deem the Contractor guilty of a breach of any term whatsoever of this Contract

- (a) The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through other contractors.
- (b) The right to cancel this Contract as to any or all of the Work yet to be performed.
- (c) The right to specific performance, an injunction or any other appropriate remedy.
- (d) The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Owner indicating that he cannot or will not perform any one or more of his obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that he will be able to perform any one or more of his obligations under this Contract.

Inasmuch as this Contract is made in reliance upon the Contractor's personal qualifications, the Owner shall also have the rights set forth above in the event the Contractor shall become insolvent or bankrupt or if his affairs are placed in the hands of a receiver, trustee or assignee for the benefit of creditors.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Owner shall not be deemed to limit any other rights or remedies which the Owner would have in the absence of such enumeration; and no exercise by the Owner of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

2. RIGHTS AND REMEDIES OF THE CONTRACTOR.

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Owner, the Contractor expressly agrees that no default, act or omission of the Owner shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the MMMHS Representative shall so direct) to suspend or abandon performance.

3. PERFORMANCE OF WORK AS AGENT FOR CONTRACTOR.

In the exercise of its right to take over and complete Work as agent for the Contractor, for which provision is made in the clause hereof entitled "Rights and Remedies of Owner, the Owner shall have the right to take possession of and use or permit the use of any and all plant, materials, equipment and other facilities provided by the Contractor for the purpose of the Work and the Contractor shall not remove any of the same from the site of the Work without express permission. Unless expressly directed to discontinue the performance of all Work, the Contractor shall continue to perform the remainder thereof in such manner as in no way will hinder or interfere with the portions taken over by the Owner.

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In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the MMMHS Representative shall separately state the amount of Work performed by the Owner as agent for the Contractor, shall credit the Owner the cost thereof, and shall credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Owner, or vice versa as the case may be. If such difference is in its favor, the Owner may deduct it from the monies due the Contractor, and if such monies be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall be constitute part of the Final Payment.

The exercise by the Owner of its right to take over the work shall not release the Contractor or his sureties from any of his or their obligations or liabilities under this Contract or the Performance or Payment Bond.

4. NO ESTOPPEL OR WAIVER.

The Owner shall not be precluded or estopped by an acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Architect, or any officer, agent or employee of the Owner, from showing at any time the true amount and character of Work performed, or from showing that any such acceptance, certificate or payment is incorrect or was improperly issued or made; and the Owner shall not be precluded or estopped notwithstanding any such acceptance, certificate or payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with this Contract, and any monies which may be paid to him or for his account in excess of those to which he is lawfully entitled.

Neither the acceptance of the Work or any part thereof, nor any payment therefor, nor any order or certificate issued under this Contract or otherwise issued by the Owner, the Architect, or any officer, agent, or employee of the Owner nor any permission or direction to continue with the performance of the Work, nor any performance by the Owner of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Owner in his performance of such duties or obligations, nor any other thing done or omitted to be done by the MMMHS, its officers, agents, or employees shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Owner may be entitled because of any breach thereof, excepting only a resolution of its Officer's, providing expressly for such waiver. No cancellation rescission or annulment hereof, in whole or as to any part of the Work, because of any breach hereof, shall be deemed a waiver of any damages to which the Owner may be entitled because of such breach. Moreover, no waiver by the Owner of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

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CHAPTER VII

MISCELLANEOUS

1. PROVISIONS OF LAW DEEMED INSERTED.

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion.

2. INVALID CLAUSES.

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

3. NON-LIABILITY OF THE OWNER REPRESENTATIVES.

Neither the MMMHS nor any officer, representative, agent, or employee thereof shall be charged personally by the Contractor with any liability or held liable to him under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach hereof.

4. SERVICE OF NOTICES ON THE CONTRACTOR.

Whenever provision is made in this Contract for the giving of any notice to the Contractor, its deposit in any post office or post office box, enclosed in a postpaid wrapper addressed to the Contractor at his office, or its delivery to his office, shall be sufficient service thereof as of the date of such deposit or delivery. Until further notice to the Owner the Contractor's office will be that stated in his Proposal. Notices may also be served personally upon the Contractor; or if a corporation, upon any officer, director, or managing or general agent; or if a partnership upon any partner.

5. MODIFICATION OF CONTRACT.

No change in or modification, termination or discharge of this Contract, in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the party to be changed therewith or his duly authorized representative, provided, however, that any change in or modification, termination or discharge of this Contract expressly provided for in this Contract shall be effective as so provided.

The authority of any person to order Extra Work or to alter the Contract Drawings and Specifications does not include the power cancel, modify or waive any provision of the Form of Contract.

6. TAX EXEMPTION.

A. The MMMHS is exempt from payment of state, local taxes, and sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies incorporated into completed Work. These taxes are not to be included in bids. This exception does not apply to tools, machinery, equipment or other property leased by or to the Contractor or to supplies and materials which, even though they are consumed, are not incorporated into the completed Work, and the Contractor and Subcontractors shall be responsible for and pay any and all applicable taxes, including sales and compensation use taxes, on said leased tools, machinery equipment or other property and upon all said unincorporated supplies and materials.

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B. The Contractor shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use said certificates or other documentation as required by law, rule or regulation.

7. INSURANCE

A. The insurance required shall be written on a per occurrence basis with a company licensed to do business in the State of New York and otherwise acceptable to the MMMHS for not less than the limits of liability set forth below, and shall include contractual liability endorsements and business interruption insurance. All policies of insurance shall be submitted to the MMMHS, for approval prior to the start of any work.

B. Contractor and its subcontractors for work on this project shall obtain and carry the following insurance:

1. **Workers Compensation:**
Statutory Employer's Liability: \$500,000.
2. **Comprehensive General Liability Insurance:**
including contractual liability endorsement and claims for damages because of bodily injury including personal injury, sickness or disease, or death of any of the Contractor's or Subcontractor's employees or any other person and specifically covering all claims. Bodily and Personal Injury: \$1,000,000 Per Occurrence.
3. **Automobile Insurance:** covering all contractor's and employees vehicles on site and off site on company business in the amount of 1,000,000 per occurrence.
4. **Excess Umbrella Liability Insurance:** covering all of the foregoing in the amount of \$5,000,000.

C. Contractor shall furnish original or duplicate original policies of insurance to the MMMHS and one copy of insurance certificates for each policy required herein to the MMMHS and any additional insured; specifically set forth evidence of all coverage required to the satisfaction of the MMMHS; and furnish to the MMMHS and all additional insured copies of any endorsements that are subsequently issued. The Monsignor McClancy Memorial High School, shall be additional insured as well as the Architect and the PA/FAA by the endorsements of Contractor's public liability, property damage and automobile liability insurance policies.

D. All insurance required hereby shall be written, without the inclusion of any defense costs within the limits of liability, without deductible, and shall name the MMMHS its officers, principals, partners agents, officers and employees, the Architect, Engineers, and any additional person or entity having an interest in the site as an additional insured thereunder. If by the terms of an insurance coverage required hereunder, a mandatory deductible is required, in the event of a paid claim, Contractor shall be responsible for the deductible amount.

E. Contractor shall bear and be liable for all loss or damage which may happen to said Work or materials at any time prior to the to the completion and acceptance by the MMMHS except for loss or damage caused by the negligence of the MMMHS. The responsibility of Contractor for damage to the Work caused by vandalism shall cease on the date of final completion. Contractor shall and will during the progress of the Work protect and secure said Work from damage and injury, and shall and will repair all such damage and injury, if any, and fully complete and deliver said Work and materials to the MMMHS within the time herein provided and according to the terms and provisions of this contract.

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F. Contractor shall ensure that all Subcontractors comply with the insurance provisions provided herein for Contractor. Contractor shall be responsible to determine and enforce extent of insurance required of its Subcontractors.

G. Contractor shall maintain insurance that will include coverage for Builder's Risk as well as all insurance required by law to maintain including but not limited to Automobile Liability, Worker's Compensation and Disability Insurance.

H. Contractor shall by its actions or inactions cause any insurance policies to be canceled or permit them to lapse prior to the issuance of the final Certificate of Completion for the Work at the last Project, and all insurance policies shall include clauses to the effect that

1. the policy shall not be canceled, changed or non-renewed or coverage thereunder reduced until (30) thirty days after the MMMHS and all additional insured have received written notice thereof. Written notice shall be sent by registered mail to Contractor and the MMMHS
2. the act or omission of the named insured or additional insured will not invalidate the policy as to the other additional insured, and
3. such insurance shall be primary and non-contributory.

I. Compliance with the foregoing requirements as to insurance shall not relieve Contractor for liability set forth in other provisions of this contract.

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CHAPTER VIII

SPECIAL PROVISIONS

1. CONSTRUCTION REQUIRED BY THE SPECIFICATIONS.

These Specifications relate generally to furnishing and installing noise suppression materials including but not limited to windows, glazing, insulation, weather stripping, trim, and accessories required or necessary for a complete installation, as well as all the necessary ventilating equipment, pipe, ducts, duct insulation, gypsum board components or accessories indicated for the Noise Abatement Work at Monsignor McClancy Memorial High School in East Elmhurst, New York.

These Specifications require the doing of all things necessary or proper for or incidental to the matter referred to in the immediately preceding paragraph, as shown on the Contract Drawings in their present form. In addition, all things shown on the Contract Drawings even though not expressly mentioned in these Specifications, all things mentioned in these Specifications even though not shown on the Contract Drawings, and all things not specified either on the Contract Drawings, or in the Specifications but involved in the carrying out of their intent and in complete and proper execution of the matter referred to in the immediately preceding paragraph are required by these Specifications; and the Contractor shall perform the same as though they were specifically delineated, described and mentioned.

In case of a conflict between a requirement contained in the Specifications and a requirement of the Contract Drawings, the MMMHS Representative shall be the sole arbiter of the requirements of the Contract which shall control.

Some Sections of the Specifications make cross references to construction specified in other Sections of the Specifications, including cross references intended to avoid duplication by the bidders in quoting prices and to point out some of the necessity for coordination. Such cross references are not intended to be complete or all inclusive, and the Contractor shall ascertain for himself both the nature and extent of all construction which may be related to that under each Section of the Specifications whether or not expressly referred to.

Some Sections of the Specifications contain a general description of the construction under such Sections. Such description is merely a very general one and is not intended to outline the construction required by the Specifications and Contract Drawings. Accordingly, such description shall be construed as in aid of and supplemental to, but in no case limiting, impairing or decreasing, the requirements elsewhere set forth with respect to the construction to be performed.

The Contractor's compensation for all construction whatsoever referred to in the Specifications and Contract Drawings in their present form, even though the need for certain items of such construction may be contingent upon future occurrences or determinations or upon other circumstances, shall be deemed to be included in the Lump Sum contained in the Form of Contract unless the Specifications or Contract Drawings expressly state that compensation in addition to such price shall be payable for such items of construction. The express statement in some cases to the effect that certain construction shall be without additional cost to the MMMHS not impair the application of this paragraph in other cases.

The distribution of various parts of the construction among the Divisions and Sections of the Specifications or among the Contract Drawings is not intended as a representation of the most effective or logical method of organizing, scheduling or subcontracting the construction, and the Contractor shall ascertain for himself how to do so unless expressly prescribed in this Contract.

In all cases the provisions of the second paragraph of this numbered Section shall control.

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2. AVAILABLE PROPERTY.

Subject to the conditions elsewhere herein, those areas to be occupied by the permanent construction will be made available to the Contractor upon the commencement of his first operations at the construction site, together with the areas indicated on Contract Drawings.

The Contractor shall daily clean up the areas made available to him so that they are free at all times of refuse, rubbish, scrap material or debris.

3. OPERATIONS OF OTHERS.

During the time that the Contractor is performing the Contract, other persons will be engaged in other operations on or about the construction site including operations of the MMMHS, as well as vehicular traffic and pedestrians around the perimeter of the school, all of which shall remain uninterrupted.

The Contractor shall so plan and conduct his operations as to work in harmony with others engaged at the construction site and not to delay, endanger or interfere with the operations of others (whether or not specifically mentioned above), all to the best interests of Monsignor McClancy Memorial High School, the MMMHS, and the public and as may be directed by the MMMHS Representative.

4. CONTRACTOR'S MEETINGS.

The Contractor shall conduct job progress and coordination meetings with subcontractors in his field office every two weeks, or frequently as job conditions require or the MMMHS Representative may request. The MMMHS Representative shall be notified and, at his option, may attend these meetings. The Contractor shall prepare and distribute minutes to the MMMHS Representative and the subcontractors within forty-eight (48) hours of the day following the meetings.

The Contractor shall attend separate job progress and coordination meetings with the MMMHS Representative every two weeks, or at times otherwise requested by the MMMHS Representative.

5. DELIVERY OF MATERIALS AND RUBBISH REMOVALS.

Delivery of materials and removal of materials or rubbish from the school building shall be made during the hours of 2:30 p.m. to 5:00 p.m. and only through the locations specified below, except as otherwise permitted by the MMMHS Representative.

6. ORDER OF WORK

Work in storerooms, mechanical spaces, and other such spaces not occupied by students or faculty during the hours of Work specified elsewhere, and not limited to restrictions specified in the Order of Work, shall be accomplished at the earliest possible date consistent with the normal progress of the Work.

The Contractor shall take into consideration the fact that the sessions of the school must be continued as usual during progress of the Work. All construction operations affecting normal school operations shall be coordinated with the MMMHS Representative.

The Contractor is responsible for all damage to the existing buildings and adjacent property due to his operations and shall provide and maintain adequate protection against such damage.

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The premises shall not be used as a work shop to the detriment of the portion thereof.

Desks, tables, benches and other furniture and equipment shall not be used as workbenches; neither shall materials and furniture be piled thereon without proper protection.

Provide decking on floors, steps, platforms, pavements and roofs where subject to damage from heavy traffic.
Protect doors and door jambs when conveying rubbish and materials.

The Contractor is responsible for all injury to persons due to his operations and shall provide and maintain adequate protection against such injury.

Provide guards, rails, barricades, fences, sidewalk sheds, catch platforms, decking, night lighting and other devices as required by B.O.C.A. Building Code and OSHA as further required to provide adequate protection.

Protect sidewalks and curbs around the premises so that they may be safely used by the public at all times.

Provide barricades around Work areas as required to prevent students and other unauthorized persons from entering therein.

Exterior openings in the buildings' envelopes relating to the Work shall not be left unprotected. The Contractor shall construct weatherproof barriers to prevent infiltration of water and illegal entry.

When the moving of furniture, shades, clocks, pictures, maps, plaster casts and other articles or fixtures is made necessary in the performance of the Work the removing, resetting and relocating together with the necessary repairing, shall be carefully done as a part of the Work of this contract. All removed work shall be protected.

There shall be no interruptions to normal building services during the occupancy of the building by students or faculty, unless otherwise permitted by the High School Principal.

7. CONDITIONS AND PRECAUTIONS.

No vehicles of the Contractor, his subcontractors nor his employees will be permitted to park in or on School property, except for construction vehicles which will be permitted to park at the construction site during the times when the Work is being performed.

Material or construction which must be left in place between working periods shall be securely fastened in a manner approved by the MMMHS Representative so as not to be a hazard.

The Contractor shall take all precautions necessary for protection of persons, traffic, and property resulting from concrete or plaster fragments, dust and debris from concrete or plaster removal, abrasive blasting or other operations, and shall erect tarpaulins or other protective enclosures as required and approved by the MMMHS Representative.

The Contractor shall provide sound suppression devices on gasoline and diesel powered construction equipment and on pneumatic tools as required to maintain noise exposures below the limits specified in Section 1926.52 of the Safety and Health Standards of the U.S. Department of Labor, Occupational Safety and Health Administration, as approved by the MMMHS Representative. The Contractor shall maintain the sound suppression devices in good working condition throughout the length of their use and adjustments and repairs shall be made by him as required to maintain the noise level, as approved by the MMMHS Representative.

No requirement of or omission to require any precautions under this Contract shall be deemed to limit or impair any responsibility or obligation assumed by the Contractor under or in connection with this Contract and the Contractor shall at all times maintain adequate protection to safeguard the public and all persons engaged in the Work and shall take such

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8. CONTRACT DRAWINGS.

The Contract Drawings which accompany and form a part of these Specifications bear the general title "The Soundproofing - Monsignor McClancy Memorial High School Complex, East Elmhurst, New York" and are separately numbered and entitled as follows:

MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL DRAWING LIST

March 12, 2004

ASBESTOS REMOVAL

ASBESTOS REMOVAL TITLE SHEET

- ASB-1 BASEMENT FLOOR ABATEMENT PLAN
- ASB-2 FIRST FLOOR ABATEMENT PLAN
- ASB-3 SECOND FLOOR ABATEMENT PLAN
- ASB-4 THIRD FLOOR ABATEMENT PLAN
- ASB-5 ROOF ABATEMENT PLAN

The Contract Drawings do not show all of the details of the Work and are intended only to illustrate the character and extent of the work to be performed. Accordingly, they may be supplemented during the performance of the Work by the MMMHS Representative or by the Contractor subject to the approval of the MMMHS Representative, to the extent necessary to further illustrate the Work.

An indication on the Contract Drawings of the existence, nature or location of any utilities, structures, obstructions, conditions, or materials does not constitute a representation as to the conclusions to be drawn therefrom nor a representation that no others exist in addition to those shown, even in the same location: nor does the absence of any indication on said drawings of the existence, nature or location of any utilities, structures, obstructions, conditions or materials constitute a representation that none exist.

After the Contract has been executed, the Contractor will be furnished six copies of the Specifications and Contract Drawings without charge.

9. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES.

The Contractor shall make all working drawings or shop drawings which may be required in addition to the Contract Drawings or in addition to any other drawings which the MMMHS Representative may issue in supplementing the Contract Drawings. As used in this Contract, the terms "working drawings" and "shop drawings" are used interchangeably.

The specific requirements elsewhere set forth in the Specifications for furnishing working drawings for any particular portion of the Contract shall not limit the obligation of the Contractor to furnish working drawings for any other portion when so required by the MMMHS Representative.

In preparing the working drawings, the Contractor shall adopt a sheet of any reasonable size which best suits his needs, but having adopted such size, all sheets thereafter of a similar nature be of the same size as that adopted. Each drawing shall have a margin on the top, bottom and right hand-side of one-half inch and on the left-hand side of one and one-half inches.

Approval of drawings or catalogue cuts which are inconsistent with the requirements of the Contract Drawings and Specifications shall not be deemed to waive or change such requirements or to relieve the Contractor of his obligations

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to perform such requirements, unless the MMMHS Representative shall expressly and specifically state that he is waiving or changing such requirements, such statements to be effective only if in a writing separate from the approval, identifying the requirements being waived or changed.

The Contractor shall submit a schedule of the dates on which he will furnish such working drawings and catalog cuts in accordance with instructions transmitted with the MMMHS's acceptance of the Proposal. The completed schedule shall be delivered to the MMMHS Representative for his approval within ten days after receipt by the Contractor of the acceptance of the Proposal.

All drawings, data, and other papers of any type whatsoever, whether in the form of writing, figures, or delineations, which are prepared in connection with this Contract and submitted to the MMMHS shall become the property of the MMMHS.

10. SUBSTITUTIONS.

Where a brand name is specified or mentioned herein or called for or mentioned on the Contract Drawings and the phrases "similar and equal to" or "approved equal" are used in connection therewith, substitutions for the brands or makes specifically named may nevertheless be made only in accordance with the Section hereof entitled "Materials and Labor" and Section 01630 of the Contract Specifications.

11. MATERIALS AND LABOR.

Materials and labor (workmanship) shall in every respect be in accordance with the best modern practice and whenever the Contract Drawings, Specifications or directions of the MMMHS Representative admit of a doubt as to what is permissible or fail to note the quality of any construction, the interpretation which calls for the best quality is to be followed. Materials to be installed as part of the permanent construction shall be new materials except as may be otherwise herein specifically required. Materials and workmanship shall be free from defects of any kind.

Wherever on the Contract Drawings or in the Specifications a particular brand or make of material or equipment is shown or specified (and whether or not with the words "or approved equal", "similar and equal to" or words of similar import), any other brand or make which, in the sole opinion of the MMMHS Representative, is equal to that shown or specified may be substituted (except where specifically stated otherwise), but only after being submitted to and expressly approved by the MMMHS Representative. Notwithstanding such approval, however, the Contractor assumes the risk such other brand or make is not equal to that shown or specified and if at any time the substitute shall appear not to be so equal he shall replace the substitute and reimburse the MMMHS for any loss occurring on account of the substitute failing to be so equal. Such submission to the MMMHS Representative shall be made only by including the requested substitution in the list of materials required to be submitted to the MMMHS Representative in accordance with the Section hereof entitled "Inspections and Rejections" within forty five calendar days after the receipt of the acceptance of the Contractor's Proposal. After the approval of said list, no substitutions will be permitted, except that a brand or make named in the Specifications may be submitted for approval in lieu of a brand or make on said list. Any such submission shall not imply or impose on the MMMHS Representative, any obligation whatsoever to discuss, disclose or justify the reasons for his opinion, approval or rejection. Furthermore, the approval of any other brand or make shall not in any way entitle the Contractor to additional compensation therefore, but the MMMHS Representative may make such reduction in the Contractor's compensation as may be equitably warranted because of such approval in lieu of the standard.

The construction called for by the Contract Drawings and Specifications may be adapted for a particular brand or make of material or equipment. Therefore, if any construction not required by the Contract Drawings or Specifications in their present form is necessary or desirable because of the use of another brand or make of material or equipment (even though such other brand or make is approved by the MMMHS Representative or is mentioned in the Contract Drawings or the Specifications and stated to be acceptable), such construction shall be furnished or performed by the Contractor at his expense and subject to the approval of the MMMHS Representative.

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In case of a discrepancy between a description or requirement in the Contract Drawings and Specifications for any material or equipment and a catalogue number or other designation for the same material or equipment (even though stated to be acceptable), the description or requirements shall control.

In various paragraphs of these specifications, references may be made to certain standard or tentative specifications or requirements of various organizations. Unless otherwise stated, these references are to be construed as referring to the specifications and requirements in effect on the date set for opening bids upon the present Contract.

The right to use all patented materials, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction required in connection with this Contract shall be obtained by the Contractor without separate compensation whether the same is patented before, during or after the performance of the Contract.

The Contractor shall indemnify the MMMHS, the architect, Port Authority and FAA against and save it harmless from all loss and expense incurred in the defense, settlement or satisfaction of any claims in the nature of patent infringement arising out of or in connection with the MMMHS use, in accordance with the preceding paragraph of this numbered clause, of such patentable subject matter or patented material, compositions of matter, manufactures, apparatus, appliances, processes of manufacture or types of construction. If requested by the MMMHS and if notified promptly in writing of any such claim, the Contractor shall conduct all negotiations with respect to and defend such claim without expense to the MMMHS.

12. INSPECTIONS AND REJECTIONS.

All work and all construction, processes of manufacture and methods of construction involved in or related to the performance of the Work shall be at all times and places subject to the inspection of the MMMHS Representative, acting personally or through his Inspectors, and the enumeration in these Specifications of particular portions of such Work, construction, processes of manufacture or methods of construction which will or may be inspected by the MMMHS Representative or such Inspectors shall not be deemed to imply that only such Work, construction, processes of manufacture or methods of construction will or may be so inspected. The MMMHS Representative shall be the judge of the quality and suitability of the Work, construction, processes of manufacture or methods of construction for the purposes for which they are used or to be used. Should they fail to meet his approval they shall be forthwith reconstructed, made good, replaced or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall be removed immediately from the site. The fact that the Inspectors have approved the materials and workmanship shall not relieve the Contractor from his obligation to supply other material and workmanship when so ordered by the MMMHS Representative.

The Contractor, at his own expense, shall furnish such facilities and give such assistance for inspection as the MMMHS Representative may direct. In the case of materials required by the Specifications to be inspected in the factory or plant, and in the case of any other items which the MMMHS Representative may designate, the Contractor shall secure for the MMMHS Representative and his Inspectors free access to all parts of such factories or plants and shall furnish to the MMMHS Representative three copies of purchase orders, two copies of mill shipping statements, and four copies of shipping statements. Moreover, in the case of such materials to be factory or plant inspected, the Contractor shall give at least ten days notice to the MMMHS Representative of his intention to commence the manufacture or preparation of such materials.

Other than the materials and equipment specifically required to be inspected at the manufacturer's factory or plant, all materials will be inspected at the construction site and any portions thereof which are rejected by the MMMHS Representative shall be immediately removed from the construction site by the Contractor and shall be replaced with new materials by the Contractor at his own expense.

Should materials or equipment be delivered to the construction site without having been placed on the aforementioned list and approved, it shall be immediately removed from the construction site by the Contractor at his own expense.

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13. MANUFACTURER'S CERTIFICATIONS.

Where materials and equipment are required by these Specifications to conform to certain standard or tentative specifications or requirements of any organizations, including American Society for Testing and Materials, American National Standards Institute, Association Rules for Grading Lumber, Federal Specifications, National Electrical Manufacturers Association, American Association of State Highway and Transportation Officials, American Water Works Association and the International Municipal Signal Association, the Contractor shall furnish to the MMMHS Representative the manufacturer's written certification that each of the materials or equipment conforms to the foregoing standard or tentative specifications. The certification shall be delivered to the MMMHS Representative prior to the installation of the materials to which it refers. Such certifications shall not be binding on or conclusive on the MMMHS and may be rejected at any time by the MMMHS Representative if incorrect, improper or otherwise unsatisfactory in his opinion.

14. NO RELEASE OF CONTRACTOR.

Any provision of this Contract for testing, inspection or approval, and any actual testing, inspection or approval, of any materials, workmanship, plant, equipment, drawings, program, methods of procedure, or of any other thing done or furnished or proposed by the Contractor to be done or furnished in connection with the Contract is for the benefit of the Owner not the Contractor. Any approval of such things shall be construed merely to mean that at that time the MMMHS Representative knows of no good reason for objecting thereto. No such provision for testing or inspection, no omission of testing or inspection, and no approval shall release the Contractor from his full responsibility for the accurate and complete performance of the Contract in accordance with the Contract Drawings and Specifications or from any duty, obligation or liability imposed upon him by the Contract or from responsibility for injuries to persons or damage to property.

15. ERRORS AND DISCREPANCIES.

If, in the performance of the Contract, the Contractor discovers any errors or omissions in the Contract Drawings or Specifications, or in the marks, lines and elevations furnished by the Owner in the construction undertaken and executed by him, he shall immediately notify the MMMHS Representative and the MMMHS Representative shall promptly verify the same.

If with the Knowledge of such error or omission prior to the correction thereof, the Contractor proceeds with any construction affected thereby, he shall do so at his own risk and the construction so done shall not be considered construction done under and in performance of this Contract unless and until approved and accepted.

16. ACCIDENT AND FIRST AID PROVISIONS.

The Contractor shall promptly report in writing to the MMMHS Representative and to the Owner all accidents whatsoever arising out of or in connection with the performance of the Contract, whether on or adjacent to the construction site, which result in death, injuries, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damage is caused, the accident shall be reported immediately by telephone to both the Owner and MMMHS Representative or their respective representatives.

The Contractor shall provide at the construction site such equipment and medical facilities as are necessary to supply first aid service in case of accident, to any who may be injured in the progress of the Contract. He shall have standing arrangements for the removal and hospital treatment of any person who may be injured while engaged in the performance of the Contract.

If any claim is made by a third person against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the fact in writing to the Owner and the MMMHS Representative, giving full details

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of the claim.

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17. SAFETY AND SANITARY PROVISIONS.

In the performance of the Contract, the Contractor shall exercise every precaution to prevent injury to persons or damage to property.

He shall, at his own expense, place such watchmen, design such barricades, fences and railings, give such warnings, display such lights, signals and signs, exercise such precaution against fire, adopt and enforce such rules and regulations, and take such other precautions as may be necessary, desirable or proper, or as may be directed.

The Contractor shall employ only such persons as are physically fit and are free from contagious or communicable diseases.

The Contractor shall provide and maintain all necessary toilet and washroom facilities for the use of his workers and those of his subcontractors. Such facility shall be located as directed by the MMMHS Representative within the Contractor's area as indicated on the Contract Drawings. No other toilet or washroom shall be used. The toilet and washroom facility shall be cleaned and maintained by the Contractor as follows:

1. Clean Daily.
2. Wash when required, at least once every week.
3. Replace burned out light bulbs.
4. Furnish and maintain toilet paper and towels as directed.
5. Should any damage or defacement occur, make repairs and take corrective measures promptly as directed by the MMMHS Representative.

He shall use only machinery and equipment adapted to operate with the least possible noise, and shall so conduct his operations that annoyances to occupants of the school, nearby property and the general public will be reduced to a minimum.

The bringing of intoxicating substances onto the construction site and the use and consumption of intoxicating substances at the construction site are prohibited. It shall be the responsibility of the Contractor to insure that all employees of the Contractor and of all sub-contractors, materialmen and any other persons under contract to or under the control of the Contractor shall comply with the provisions of this paragraph.

The Contractor shall daily clean up all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the construction site shall present a neat, orderly and workmanlike appearance. Before the Certificate of Final Completion of Work will be issued, the Contractor shall remove all surplus materials, falsework, temporary fences and other temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations and shall put the construction site in a neat, orderly condition.

In the event the Contractor encounters at the construction site, material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material, the Contractor shall immediately stop work in the area affected and report the condition in writing to the MMMHS Representative. Work in the affected area shall not thereafter be resumed by the Contractor except upon written order to that effect from the MMMHS Representative.

Within 15 days of the acceptance of his Proposal, the Contractor shall submit to the MMMHS Representative, for his review and approval, the Contractor's Safety Program which shall comply with all applicable Federal, State, Municipal, local and departmental laws and shall include, among other things, the designation by the Contractor of a qualified person to administer such Safety Program.

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18. FIRE PROTECTION.

All reasonable precautions for fire protection shall be exercised during the performance of the Contract. An adequate approved system for promptly extinguishing fires shall be provided at all times. Smoking is not permitted within the school buildings at any time.

Fire alarm signals, equipment and water lines shall be continually inspected, accessible and ready for instant use. The operation of each school's fire alarm telegraph, interior fire alarm system, gongs, bells and telephones shall not be interfered with. When these systems are taken off line, the contractor shall pay for restarting, resetting, and or any other charges resulting from the shut down.

East Elmhurst Fire Department Regulations shall govern the storage and use of flammable materials. Flammable materials and fire producing equipment shall not be left about the premises in locations accessible to students.

Except where the MMMHS Representative permits the storage of flammable materials in approved containers, the Contractor is not permitted to store any petroleum products or any other flammable materials on the construction site. During interruptions of the Work flammable mixtures shall be stored in designated locations only or removed entirely from the site:

Contractors using open flame or spark producing tools or equipment such as heating kettles on roofs, blow torches and welding rods shall provide fire guards to maintain a fire watch over the operation of these items at all times when in use.

19. DAILY PROGRESS, EQUIPMENT AND LABOR REPORTS.

The Contractor shall furnish to the MMMHS Representative at the end of each day, a memorandum showing for that day (a) the construction performed, (b) The equipment used, (c) a statement of any unusual happening that occurred, and (d) the number of workers in each trade classification that were employed. Such memorandum shall not be deemed to be a substitute for the notices, time slips, memoranda or other data required under the clauses of the Form of Contract relating to compensation for Extra Work.

20. LAWS AND ORDINANCES.

The Contractor shall comply with all the provisions of Federal, State, City, local and departmental laws, ordinances, rules, regulations and orders which would affect the Contract and the performance thereof. The Contractor shall apply for and pay for all and any permits required by law or by the preceding sentence.

21. IDENTIFICATION.

No person will be permitted on or about the construction site without a pass, permit, or identification badge as required in the provisions of the Division 1 of these specifications and as approved by the MMMHS Representative. The Contractor shall provide such passes, permits or identification badges for his employees, sub-contractors and material persons whenever necessary. Identification badges shall be worn in a conspicuous and clearly visible position by all employees of the Contractor whenever they are working at the construction site.

22. SIGNS.

No advertisement or sign, other than the name and address of the Contractor, will be permitted on any fences, temporary structures or elsewhere on the construction site and such advertisement will be permitted only upon the condition that it is first approved by the MMMHS Representative. In any event, the advertisement shall not exceed two feet by four feet in overall dimensions.

23. CONTRACTOR'S FIELD OFFICE AND REPRESENTATIVE.

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At a readily accessible point on or near the construction site, the Contractor shall maintain a field office provided with a telephone.

During the performance of any Work at the construction site, the Contractor shall have a representative thereat who shall be authorized by the Contractor to receive and put into effect promptly all orders, directions and instructions from the MMMHS Representative. The Contractor's representative shall be provided, at all times, with a conformed copy of this Contract and a set of the Contract Drawings.

Orders and directions may be given orally by the MMMHS Representative and shall be received and promptly obeyed by the Contractor or his representative or any superintendent, foreman or other employee of the Contractor who may have charge of the particular part of the Work in relation to which the orders or directions are given. A confirmation in writing of such orders or directions will be given by the MMMHS Representative when so requested by the Contractor.

24. SURVEYS.

The Contractor shall furnish to the MMMHS Representative without additional compensation therefor, any and all information and data regarding points, lines, grades, elevations and other survey information established by the Contractor or required by the MMMHS Representative during the performance of the Contract.

25. TEMPORARY STRUCTURES.

The Contractor shall design, furnish and construct all barricades, fences, staging, falsework, scaffolding and other temporary structures required in the performance of the Contract, whether or not of the type enumerated. All such temporary structures shall be of adequate strength for the purposes for which they are constructed and the Contractor shall maintain them in satisfactory condition. Although the designs for such structures are to be prepared by the Contractor, they shall nevertheless be submitted to the MMMHS Representative for his approval before being used. Neither such approval, however, nor any requirements of the MMMHS Representative, the Specifications or the Contract Drawings shall relieve the Contractor of his responsibility for the design, construction and use of the temporary structures or from any obligations and risks imposed on him under this Contract, and any such approval or requirements shall be deemed merely to relate to minimum standards and not to indicate that the temporary structures are adequate or that they meet the Contractor's obligations under this Contract. Where required such structures shall be painted either an approved dark color paint and shall be repainted whenever necessary during the period that the Contract is being performed.

Upon completion of all other Work, under this Contract, the temporary structures shall be removed from the construction site and disposed of by the Contractor.

26. UTILITY SERVICES.

Except for water and electricity usage as described elsewhere in Division 1 the Contractor shall make arrangements for securing at his own expense any other services which may be required for the performance of the Contract.

27. FINAL INSPECTION.

When, in the opinion of the Contractor, the Construction is completed and ready for Final Inspection, he shall so notify the MMMHS Representative in writing and the MMMHS Representative will give said construction (including any portions with respect to which Certificates of Partial Completion have been issued) a minute and thorough inspection. Before any Certificate of Completion will be issued, any defects or omissions noted on this inspection must be corrected by the Contractor.

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28. GUARANTEES.

The Specifications may provide for certain guarantees of portions of the permanent construction. These guarantees are intended for the greater assurance of the Owner and not as a substitute for rights which the Owner might otherwise have. Although such guarantees shall be enforceable as provided, neither any requirement of this Contract with respect to guarantees by the Contractor nor any guarantee given to the Contractor or Owner by any manufacturer shall be deemed to be a limitation upon any rights which the Owner would have, either expressed or implied, in the absence of such guarantees.

All work on this project shall be guaranteed by the Contractor for a period of not less than three years from the date of final completion except for items specifically stated otherwise elsewhere in the Contract Documents

29. PROGRESS SCHEDULE AND ANALYSIS OF BID.

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a progress schedule for the approval of the MMMHS Representative. The progress schedule shall show the dates for the commencement and completion of the different portions of the Contract. After the approval of the Schedule the Contractor shall maintain and periodically update it at intervals determined by the MMMHS Representative. No changes shall be made therein without the written approval of the MMMHS Representative. Approval of any progress schedule shall not limit, affect or impair the Contractor of his obligation to complete the Contract by the time(s) required in the Form of Contract, even though the schedule approved may be inconsistent with such completion, and in accordance with all other provisions of the Contract, nor shall it constitute a representation by the Owner that the Contractor will be able to proceed or complete in accordance with the schedule.

The MMMHS Representative shall have the right at any time when in his judgement the Work is not proceeding in accordance with the approved progress schedule, or at any time it is likely that the Work may not be completed by the time(s) required in the Form of Contract even though the Contractor is proceeding in accordance with the approved progress schedule, to order the Contractor, without additional compensation, to employ additional shifts, to increase the number of workers employed, to use additional plant or equipment, or to take such other steps as may be required to assure the completion of the various operations within the times allotted therefor in the approved schedule or by the aforesaid completion time(s).

Within fifteen calendar days after acceptance of the Proposal, the Contractor shall prepare a detailed analysis of the bid including a trade payment breakdown of all items included in the Work and required time and material costs including overhead and profit for payment purposes. This breakdown shall be submitted to the MMMHS Representative for approval. The Contractor shall revise the breakdown as directed by the MMMHS Representative and accept it as approved for payment purposes only.

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

APPENDIX

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

F.A.A. REQUIREMENTS

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

**49 CFR PART 23 - PARTICIPATION BY MINORITY
BUSINESS ENTERPRISE IN DEPARTMENT OF
TRANSPORTATION PROGRAMS**

January 10, 2005

Asbestos Removal - Monsignor McClancy Memorial High School

PREVAILING WAGE SCHEDULE

FAA REQUIREMENTS

ASBESTOS REMOVAL IN CONNECTION WITH THE
SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY

January 10, 2005

John Ciardullo Associates
221 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer

Disadvantaged Business Enterprises

- (1.) The requirements for the Disadvantaged Business Enterprises (DBE) program are set forth in Department of Transportation Regulation, 49 CFR Parts 23 and 26, "Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule" which is attached as Exhibit B and is incorporated into this contract by reference.
- (2.) The current PA overall goal for DBE participation in federally assisted contracts is 14.3%. This goal is to be met by use of two strategies: 2% through Race-neutral means and 12.3% through Race-conscious means. These goals are in effect until September 30, 2000 and are subject to annual review and adjustment as appropriate. Therefore the MMMHS must contact the PA to obtain the pertinent DBE goals before executing any consultant and/or construction contracts after that date.
- (3.) This regulation applies to all contracts that include any federal funds. Therefore the MMMHS agrees to include these clauses in all contracts for this project and to enforce such clauses. With regard to paragraph (4.)(b.) (below) the MMMHS agrees to pay each contractor within 7 days of receipt of payment from the Port Authority and to pay over retainage as also specified in paragraph (4.) (b.).
- (4.) The MMMHS agrees to include the following clauses (printed in *Italics*) in all contracts and subcontracts:
 - (a.) *The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract and shall carry out the applicable requirements of Department of Transportation Regulation, 49 CFR Parts 23 and 26, "Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule" (49 CFR Part 26) in the award and administration of DOT assisted contracts. This regulation is incorporated into this contract by reference. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as The Port Authority deems appropriate. This provision shall likewise apply to each subcontractor at each tier.*
 - (b.) *The contractor agrees to pay each subcontractor on this project for satisfactory performance of its subcontract no later than seven (7) days from the receipt of each payment received from the MMMHS or within such later period as is provided in the subcontract.. The contractor agrees further to pay over retainage payments to each subcontractor within fourteen (14) days, or within such later period as is provided in the subcontract, after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Port Authority of New York and New Jersey (PAJ).*
 - (c.) *The Department of Transportation Regulation, (49 CFR parts 23 and 26) Participation by Disadvantaged Business Enterprises in Department of Transportation Programs: Final Rule, (CFR 49Part 26) is incorporated into this contract by reference.*
 - (d.) *The current PA overall goal for DBE participation in federally assisted contracts is 14.3%. This goal is to be met by use of two strategies: 2% through Race-*

neutral means and 12.3% through Race-conscious means. Race-neutral means are described in CFR 49 Part 23 & 26, Paragraph 26.51. The Race-conscious goal is a contract goal. These goals are in effect until revised notification and are subject to annual review and adjustment as appropriate. Therefore the pertinent DBE goals must be obtained from the PA before executing any consultant and/or construction contracts.

- (e.) The obligation of the contractor is to make good faith efforts to meet the Race-conscious or contract goal. The contractor can demonstrate that it has done so by meeting the contract goal or documenting good faith efforts. See Exhibit B, CFR 49 Part 26, Paragraph 26.53 and Appendix A of for descriptions and discussions of good faith efforts. The PA is responsible for determining whether a contractor that has not met the contract goals has documented sufficient good faith efforts to be regarded as responsible.*
- (f.) Assistance is available from the PA Office of Business and Job Opportunity (OBJO) to identify DBE firms and to answer any questions related to the preparation and submission of the DBE Participation Plan. In addition, the PA maintains a computerized directory identifying all firms certified as DBEs. The directory lists the firm's name, certification status, address, responsible officer/owner, telephone number and specialty trade. This Directory is revised annually to ensure data accuracy and integrity. Information pertaining to this directory can be obtained through telephone requests to The Port Authority of NY & NJ, Office of Business and Job Opportunity, Newark Legal and Communications Center, One Riverfront Plaza, Newark, NJ 0719 (973) 565-5527. An Internet version of this Directory is currently under development. When completed it will be integrated into the PA web page for easy access.*
- (g.) Contractors are directed to CFR 49 Part 23 & 26, Paragraph 26.55 "How is DBE participation counted toward goals?" Sub-paragraph (e) which states that 100% of the cost of materials or supplies obtained from a DBE manufacturer may be counted toward the DBE goals but only 60% of the cost of materials or supplies purchased from a DBE regular dealer may be counted toward the goals. More detailed information may be found in the regulation.*

A Unified Certification Program for each state will be put into effect by March 4, 2002. This program is described in CFR 49 Part 23 & 26, Paragraph 26.81.

FEDERAL LAW REQUIREMENTS FOR BID SOLICITATIONS

SECTION 100

100-01 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246, AS AMENDED).

A. The following is to be made a part of all solicitations for bids on all federally assisted construction contracts or subcontracts in excess of \$10,000.00.

B. The offeror's or bidder's attention is called to the "Equal Opportunity Clause" (Section 100-04) and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" (Section 100-06) set forth herein.

C. The goals for minority and female participation, expressed in percentage terms FOR THE CONTRACTOR'S WORKFORCE on all construction work in a covered area, are as follows:

Goals for minority participation
(INSERT APPROPRIATE GOAL FROM PAGES 40 to 42)

Goals for female participation
6.9%

1. These goals are applicable to all the contractor's CONSTRUCTION WORKFORCE (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

2. The contractor's compliance with the executive order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor goals shall be a violation of

ATTACHMENT IV-6 (2)

the contract, the executive order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

D. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract, and the geographical area in which the contract is to be performed.

E. As used in this notice and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas, where the contract is to be performed giving the state, county and city, if any).

F. The Department of Labor has eliminated all imposed EEO plans and the Philadelphia Plan as a means of complying with Executive Order 11246. Hometown Plans can still be used; however, signatories are required to submit goals and timetables for the utilization of women to the Director, Office of Federal Contract Compliance Programs, Department of Labor, Washington, D.C.

100-02 CERTIFICATION OF NONSEGREGATED FACILITIES. All bidders will be required to submit with their bids a Certification of Nonsegregated Employee Facilities, including an agreement to get a similar certification from proposed subcontractors. These certifications will be required prior to award of contract.

(SEE CERTIFICATION FORM ON NEXT PAGE)

CONTRACTOR'S CERTIFICATION OF NONSEGREGATED FACILITIES

The federally assisted construction contractor certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit employees to perform services at any location, under its control, where segregated facilities are maintained. The federally assisted construction contractor certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform services at any location, under its control where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the equal opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the equal opportunity clause and that he will retain such certifications in his files.

The information above is true and complete to the best of my knowledge.

Name and Title (Please type)

Date

Signature

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

100-03 REPORTS.

A. Contractors/Subcontractors with 50 or more employees and Contracts over \$50,000.00. All contractors and subcontractors performing on federally assisted projects are required to file annually (on or before March 31) complete and accurate reports on SF 100 (Employee Information Report, EEO-1) to the Joint Reporting Committee. The first report is due within 30 days after award unless such report was filed within the preceding 12-month period.

Standard Form 100 is normally furnished based on a mailing list, but can be obtained from the Joint Reporting Committee, P.O. Box 2236, Norfolk, Virginia 20501.

B. Contractors/Subcontractors with Contracts over \$10,000.00.

As indicated in paragraph E of the EEO Clause, monthly Employment Utilization Reports, CC 257 (previously SF 257) will be submitted to the OFCCP, at the following addresses:

For downstate New York and New Jersey:

Mr. Harold M. Busch
District Director, OFCCP/ESA
U.S. Department of Labor
26 Federal Plaza, Rm. 36-116
New York, N.Y. 10278

For Upstate New York:

Mr. Garland Sweeney
District Director, OFCCP/ESA
U.S. Department of Labor
Jackson Building, Rm. 609
220 Delaware Avenue
Buffalo, N.Y. 14202

100-04 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE: The following is included IN ENTIRETY in all federally funded construction contracts over \$10,000:

During the performance of this contract, the contractor agrees as follows:

A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex or nation origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or

ATTACHMENT IV-6 (5)

termination, rates of pay or other compensation; and selection for training, including apprenticeship. The contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices (Attached as 100-05) setting forth the provisions of this nondiscrimination clause.

B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

C. The contractor will send, to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice (Attached as 100-05) advising the said labor union or workers' representatives of the contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The contractor will comply with all provisions of Executive Order 11246, as amended, of September 24, 1965, and the rules, regulations, and relevant orders of the Secretary of Labor.

E. The contractor will furnish all information and reports required by Executive Order 11246, as amended, of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Comptroller General of the United States, Department of Transportation, FAA and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246, as amended, September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provide by law.

G. The contractor will include the portion of the sentence immediately preceding paragraph A and the provisions of

ATTACHMENT IV-6 (6)

paragraphs A through C in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246, as amended, September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the FAA may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the FAA, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

H. Contractors and subcontractors may satisfy the requirements of Paragraph B of the referenced EEO clause by complying with any of the following:

1. Stating in the Invitations for Bids that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin, or
2. Including appropriate insignia in display or other advertising as prescribed by the Department of Labor, or
3. Using a single advertisement grouped with other advertisements under a caption which clearly states that all employers in the group assure all qualified applicants will have equal consideration for employment without regard to race, color, religion, sex, or national origin, or
4. Using the phrase "an equal opportunity employer" in a single advertisement in clearly distinguishable type.

SECTION 100-05 NOTICES TO BE POSTED
PER PARAGRAPHS A AND C OF THE EEO CLAUSE.

EQUAL EMPLOYMENT OPPORTUNITY IS THE LAW - DISCRIMINATION IS
PROHIBITED BY THE CIVIL RIGHTS ACT OF 1964 AND BY EXECUTIVE
ORDER NO. 11246

Title VI of the Civil Rights Act of 1964 - Administered by:

THE EQUAL EMPLOYMENT OPPORTUNITY COMMISSION

Prohibits discrimination because of Race, Color, Religion,
Sex, or National Origin by Employers with 75 or more
employees, by Labor Organizations with a hiring hall of 75
or more members, by Employment Agencies, and by Joint Labor-
Management Committees for Apprenticeship or Training. After
July 1, 1967, employees and labor organizations with 50 or
more employees or members will be covered; after July 1,
1968, those with 25 or more will be covered.

ANY PERSON

Who believes he or she has been discriminated against

SHOULD CONTACT

THE EQUAL EMPLOYMENT OPPORTUNITY COMMISSION
1800 G Street NW. Washington, D.C. 20506

Executive Order No. 11246 - Administered by:

THE OFFICE OF FEDERAL CONTRACT COMPLIANCE

Prohibits discrimination because of Race, Color, Religion,
Sex or National Origin, and requires affirmative action to
ensure equality of opportunity in all aspects of employment.

By all Federal Government Contractors and Subcontractors,
and by Contractors Performing Work Under a Federally
Assisted Construction Contract, regardless of the number of
employees in either case.

ANY PERSON

Who believes he or she has been discriminated against

SHOULD CONTACT

THE OFFICE OF FEDERAL CONTRACT COMPLIANCE
U.S. Department of Labor, Washington, D.C. 20210

100-06 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246,
AS AMENDED)

The following specifications are made a part of all federally assisted construction contracts or subcontracts over \$10,000.00 AND included in all invitations for bids:

A. As used in these specifications:

1. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
2. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
3. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
4. "Minority" includes:
 - (a) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (b) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);
 - (c) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast, Asia, and the Indian subcontinent, or the Pacific Islands); and
 - (d) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

B. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the notice which contains the applicable goals for minority and female participation and which is set

forth in the solicitations from which this contract resulted.

C. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the plan area (including goals and timetables) shall be in accordance with that plan for those trades which have unions participating in the plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan goals and timetables.

D. The contractor shall implement the specific affirmative action standards provided in paragraphs G.1 to G.16 of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply to the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any OFCCP office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

E. Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, as amended, or the regulations promulgated pursuant thereto.

F. In order for the nonworking training hours of apprenticeship and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the

contractor during the training period and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

G. The contractor shall take specific affirmative actions to ensure EEO. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain in a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

4. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or

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woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under G.2 above.

6. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractors and subcontractors with whom the contractor does or anticipates doing business.

9. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and

training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and test to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

11. Validate all test and other selection requirements where there is an obligation to do so under 41 CFR PART 60-3.

12. Conduct, at least annually, an inventory and evaluation, at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

H. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their

affirmative action obligations (G.1 to G.16). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under G.1 to G.16 of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

I. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide EEO and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the contractor may be in violation of the executive order if a particular group is employed in a substantially disparate number (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the executive order if a specific minority group of women is underutilized).

J. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

K. The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246, as amended.

L. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and in its implementing regulations, by the OFCCP. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

M. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative

action steps, at least as extensive as those standards prescribed in paragraph G of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the executive order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

N. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

O. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

100-07 TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 NONDISCRIMINATION IN FEDERALLY ASSISTED PROGRAMS OF THE DEPARTMENT OF TRANSPORTATION. During the performance of this contract, the contractor, for itself, its assigns and successors in interest (hereinafter referred to as the contractor) agrees as follows:

A. Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, DOT) Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereafter, Regulations), which are herein incorporated by reference and made a part of this contract.

B. Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors,

including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

D. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the sponsor or the FAA as appropriate, and shall set forth what efforts it has made to obtain the information.

E. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

1. Withholding of payments to the contractor under the contract until the contractor complies, and/or
2. Cancellation, termination, or suspension of the contract, in whole or in part.

F. Incorporation of Provisions. The contractor shall include the provisions of paragraphs A and E in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for

noncompliance. Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

G. Breach of Contract Terms - Sanctions. Any violation or breach of the terms of this contract on the part of the contractor/ subcontractor may result in the suspension or termination of this contract or such other action which may be necessary to enforce the rights of the parties of this agreement.

100-08 STANDARD REQUIREMENTS FOR AIRPORT IMPROVEMENT PROGRAM CONTRACTS. The following is included in all federally assisted construction contracts:

A. AIP Project. The work in this contract is included in AIP Grant Nos. _____ which is being undertaken and accomplished by (Sponsor's Name) in accordance with the terms and conditions of a grant agreement between the (Sponsor's Name), hereinafter referred to as the Sponsor, and the United States, under the Airport and Airway Improvement Act of 1982 (AAIA) (P.L. 97-248, 49 U.S.C. 2201 et seq) and Part 152 of the Federal Aviation Regulations (FAR) (14 CFR Part 152), or its successor regulation, pursuant to which the United States has agreed to pay a certain percentage of that Act. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or to any rights granted to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

B. Consent to Assignment. The contractor shall obtain the prior written consent of the sponsor to any proposed assignment of any interest in or part of this contract.

C. Veteran's Preference. In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to veterans of the Viet Nam era and disabled veterans. However, this preference may be given only where the individuals are available and qualified to perform the work to which the employment relates.

D. FAA Inspection and Review. The contractor shall allow any authorized representative of the FAA to inspect

and review any work or materials used in the performance of this contract.

E. Inspection Records. The contractor shall maintain an acceptable cost accounting system. The sponsor, the FAA, and the Comptroller General of the United States shall have access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts, and transcriptions. The contractor shall maintain all required records for three years after the sponsor makes final payment and all other pending matters are closed.

F. Rights to Inventions - Materials. All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the recipient of the Federal grant under which this contract is executed.

G. Disadvantaged Business Enterprises. It is the policy of the Department of Transportation that disadvantaged business enterprises shall have the maximum opportunity to participate in the performance of this contract.

1. The contractor agrees to ensure that disadvantaged business enterprises have the maximum opportunity to participate in the performance of subcontracts. In this regard the contractor shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that disadvantaged business enterprises have the maximum opportunity to compete for and perform subcontracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this contract.

100-09 CLEAN AIR AND WATER POLLUTION CONTROL REQUIREMENTS.

Contractors and subcontractors must agree for any contract or subcontract exceeding \$100,000.00:

A. That any facility to be used in the performance of the contract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

B. That it will comply with all the requirements of Section 306 of the Clean Air Act, Section 508 of the Clean Water Act, Executive Order 11738, Environmental Protection Agency Regulation (40 CFR Part 15) and all regulations issued thereunder;

C. That it will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be utilized for performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities; and

D. That it will include or cause to be included in any contract or subcontract which exceeds \$100,000.00 the aforementioned criteria and requirements.

100-10 BONDING/INSURANCE. The following clauses are included in all federally assisted construction contracts for bids and/or contracts in excess of \$100,000.00:

A. The contractor agrees to furnish a performance bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to secure fulfillment of all contractor's obligations under such contract.

B. The contractor agrees to furnish a payment bond for 100 percent of the contract price. This bond is one that is executed in connection with a contract to assure payment as required by law of all persons supplying labor and materials in the execution of the work provided for in the contract.

100-11 DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS.

Disadvantaged Business Enterprises (DBE) requirements are applicable to each general aviation airport sponsor receiving grant funds in excess of \$250,000; each non-hub airport sponsor (including commuters) receiving grant funds in excess of \$400,000; each large, medium, small hub airport sponsor receiving a grant in excess of \$500,000.

Since the contract to be awarded under this advertised bid falls into the above category, the bid is subject to the following DBE requirements:

A. The successful bidder shall make a good faith effort to use DBE subcontractors and to replace a DBE subcontractor that is unable to perform successfully with another DBE subcontractor. There shall be no substitution of any subcontractors without the prior approval of the sponsor in order to ensure that the substitute firm is an eligible DBE.

B. Definitions

1. A disadvantaged business enterprise is a small business concern:

(a) Which is at least 51% owned by one or more

socially or economically disadvantaged individuals, or, in the case of any publicly owned business, at least 51% of the stock of which is owned by one or more socially and economically disadvantaged individuals; and

(b) Whose management and daily business operations are controlled by one or more socially and economically disadvantaged individuals who own it.

2. Small business concern means a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto except that a small business concern shall not include any concern or group of concerns controlled by the same socially and economically disadvantaged individual or individuals which has annual average gross receipts in excess of \$14 million over the previous three fiscal years.

3. Socially and economically disadvantaged individuals means those individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are Women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, or Asian-Indian Americans and any other minorities or individuals found to be disadvantaged by the Small Business Administration pursuant to Section 8(a) of the Small Business Act. Recipients shall make a rebuttable presumption that individuals in the following groups are socially and economically disadvantaged. Recipients also may determine, on a case-by-case basis, that individuals who are not a member of one of the following groups are socially and economically disadvantaged:

(a) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

(b) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(c) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

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- (d) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust Territories of the Pacific, and the Northern Marianas; and
- (e) "Asian-Indian Americans," which includes persons whose origins are from India, Pakistan, and Bangladesh.

C. Bidding Requirements. Each Bidder is required to submit DBE participation information and, as a condition of contract award, must meet the DBE goal or demonstrate to the Airport Sponsor that it made good faith efforts to reach the goal.

The bidder shall make good faith efforts, as defined in Appendix A of 49 CFR Part 23, Regulations of the Office of the Secretary of Transportation, to subcontract _____ (%) of the dollar value of the prime contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE). In the event that the bidder for this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met. Individuals who are rebuttably presumed to be socially and economically disadvantaged include Women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. Each Bidder will be required to submit within the bid information concerning the DBE's that will participate in this contract. The information will include: (1) the name and address of each DBE; (2) a description of the work to be performed by each named firm; (3) the dollar value of the contract; and (4) a copy of the DBE Certificate. If the bidder fails to achieve the contract goal stated herein, it shall provide documentation with the bid demonstrating that it made good faith efforts in attempting to do so. A bid that fails to meet these requirements will be considered non-responsive.

D. Procedures to Confirm Good Faith Efforts. If the apparent low bidder, who is otherwise responsive and responsible, cannot meet the goal, he must show that he has made good faith efforts to this end through:

1. Attendance at the pre-bid meeting;
2. Copies of advertisement(s) in trade association newsletters and minority-owned media;
3. A report with a detailed statement of efforts made to locate and negotiate with DBE's, including

information on:

- (a) Efforts made to select portions of the work proposed to be performed by DBE's in order to increase the likelihood of achieving the stated goal;
- (b) Each DBE contacted, but which the bidder considers to be unqualified to perform the work;
- (c) Each DBE contacted, but which the bidder considers to be unavailable; and
- (d) Which organizations that represent or provide assistance to subcontractors were contacted.

The stated percentage goal may be waived if the aforementioned good faith efforts to reach the goal have been made. However, a bidder or proposer's failure to meet the goal or to show meaningful good faith efforts to reach the goal may be grounds for finding the bid non-responsive.

E. To insure that any substitute firm is an eligible DBE, the Contractor shall not substitute subcontractors without the prior approval of the Owner.

F. The Contractor shall establish and maintain records and submit reports, as required and requested, which will identify the efforts and achievements made to meet DBE subcontract goals and other DBE affirmative action efforts.

100-12 FOREIGN TRADE RESTRICTIONS.

This clause is included in all solicitations, contracts, and subcontracts resulting from projects funded under the AIP.

The contractor or subcontractor, by submission of a bid and/or execution of a contract, certifies that it:

- a. Is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
- b. Has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.

c. Has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

100-13 SECRETARY OF LABOR REQUIREMENTS.

A(1) Minimum Wages

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in subparagraphs 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employers payroll records accurately set forth the time spent in each classification in which the work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

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(1) Except with respect to helpers as defined in 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(ii)(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(ii)(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer within the 30-day period that additional time is necessary.

(ii)(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(B) or (C) of this paragraph shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the

contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

A(2) Withholding. The Federal Aviation Administration shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers employed by the contractor or any subcontractor for the full amount of wages required by the contracts. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

A(3) Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor

has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(CB) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the (Sponsor's Name). The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph 5.5(a)(3)(i) of Regulations, 29 CFR Part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(ii)(B) Each payroll submitted shall be accompanied by a "Statement of Compliance" signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under subparagraph 5.5(2)(3)(i) of Regulations, 29 CFR Part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period had been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not

less than the applicable wage rates and fringe benefits or case equivalents for the classification of work performed, as specified in the applicable wage determination.

(ii)(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance required by paragraph (a)(3)(ii)(B) of this section.

(ii)(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal Aviation Administration may, after written notice to the contractor, sponsor, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

A(4) Apprentices, Trainees and Helpers.

(i) Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the

registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Bureau of Apprenticeship and Training or a State Apprenticeship Agency recognized by the Bureau, withdraws approval, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees, except as provided in 29 CFR 5:16, will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be

paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(iv) Helpers. Helpers will be permitted to work on a project if the helper classification is specified on an applicable wage determination or is approved pursuant to the conformance procedure set forth in subparagraph 5.5(a)(1)(ii). The allowable ratio of helpers to journeymen employed by the contractor or subcontractor on the job site shall not be greater than two helpers for every three journeymen (in other words, not more than 40 percent of the total number of journeymen and helpers in each contractor's or in each subcontractor's own work force employed on the job site). Any worker listed on a payroll at a helper wage rate, who is not a helper as defined in 29 CFR 2.5(n)(4), shall be paid not less than the applicable wage rate on the wage determination for classification of work actually performed. In addition, any helper performing work on the job site in excess of the ratio permitted shall be paid not less than the applicable journeyman's (or laborer's, where appropriate) wage rate on the wage determination for the work actually performed.

A(5) Compliance with Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

A(6) Subcontracts. The contractor or subcontractor shall

insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

A(7) Contract Termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

A(8) Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and related acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

A(9) Disputes Concerning Labor Standards: Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

A(10) Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(A)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

See Certification Form Next Page

CONTRACTOR'S CERTIFICATION OF ELIGIBILITY

The bidder certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this bid that it will include this clause without modification in all lower tier transactions, solicitations, bids, proposals, contracts, and subcontracts. Where the bidder/offer/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

That, the information above is true and complete to the best of my knowledge.

Name and Title (please print)

Signature

Date

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

B(1) Contract Work Hours and Safety Standards Act.

(i) Overtime Requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(ii) Violation; Liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (i) of this clause, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (i) of this paragraph, in the sum of \$10 for each calendar day for which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of overtime wages required by the clause set forth in subparagraph (i) of this clause.

(iii) Withholding for unpaid wages and liquidated damages. The (Sponsor's Name) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (ii) of this paragraph.

(iv) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (i) through (iv) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier contracts. The prime contractor shall be responsible for compliance by any subcontractor or lower

tier subcontractor with the clauses set forth in subparagraphs (i) through (iv) of this paragraph.

B(2) Contracts subject only to Contract Work Hours and Safety Standards Act.

(i) The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

(ii) The records to be maintained under paragraph (i) above shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the Department of Transportation, Federal Aviation Administration and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

100-14 BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS (JAN 1991).

A. The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) steel produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs B.1 or B.2 shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

B. The successful bidder will be required to assure that only domestic steel manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, except those:

1. That the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;

2. That the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

3. That inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

C. The Contractor shall deliver only domestic steel and manufactured products under this contract as defined below:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) those produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the costs for production of the components, exclusive of final assembly labor costs.

D. The Contractor agrees that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, as defined below:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1)

those produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of components. This means the costs of production of the components, exclusive of final assembly labor costs.

E. List of Supplies/Materials that the U.S. Government Has Determined Are Not Produced In the United States In Sufficient and Reasonably Available Quantities And of Sufficient Quality (Jan. 1991)

Acetylene, black.	Diamonds, industrial, stones and abrasives.
Agar, bulk.	Emetine, bulk.
Anise.	Ergot, crude.
Antimony, as metal or oxide.	Erthrityl tetranitrate.
Asbestos, amosite, chrysolite, and crocidolite.	Fair linen, altar.
Bananas.	Fibers of the following types: abaca, abace, agave, coir, flax, jute, jute burlaps, palmyra and sisal.
Bauxite.	Goat and kidskins.
Beef, corned, canned.	Graphic, natural, crystalline, crucible grade.
Beef extract.	Handsewing needles.
Bephenium Hydroxynapthoate.	Hemp yarn.
Bismuth.	Hog bristles for brushes.
Books, trade, text, technical, or scientific; newspapers, pamphlets; magazines; periodicals; printed briefs and films; not printed in the United States and for which domestic editions are not available.	Hyoscine, bulk.
Brazil nuts, unroasted.	Ipecac, root.
Cadmium, ores and flue dust.	Iodine, crude.
Calcium Cyanamide.	Kaurigum.
Capers.	Lac.
Cashew nuts.	Leather, sheepskin, hair type.
Castor beans and castor oil.	Lavender oil.
	Manganese.
	Menthol, natural bulk.
	Mica.

ATTACHMENT IV-6 (36)

Chalk, English
 Chestnuts.
 Chicle.
 Chrome ore or chromite.
 Cinchona bark.
 Cobalt, in cathodes,
 rondelles, or other primary
 ore and metal forms.
 Cocoa beans.
 Coconut and coconut meat,
 unsweetened, in shredded
 desiccated or similarly
 prepared form.
 Coffee, raw or green bean.
 Colchicine alkaloid, raw.
 Copra.
 Cork, wood or bark and waste.
 Cover glass, microscope
 slide.
 Cryolite, natural.
 Dammar gum.

Olives (green), pitted or
 unpitted, or stuffed, in
 bulk.
 Opium, crude.
 Oranges, mandarin; canned
 Petroleum, crude oil,
 unfinished oils, and finished
 products (see definitions
 below)
 Pine needle oil.
 Platinum and related group
 metals, refined, as sponge,
 powder, ingots, or cast
 bars.
 Pyrethrum flowers.
 Quartz crystals.
 Quebracho.
 Quinidine.
 Quinine.
 Rabbit fur felt.
 Radium salts, source and
 special nuclear materials.
 Rosettes.
 Rubber, crude and latex.
 Rutile.
 Santonin, crude.
 Secretin.
 Shellac.
 Silk, raw and unmanufactured.

Microprocessor chips (brought
 onto a construction site as
 separate units for
 incorporation into building
 systems during construction
 or repair and alteration of
 real property.)
 Nickel, primary, in ingots,
 pigs, shots, cathodes, or
 similar forms; nickel oxide
 and nickel salts.
 Nitroguanidine (also known as
 picrite).
 Nux vomica crude.
 Oiticica o l.
 Olive oil.

Tungsten.
 Vanilla beans.
 Venom, cobra.
 Wax, canauba.
 Woods; logs, veneer, and
 lumber of the following
 species: Alaskan yellow
 cedar, angelique, balsa,
 ekki, greenhart, lignum
 vitae, mahogany, and teak.
 Yarn, 50 Denier rayon.

Spare and replacement parts for equipment of foreign manufacture, and for which domestic parts are not available.

Spices and herbs, in bulk.

Sugars, raw.

Swords and scabbards.

Talc, block, steatite.

Tantalum.

Tapioca flour and cassava.

Tartar, crude; tartaric acid and cream of tartar in bulk.

Tea in bulk.

Thread, metallic (gold).

Thyme oil.

Tin in bars, blocks, and pigs.

Triprolidine hydrochloride.

Petroleum terms are used as follows:

"Crude oil" means crude petroleum, as it is produced at the wellhead, and liquids (under atmospheric conditions) that have been recovered from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir and that are not natural gas products.

"Finished products" means any one or more of the following petroleum oils, or a mixture or combination of these oils, to be used without further processing except blending by mechanical means:

(A) "Asphalt" - a solid or semi-solid cementitious material that (1) gradually liquefies when heated, (2) has bitumens as its predominating constituents, and (3) is obtained in refining crude oil.

(B) "Fuel oil" - a liquid or liquefiable petroleum product burned for lighting or for the generation of heat or power and derived directly or indirectly from crude oil, such as kerosene, range oil, distillate fuel oils, gas oil, diesel fuel, topped crude oil, or residues.

(C) "Gasoline" - a refined petroleum distillate that, by its consumption, is suitable for use as a carburant in internal combustion engines.

(D) "Jet fuel" - a refined petroleum distillate used to fuel jet propulsion engines.

(E) "Liquefied gases" - hydrocarbon gases recovered from natural gas or produced from petroleum refining and kept under pressure to maintain a liquid state at ambient temperatures.

(F) "Lubricating oil" - a refined petroleum distillate or specially treated petroleum residue used to lessen friction between surfaces.

(G) "Naphtha" - a refined petroleum distillate falling within a distillation range overlapping the higher gasoline and the lower kerosenes.

(H) "Natural gas products" - liquids (under atmospheric conditions) including natural gasoline, that -

(1) are recovered by a process of absorption, adsorption, compression, refrigeration, cycling, or a combination of these processes, from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir, and

(2) when recovered and without processing in a refinery, definitions of products contained in subdivision (B), (C), and (G) above.

(I) "Residual fuel oil" - a topped crude oil or viscous residuum that, as obtained in refining or after blending with other fuel oil, meets or is the equivalent of MILSPEC Mil-F-859 for Navy Special Fuel Oil and any more viscous fuel oil, such as No. 5 or Bunker C.

"Unfinished Oils" means one or more of the petroleum oils listed under "Finished products" above, or a mixture or combination of these oils, that are to be further processed other than by blending by mechanical means.

BUY AMERICAN CERTIFICATE (JAN 1991)

By submitting a bid under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid, the offeror certifies that steel and each manufactured product, is produced in the United States (as defined in the clause Buy American - Steel and Manufactured Products or Buy American - Steel and Manufactured Products for Construction Contracts) and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Lists of articles, materials, and supplies excepted from this provision are included in Section 100-14 E.

PRODUCT

COUNTRY OF ORIGIN

STATE OF NEW YORK

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
5380	Nassau - Suffolk Nassau Co. Suffolk Co.	5.0
5600	New York, NY - NJ Bronx Co. Kings Co. New York Co. Putnam Co. Queens Co. Richmond Co. Rockland Co. Westchester Co.	22.6
6460	Poughkeepsie Dutchess Co.	6.4
0160	Albany - Schenectady - Troy Albany Co. Schenectady Co. Troy Co. Montgomery Co. Rensselaer Co. Saratoga Co.	3.2
8160	Syracuse - Utica Madison Co. Onondagua Co. Oswego Co.	3.8
8680	Utica - Rome Herkimer Co. Oneida Co.	2.1
6840	Rochester Livingston Co. Monroe Co. Ontario Co. Olean Co. Wayne Co.	5.3
1280	Buffalo Erie Co. Niagara Co.	7.7
0960	Binghamton - Elmira Broome Co. Tioga Co.	1.1

ATTACHMENT IV-6 (41)

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
2335	Elmira Chemung Co.	2.2
	Non - SMSA Counties Orange Co. Sullivan Co. Ulster Co.	17.0
	Non - SMSA Counties Genesee Co. Seneca Co. Yates Co.	5.9
	Non - SMSA Counties Allegany Co. Cattaraugus Co. Chautauqua Co. Wyoming Co.	6.3
	Non - SMSA Counties Clinton Co. Columbia Co. Essex Co. Fulton Co. Green Co. Hamilton Co. Warren Co. Washington Co. Schoharie Co.	2.6
	Non - SMSA Counties Cayuga Co. Cortland Co. Franklin Co. Jefferson Co. Lewis Co. St. Lawrence Co.	2.5

STATE OF NEW JERSEY

<u>SMSA</u>	<u>LOCATION</u>	<u>GOAL PER CONTRACT</u>
3840	Jersey City Hudson Co.	12.8
4410	Long Branch - Asbury Park Monmouth Co.	9.5
5460	New Brunswick - Perth Amboy - Sayreville Middlesex Co.	5.8
5600	New York, NY - NJ Bergen Co.	22.6
5640	Newark Essex Co. Morris Co. Somerset Co. Union Co.	17.3
6040	Paterson - Clifton Passaic Co. Paramus Co.	12.9
0240	Allentown-Bethlehem-Easton, PA - NJ Warren Co.	1.6
0560	Atlantic City Atlantic Co.	18.2
6160	Philadelphia, PA - NJ Burlington Co. Camden Co. Gloucester Co.	17.3
8480	Trenton Mercer Co.	16.4
8760	Vineland - Bridgeton Camden Co.	16.0
9160	Wilmington, DE - NJ - MD Salem Co.	12.3
	Non - SMSA Counties Hunterdon Co. Ocean Co. Sussex Co.	17.0

**49 CFR PART 23
PARTICIPATION BY MINORITY
BUSINESS ENTERPRISE IN
DEPARTMENT OF
TRANSPORTATION
PROGRAMS**

**ASBESTOS REMOVAL IN CONNECTION WITH THE
SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005**

**John Ciardullo Associates
211 West 57th Street
New York, NY 10019**

**Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017**

**ATC Associates, INC.
104 East 25th Street
New York, NY 10010**

**Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer**

**Tuesday
February 2, 1999**

**SCHOOL SOUNDPROOFING AGREEMENT
EXHIBIT B**

Part II

**Department of
Transportation**

Office of the Secretary

**49 CFR Parts 23 and 26
Participation by Disadvantaged Business
Enterprises in Department of
Transportation Programs; Final Rule**

**NOTE: REVISIONS PUBLISHED JUNE 28, 1999
HAVE BEEN ADDED TO TEXT.**

[See Federal Register pages 34569 & 34570 at end of exhibit.]

DEPARTMENT OF TRANSPORTATION

Office of the Secretary

49 CFR Parts 23 and 26

[Docket OST-97-2550; Notice 97-5]

RIN 2105-AB92

Participation by Disadvantaged Business Enterprises in Department of Transportation Programs

AGENCY: Office of the Secretary, DOT.

ACTION: Final rule.

SUMMARY: This final rule revises the Department of Transportation's regulations for its disadvantaged business enterprise (DBE) program. The DBE program is intended to remedy past and current discrimination against disadvantaged business enterprises, ensure a "level playing field" and foster equal opportunity in DOT-assisted contracts, improve the flexibility and efficiency of the DBE program, and reduce burdens on small businesses. This final rule replaces the former DBE regulation, which now contains only the rules for the separate DBE program for airport concessions, with a new regulation. The new regulation reflects President Clinton's policy to mend, not end, affirmative action programs. It modifies the Department's DBE program in light of developments in case law requiring "narrow tailoring" of such programs and last year's Congressional debate concerning the continuation of the DBE program. It responds to comments on the Department's December 1992 notice of proposed rulemaking (NPRM) and its May 1997 supplemental notice of proposed rulemaking (SNPRM).

DATES: This rule is effective March 4, 1999. Comments on Paperwork Reduction Act matters should be received by April 5, 1999; however, late-filed comments will be considered to the extent practicable.

ADDRESSES: Persons wishing to comment on Paperwork Reduction Act matters (see discussion at end of preamble) should send comments to Docket Clerk, Docket No. OST-97-2550, Department of Transportation, 400 7th Street, SW., Room 4107, Washington, DC 20590. We emphasize that the docket is open only with respect to Paperwork Reduction Act matters, and the Department is not accepting comments on other aspects of the regulation. We request that, in order to minimize burdens on the docket clerk's staff, commenters send three copies of their comments to the docket. Commenters wishing to have their

submissions acknowledged should include a stamped, self-addressed postcard with their comments. The docket clerk will date stamp the postcard and return it to the commenter. Comments will be available for inspection at the above address from 10 a.m. to 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT: Robert C. Ashby, Deputy Assistant General Counsel for Regulation and Enforcement, Department of Transportation, 400 7th Street, SW., Room 10424, Washington, DC 20590, phone numbers (202) 366-9306 (voice), (202) 366-9313 (fax), (202) 755-7687 (TDD), bob.ashby@ost.dot.gov (email); or David J. Goldberg, Office of Environmental, Civil Rights and General Law, Department of Transportation, 400 7th Street, SW., Room 5432, Washington, DC 20590, phone number (202) 366-8023 (voice), (202) 366-8536 (fax).

SUPPLEMENTARY INFORMATION:**Background**

The Department has the important responsibility of ensuring that firms competing for DOT-assisted contracts are not disadvantaged by unlawful discrimination. For eighteen years, the Department's most important tool for meeting this responsibility has been its Disadvantaged Business Enterprise (DBE) program. This program began in 1980. Originally, the program was a minority/women's business enterprise program established by regulation under the authority of Title VI of the Civil Rights Act of 1964 and other nondiscrimination statutes that apply to DOT financial assistance programs. See 49 CFR part 23.

In 1983, Congress enacted, and President Reagan signed, the first statutory DBE provision. This statute applied primarily to small firms owned and controlled by minorities in the Department's highway and transit programs. Firms owned and controlled by women, and the Department's airport program, remained under the original 1980 regulatory provisions. In 1987, Congress enacted, and President Reagan signed, statutes expanding the program to airports and to women-owned firms. In 1991 (for highway and transit programs) and 1992 (for airport programs), Congress enacted, and President Bush signed, statutes reauthorizing the expanded DBE program.

After each statutory amendment, and at other times to resolve program issues, the Department amended part 23. The result has been that part 23 has become

a patchwork quilt of a regulation. In addition, years of interpretation by various grantees and different DOT offices has created confusion and inconsistency in program administration. These problems, particularly in the area of certification, were criticized in General Accounting Office reports. The Department's desire to improve program administration and make the rule a more unified whole led to our publication of a December 1992 notice of proposed rulemaking (NPRM). The Department received about 600 comments on this NPRM. The Department carefully reviewed these comments and, by early 1995, had prepared a draft final rule responding to them. However, in light of the Supreme Court's June 1995 decision in *Adarand v. Peña* and the Administration's review of affirmative action programs, the Department conducted further review of the DBE program. As a result, rather than issuing a final rule, we issued a supplemental notice of proposed rulemaking (SNPRM) in May 1997. This SNPRM incorporated responses to the comments on the 1992 NPRM and proposed further changes in the program, primarily in response to the "narrow tailoring" requirements of *Adarand*. We received about 300 comments on the SNPRM. The Department has carefully considered these comments, and the final rule responds to them. The final rule also specifically complies with the requirements that the courts have established for a narrowly tailored affirmative action program.

At the same time that the Department was working on this final rule, Congress once again considered reauthorization of the DBE program. In both the House and the Senate, opponents of affirmative action sponsored amendments that would have effectively ended the program. In both cases, bipartisan majorities defeated the amendments. The final highway/transit authorization legislation, known as the Transportation Equity Act for the 21st Century (TEA-21), retains the DBE program. In shaping this final rule, the Department has listened carefully to what both supporters and opponents of the program have said in Congressional debates.

Key Points of the Final Rule

This discussion reviews and responds to the SNPRM comments and the Congressional debates on certain key issues. Congressional debate references are to the Congressional Record for March 5 and 6, 1998, for the Senate debate and April 1, 1998, for the House debate, unless otherwise noted.

1. Quotas and Set-Asides

SNPRM Comments: Most comments on this issue came from non-DBE contractors, who argued that the program was a *de facto* quota program. Many of these contractors said that recipients insisted that they meet numerical goals regardless of other considerations, and that the recipients did not take showings of good faith efforts seriously. Some non-DBE contractor organizations argued, in addition, that the program was a quota program because it was based on a statute that had a 10 percent target for the use of businesses defined by a racial classification.

Congressional Debate: Opponents of the DBE program generally asserted that it created quotas or set-asides. Senator McConnell described the entire program, particularly the provision that "not less than 10 percent" of authorized funds go to DBEs, as

• • • a \$17.3 billion quota. In other words, if the government decides that you are the preferred race and gender, then you are able to compete for \$17.3 billion of taxpayer-funded highway contracts. But, if you are the wrong race and gender, then—too bad—you can't compete for that \$17 billion pot. (S1936).

The "not less than 10 percent" language also led opponents, such as Senator Ashcroft, to label the program a "set-aside," (S1405), a term also employed in testimony provided by a law professor from California who said that the statute "imposes a set-aside that's required regardless of the availability of race-neutral solutions." (S1407). Senator Gorton said that the DBE statute provides that "those not defined as disadvantaged in our society are absolutely barred and prohibited from getting certain governmental contracts." (S1415).

On the other hand, supporters of the program were adamant that it was not a quota program. Senator Baucus argued that the program, as implemented by DOT, allows substantial flexibility to recipients and contractors. Recipients could have an overall goal other than 10 percent under current rules, he pointed out. Senator Kerry of Massachusetts added that what the statute does is to "set a national goal. And it is appropriate in this country to set national goals for what we will do to try to break down the walls of discrimination." • • • (S1408). He also alluded to the flexibility of the Secretary to permit overall goals of less than 10 percent. Senator Robb stated:

I want to stress at the outset that this program is not a "quota program," as some have suggested. There is a great difference

[between] an aspirational goal and a rigid numerical requirement. Quotas utilize rigid numerical requirements as a means of implementing a program. The DBE program uses aspirational goals. (S1425).

With respect to individual contract goals, Senator Baucus said, "once a goal is established for a contract, each contractor must make a good-faith effort to meet the goal—not mathematically required, not quota required, but a good faith effort to meet it." (S1402). Senator Baucus pointed to provisions of the SNPRM concerning overall goals, means of meeting them, and good-faith efforts as further narrowly tailoring the program. The SNPRM confirms, he said, that "contract goals are not binding. If a contractor makes good faith efforts to find qualified women or minority-owned subcontractors, but fails to meet the goal, there is no penalty." (S1403). Senator Robb added that "Contract goals are not operated as quotas because they require that the prime contractor make 'good faith efforts' to find DBEs. If a prime contractor cannot find qualified and competitive DBEs, the goal can be waived." (S1425).

One of the Senators who addressed the quota/set-aside issue in the most detail was Senator Domenici. He concluded that "I do not agree that this minority business program we have in this ISTEA bill before us is a program that mandates quotas and mandates set-asides." (S1426). He made this statement, in part, on the basis of March 5, 1998, letter to him signed by Secretary of Transportation Rodney Slater and Attorney General Janet Reno. In relevant part, this letter (which Senator Domenici inserted into the record) read as follows:

The 10 percent figure contained in the statute is not a mandatory set aside or rigid quota. First, the statute explicitly provides that the Secretary of Transportation may waive the goal for any reason • • • Second, in no way is the 10 percent figure imposed on any state or locality • • • Moreover, state agencies are permitted to waive goals when achievement on a particular contract or even for a specific year is not possible. The DBE program does not set aside a certain percentage of contracts or dollars for a specific set of contractors. Nor does the DBE program require recipients to use set-asides. The DBE program is a goals program which encourages participation without imposing rigid requirements of any type. Neither the Department's current nor proposed regulations permit the use of quotas. The DBE program does not use any rigid numerical requirements that would mandate a fixed number of dollars or contracts for DBEs. (S1427).

The debate in the House proceeded in similar terms. Opponents of the DBE program, such as Representative

Roukema (H2000), Representative Cox (H2004) and Speaker Gingrich (H2009) said the legislation constituted a quota, while proponents, such as Representatives Tauscher (H2001), Poshard (H2003), Bonior (H2004) and Menendez (H2004) said the program did not involve quotas or set-asides.

DOT Response: The DOT DBE program is not a quota or set-aside program, and it is not intended to operate as one. To make this point unmistakably clear, the Department has added explicitly worded new or amended provisions to the rule.

Section 26.41 makes clear that the 10 percent statutory goal contained in ISTEA and TEA-21 is an aspirational goal at the national level. It does not set any funds aside for any person or group. It does not require any recipient or contractor to have 10 percent (or any other percentage) DBE goals or participation. Unlike former part 23, it does not require recipients to take any special administrative steps (e.g., providing a special justification to DOT) if their annual overall goal is less than 10 percent. Recipients must set goals consistent with their own circumstances (see § 26.45). There is no direct link between the national 10 percent aspirational goal and the way a recipient operates its program. The Department will use the 10 percent goal as a means of evaluating the overall performance of the DBE program nationwide. For example, if nationwide DBE participation were to drop precipitously, the Department would reevaluate its efforts to ensure nondiscriminatory access to DOT-assisted contracting opportunities.

Section 26.43 states flatly that recipients are prohibited from using quotas under any circumstances. The section also prohibits set-asides except in the most extreme circumstances where no other approach could be expected to redress egregious discrimination. Section 26.45 makes clear that in setting overall goals, recipients aspire to achieving only the amount of DBE participation that would be obtained in a nondiscriminatory market. Recipients are not to simply pick a number representing a policy objective or responding to any particular constituency.

Section 26.53 also outlines what bidders must do to be responsive and responsible on DOT-assisted contracts having contract goals. They must make good faith efforts to meet these goals. Bidders can meet this requirement either by having enough DBE participation to meet the goal or by documenting good faith efforts, even if those efforts did not actually achieve the

goal. These means of meeting contract goal requirements are fully equivalent. Recipients are prohibited from denying a contract to a bidder simply because it did not obtain enough DBE participation to meet the goal. Recipients must seriously consider bidders' documentation of good faith efforts. To make certain that bidders' showings are taken seriously, the rule requires recipients to offer administrative reconsideration to bidders whose good faith efforts showings are initially rejected.

These provisions leave no room for doubt: there is no place for quotas in the DOT DBE program. In the Department's oversight, we will take care to ensure that recipients implement the program consistent with the intent of Congress and these regulatory prohibitions.

2. Sanctions for Recipients Who Fail To Meet Overall Goals

SNPRM Comments: The issue of sanctions for recipients who fail to meet overall goals was not a subject of comments on the SNPRM. Since the Department has never imposed such sanctions, this absence of comment is not surprising.

Congressional Debate: DBE program opponents asserted, in connection with their argument that the DBE program is a quota program, that the Department could impose sanctions for failure to meet goals. "The goals have requirements and the real threat of sanctions," Senator McConnell said. (S1488). Citing a provision of a Federal Highway Administration (FHWA) manual saying that if "a state has violated or failed to comply with Federal laws or * * * regulations," FHWA could withhold Federal funding, Senator McConnell said,

In other words, there are sanctions. The same threats appear in * * * the Federal transportation regulations * * * When the Federal government is wielding that kind of weapon from on high, it does not have to punish them. A 10 percent quota is still a quota, even if the States always comply and no one is formally punished. (Id.)

Defenders of the DBE program pointed out that the Department had never punished a recipient for failing to meet an overall goal (e.g., Rep. Tauscher, H2001; Senator Boxer, S1433). Senator Domenici asked Secretary Slater and Attorney General Reno whether there are sanctions, penalties, or fines that may be (or ever have been) imposed on a recipient who does not meet DBE program goals. He entered the following reply in the record:

No state has ever been sanctioned by DOT for not meeting its goals. Nothing in the

statute or regulations imposes sanctions on any state recipient that has attempted in good faith, but failed, to meet its self-imposed goals. (S1427).

Senator Lieberman added that if states fail to meet their own goals, "there is no Federal sanction or enforcement mechanism." (S1493).

DOT Response: The Department has never sanctioned a recipient for failing to meet an overall goal. We do not intend to do so. To eliminate any confusion, we have added a new provision (§ 26.47) that explicitly states that a recipient cannot be penalized, or treated by the Department as being in noncompliance with the rule, simply because its DBE participation falls short of its overall goal. For example, if a recipient's overall goal is 12 percent, and its participation is 8 percent, the Department cannot and will not penalize the recipient simply because its actual DBE participation rate was less than its goal.

Overall goals are not quotas, and the Department does not sanction recipients because their participation levels fall short of their overall goals. Of course, if a recipient does not have a DBE program, does not set a DBE goal, does not implement its DBE program in good faith, or discriminates in the way it operates its program, it can be found in noncompliance. But its noncompliance would never be having failed to "make a number."

3. Economic Disadvantage

SNPRM Comments: Some commenters favored eliminating the presumption of economic disadvantage, saying that applicants should have to prove their economic disadvantage. Other commenters favored obtaining additional financial information from applicants so that, even if the presumption remained in force, recipients would have a better idea of whether applicants really were disadvantaged. The question of the standard for determining disadvantage generated substantial comment, with some commenters favoring, and others objecting to, the proposed use of a personal net worth standard to assist recipients in determining whether an applicant was economically disadvantaged. There was also disagreement among commenters concerning the level at which such a standard should be set (e.g., \$750,000, or something higher or lower). These comments, and the Department's response to them, are further discussed in the section-by-section analysis for § 26.67.

Congressional Debate: The Congress debated the topic of who is regarded as

economically disadvantaged under the statute. DBE opponents, including Senators Ashcroft (S1405) and McConnell (S1418) and Representative Cox (H2004), asserted that outrageously rich people could be eligible to participate as DBEs, frequently using the Sultan of Brunei as an example. The basic thrust of their argument was that if the program does not exclude wealthy members of the designated groups—meaning those who are not, in fact, disadvantaged—then it is "overinclusive" and therefore not narrowly tailored. Senator McConnell added that, because the Department's SNPRM did not include a specific dollar amount for a cap on personal net worth, it would not be effective. (S1486). On the other hand, DBE program supporters cited the SNPRM's proposed net worth cap as an effective device to stop wealthy people from participating in the program. These included Minority Leader Daschle (with a reference to a letter from the Associate Attorney General, S1413), Senator Baucus (S1414, S1423), Senator Lieberman (S1493), Senator Boxer (S1433), and Senator Moseley-Braun, who responded to the Sultan of Brunei example by noting that the program was directed primarily at U.S. citizens (S1420).

DOT Response: The final rule (§ 26.67) specifically imposes a personal net worth cap of \$750,000. This means that, regardless of race, gender or the size of their business, any individual whose personal net worth exceeds \$750,000 is not considered economically disadvantaged and is not eligible for the DBE program. The provision also makes it much easier for recipients to determine whether an individual's net worth exceeds the cap. Applicants will have to submit a statement of personal net worth and supporting documentation to the recipient with their applications. If the information shows net worth above the cap, the recipient would rebut the presumption based on the information in the application itself and the individual would not be eligible for the program. In such a case, it would not be necessary for a third party to challenge the economic disadvantage of an applicant in order to rebut the presumption. While there have been very few documented cases of wealthy individuals seeking to take advantage of the Department's program, the revised provisions of part 26 virtually eliminate even the possibility of this type of abuse.

4. Social Disadvantage

SNPRM Comments: A few commenters suggested that the

presumption of social disadvantage, as well as that of economic disadvantage, be eliminated, so that applicants would have to demonstrate both elements of disadvantage. Any presumption of disadvantage tied to a racial classification, in the view of some of these commenters, undermined the constitutionality of the program. Other commenters noted that persons who are not members of the presumptively disadvantaged groups can be eligible and, in some cases, suggested that the criteria for evaluating such applications be clarified.

Congressional Debate: The presumption of social disadvantage drew fire from DBE program opponents because it was allegedly overinclusive. For example, Senator McConnell produced a map illustrating the over 100 countries of origin leading to inclusion in one of the presumed socially disadvantaged groups, pointing out that people from some countries (e.g., Pakistan) are presumed to be socially disadvantaged while those from other countries (e.g., Poland) are not. (S1418). Senator McConnell said that there was no basis for selecting this definition over any other. (Id.) Senator Hatch also listed the countries from which Asian-Pacific Americans and Subcontinent Asian-Americans can originate, suggesting that it was inappropriate to create "all kinds of special interest groups who are vying for these programs." (S1411).

DBE proponents responded that discrimination against minorities and women in general, and against specific minorities in particular (e.g., African Americans) was very real and formed a basis for the presumption of social disadvantage (see discussion below concerning the existence of discrimination). Senator Baucus also noted that this presumption could be overcome. (S1402).

Opponents also charged that the presumption of social disadvantage was underinclusive; that is, "you underinclude people who have a right to be included in the bid process." (Senator McConnell, S1399). The people who are not included who have a right to be, in the view of opponents, are white males (e.g., Senator Sessions' reference to testimony from Adarand Constructors' owner, S1400). Senator Kennedy disagreed with this assertion, saying

Of course, this program doesn't just help women and minorities. It extends a helping hand to firms owned by white males, as well. They can be certified to [participate] if they prove that they have been disadvantaged. Just ask Randy Pech—owner of the Adarand

Construction Firm—because he is currently seeking certification. (S1482).

Senator Domenici was interested in the same question, and entered into the record the following response from Secretary Slater and Attorney General Reno:

Any individual owning a business may demonstrate that he is socially and economically disadvantaged, even if that individual is not a woman or a minority. Both the current and proposed regulations provide detailed guidance to recipients to assist them in making individual determinations of disadvantaged status. And, in fact, businesses owned by white males have qualified for DBE status. (S1427).

DOT Response: By having passed the DBE statutory provision, after lengthy and specific debate, Congress has once again determined that members of the designated groups should be presumed socially disadvantaged. All of these groups are specifically incorporated by reference in the legislation that Congress debated and approved. This presumption (i.e., a determination that it is not necessary for group members to prove individually that they have been the subject of discrimination or disadvantage) is based on the understanding of Members of Congress about the discrimination that members of these groups have faced. The presumption is rebuttable in the DOT program. If a recipient or third party determines that there is a reasonable basis for concluding that an individual from one of the designated groups is not socially disadvantaged, it can pursue a proceeding under § 26.87 to remove the presumption. Likewise, a white male, or anyone else who is not presumed to be disadvantaged, can make an individual showing of social and economic disadvantage and participate in the program on the same basis as any other disadvantaged individual (see § 26.67).

5. The "Low-Bid System"

SNPRM Comments: Non-DBE contractors expressed concern that a variety of provisions under the program and the SNPRM adversely affected the low-bid system, including contract goals, evaluation credits, and good faith efforts guidance concerning prime contractors' handling of subcontractor prices and consideration of other bidders' success in meeting goals.

Congressional Debate: Opponents of the DBE program assert that the program results in white male contractors not receiving contracts they would otherwise expect to receive. Senator Sessions cited the statement of the Adarand company to this effect. (S1400). Senator Ashcroft said that "if two bids come in from two

subcontractors, one owned by a white male and the other by a racial minority, and the bids are the same, or even close, the job will go to the minority-owned company, not the low bidder." (S1405). Senator Gorton inserted into the record letters from a Spokane subcontractor asserting that, in a number of cases, it had lost subcontracts to DBE firms despite having a lower quote. (S1415-16). Representative Roukema also cited examples of firms who made similar assertions. (H2000).

In contrast, DBE program proponents argued that the program was about leveling the playing field for DBEs. Senator Moseley-Braun cited letters from her constituents for the point that

* * * the DBE program is not about taking away contracts from qualified male-owned businesses and handing them over to unqualified female-owned firms. The program is not about denying contracts to Caucasian low bidders in favor of higher bids that happen to have been submitted by Hispanics or African Americans or Asians or women. (S1420).

Without such a program, her constituents' letters said, they would lose the chance to compete. (Id.) Citing testimony from a Judiciary Committee hearing, Senator Kennedy noted that it was the experience of some DBEs that white male prime contractors had accepted higher bids from other firms to avoid working with DBEs. (S1430).

Why would a general contractor accept a higher bid? It doesn't make sense unless you remember that the traditional business network doesn't include women or minorities * * * [A woman business owner testified] that some general contractors would rather lose money than deal with female contractors. (Id.)

DOT Response: For the most part, statutory low-bid requirements exist only at the prime contracting level. That is, state and local governments, in awarding prime contracts, must select the low bidder in many procurements (there may be exceptions in some types of purchases). Nothing in this regulation requires, under any circumstances, a recipient to accept a higher bid for a prime contract from a DBE when a non-DBE has presented a lower bid. This rule does not interfere with recipients' implementation of state and local low-bid legislation.

The selection of subcontractors by a prime contractor is typically not subject to any low-bid requirements under state or local law. Prime contractors have unfettered discretion to select any subcontractor they wish. Price is clearly a key factor, but nothing legally compels a prime contractor to hire the subcontractor who makes the lowest quote. Other factors, such as the prime

contractor's familiarity and experience with a subcontractor, the quality of a subcontractor's work, the word-of-mouth reputation of the subcontractor in the prime contracting community, or the prime's comfort or discomfort with dealing with a particular subcontractor can be as or more important than price in some situations. It is in this context that § 26.53 requires that prime contractors make good faith efforts to achieve DBE contract goals. The rule does not require that recipients ignore price or quality, let alone obtain a certain amount of DBE participation without regard to other considerations. The good faith efforts requirements are intended to ensure that prime contractors cannot simply refuse to consider qualified, competitive DBE subcontractors. At the same time, the good faith efforts waiver of contract goals serves as a safeguard to ensure that prime contractors will not be forced into accepting an unreasonable or excessive quote from a DBE subcontractor.

6. Constitutionality

SNPRM Comments: Non-DBE contractors and their groups argued that the SNPRM proposals, particularly with respect to overall goals and the use of race-conscious measures, failed to meet the *Adarand* narrow tailoring test. Many of these commenters said that the overall goals were suspect because they did not adequately consider the capacity of DBEs to perform contracts and *Adarand* requires that race-conscious measures may be used only after a recipient has demonstrated that race-neutral means have failed. The use of presumptions based on racial classifications was viewed as intrinsically unconstitutional by these commenters, many of whom cited the language of Judge Kane's decision in the *Adarand* remand to this effect. Some commenters also contended that, absent recipient-specific findings of compelling need, the program could not be constitutional. They said that existing information alleging compelling interest—such as various disparity studies or information compiled by the Department of Justice—was inadequate to meet the compelling interest test. DBEs and recipients who commented defended the constitutionality of the program, often citing experience with discrimination in the marketplace and contending that the SNPRM succeeded in narrowly tailoring the program.

Congressional Debate: Proponents and opponents of the DBE program extensively debated the constitutionality of the DBE statutory provision and the entire DBE program. Generally, opponents argued that the

Supreme Court and District Court decisions in *Adarand* rendered the program unconstitutional, while proponents said that the decisions did not have that effect.

Proponents and opponents of the DBE program agreed that the Supreme Court's *Adarand* decision established a two-part test for the constitutionality of a program that uses a racial classification. The program must be based on a compelling governmental interest and be narrowly tailored to further that interest (e.g., Senator McConnell, S1396; Senator Baucus, S1403). Opponents relied on the finding of a Colorado district court on remand that the program was not narrowly tailored and was thus unconstitutional (Senator McConnell, S 1396; Senator Ashcroft, S1405). Proponents replied that the remand decision represented the views of only one district court (Senator Baucus, S1403), that it failed to properly apply the reasoning of the Supreme Court decision with respect to narrow tailoring (Senator Domenici, S1425), and that the Department's forthcoming regulations would ensure that the program was narrowly tailored (see discussion below).

A. Compelling Interest

(1) Existence of Discrimination.

Proponents (and some opponents) of the DBE provision said that discrimination and/or disadvantage with respect to minorities and/or women persists. In the House, these included Representative Roukema (H2000-01), Representative Norton (H2003), Representative Poshard (H2003), Representative Menendez (H2004), Representative Davis of Illinois (H2005), Representative Boswell (H2005), Representative Lampson (H2006), Representative Kennedy (H2006), Representative Jackson-Lee (H2006), Representative Edwards (H2007), Representative Andrews (H2007), Representative Rodriguez (H2008), Representative Towns (H2010), Representative Dixon (H2010), and Representative Millender-McDonald (H2011). DBE opponents typically remained silent on this point, neither affirming nor denying the existence of discrimination against women and minorities.

There was a similar pattern in the Senate debates. Opponents typically did not address the present existence of discrimination or disadvantage with respect to minorities and women or its continuing effects, spoke of such discrimination as something that existed in the past (Senator Sessions, S1399; Senator Hatch, S1411), or asserted that race-based disadvantage or

discrimination no longer exists (Senator Ashcroft, S1406).

The Senators who said that such discrimination persists included Senator Baucus (S1403, S1413, S1496), Senator Warner (S1403), Senator Kerry (S1408), Senator Wellstone (S1410), Senator Moseley-Braun (S1419-20), Senator Robb (S1422); Senator Brownback (S1423-24), Senator Domenici (S1425-26), Senator Kennedy (S1429-30, S1482), Senator Specter (S1485), Senator McCain (S1489), Senator Lautenberg (S1490), Senator Durbin (S1491), Senator Daschle (S1492), Senator Lieberman (S1493), Senator Bingaman (S1494), Senator Murray (S1495), and Senator Dorgan (S1495).

(2) *Evidence of discrimination or disadvantage.* In comments on the passage of the TEA-21 conference report in the Senate, Senator Chafee noted a Colorado Department of Transportation disparity study that found a disproportionately small number of women- and minority-owned contractors participating in that state's highway construction industry. More than 99 percent of contracts went to firms owned by white men.

(Congressional Record, May 22, 1998; S5413). In the House discussion of the conference report, Representative Norton presented an extensive summary of relevant evidence of discrimination forming the basis for a compelling need for the DBE program. (H3957).

Throughout the debate, the Members who affirmed the existence of discrimination and/or disadvantage asserted a number of factual bases for concluding that the DBE program was necessary. This information is largely drawn from the Senate debate; the briefer House debate contains less detail.

Senator Baucus cited disparities between the earnings of women and men and between the percentage of small businesses women own and the percentage of Federal procurement dollars they receive. He also noted that minorities make up 20 percent of the population, own 9 percent of construction businesses, and get only 4 percent of construction receipts. (S1403). Finally, Senator Baucus, via a letter from the Associate Attorney General, cited to numerous Congressional findings concerning the effects of discrimination in the construction industry and in DOT-assisted programs. (S1413).

Senator Kerry added that women own 9.2 percent of the nation's construction firms but their companies earn only about half of what is earned by male-owned firms. (S1409). Senator Robb

commented that the evidence of racially based disadvantage is "compelling and disturbing." He continued, stating that, "White-owned construction firms receive 50 times as many loan dollars as African-American owned firms that have identical equity." (S1422). Senator Kennedy said that the playing field for women and minorities and other victims of discrimination was still not level. Job discrimination against minorities and the "glass ceiling" for women still persisted, he said, adding that "Nowhere is the deck stacked more heavily against women and minorities than in the construction industry." (S1429). He cited a number of instances in which minority or female contractors encountered overt discrimination in trying to get work. (S1429-30).

Senator Lautenberg said that, for transportation-related contracts, minority-owned firms get only 61 cents for every dollar of work that white male-owned businesses receive. The comparable figure for women-owned firms was 48 cents. He also mentioned that "women-owned businesses have a lower rate of loan delinquency, yet still have far greater difficulty in obtaining loans." (S1490). He then spoke of the continuing effects of past discrimination:

Jim Crow laws were wiped off the books over 30 years ago. However, their pernicious effects on the construction industry remain. Transportation construction has historically relied on the old boy network which, until the last decade, was almost exclusively a white, old boy network. . . . This is an industry that relies heavily on business friendships and relationships established decades, sometimes generations, ago—years before minority-owned firms were even allowed to compete. (id.)

Senator Durbin referred to recent studies concerning job bias against minorities and women. (S1491). Senator Lieberman referred generally to previous Congressional committee findings and testimony concerning still-existing barriers to full participation for minorities and women. (S1493). He also cited the May 1996 Department of Justice survey of discrimination and its effects in business and contracting. He referred to a recent study in Denver showing that African Americans were 3 times, and Hispanics 1.5 times, more likely than whites to be rejected for business loans. Senator Daschle summed up by saying, "[t]here is clearly a compelling interest in addressing the pervasive discrimination that has characterized the highway construction industry." (S1492).

Throughout the portion of the debate described above, many of the Members stressed that goal-based programs like

the DBE program were the only effective way to combat the continuing effects of discrimination.

Senator Baucus cited the experience of Michigan, in which DBE participation in the state-funded portion of the highway program fell to zero in a nine-month period after the state terminated its DBE program, while the Federal DBE program in Michigan was able to maintain 12.7 percent participation. (S1404). Senator Kerry also raised the Michigan example, and went on to cite similar sharp decreases in DBE participation when Louisiana, Hillsborough County, Florida, and San Jose, California, eliminated affirmative action programs covering state- and locally-funded programs. Senator Kerry asked rhetorically:

. . . Is that just the economy of our country speaking, an economy at one moment that is capable of having 12 percent and at another moment, where they lose the incentive to do so, to drop down to zero, to drop down by 99 percent, to drop down by 80 percent, to have .4 at the State level while at the Federal level there are 12 percent? You could not have a more compelling interest if you tried. . . . (S1409-10).

Senator Moseley-Braun added the examples of Arizona, Arkansas, Rhode Island, and Delaware to the jurisdictions cited by other members where state-funded projects without a DBE program have significantly less DBE participation than Federally funded projects subject to the DBE program. She added, "Where there are no DBE programs, women- and minority-owned small businesses are shut out of highway construction." (S1420-21). Senator Kennedy added Nebraska, Missouri, Tampa and Philadelphia to the list of jurisdictions that experienced precipitous drops in DBE participation after goals programs ended. (S1429-30; S1482). He also cited comments from DBE companies that goal programs were needed to surmount discrimination-related barriers. (S1482). Senator Domenici repeated many of the same points as previous DBE proponents concerning the basis for concluding that the program was needed (S1426), as did Senator Kempthorne. (S1494).

Senator Robb emphasized that the DBE program was essential to combating discrimination and ensuring economic opportunity, explicitly linking the fall-off in DBE participation to continuing discrimination:

Where DBE programs at the State level have been eliminated, participation by qualified women and qualified minorities in government transportation contracts has plummeted. There is no way to know whether this discrimination is intentional or subconscious, but the effect is the same. This

experience demonstrates the sad but inescapable truth that, when it comes to providing economic opportunities to women and minorities, passivity equals inequality. (S1422).

3. *Narrow tailoring.*—DBE proponents cited the Department's proposed DBE rule as the vehicle that would ensure that the DBE program would be narrowly tailored. They cited features of the SNPRM including a new mechanism for calculation of overall goals, giving priority to race-neutral measures in meeting goals, a greater emphasis on good faith efforts, DBE diversification, added flexibility for recipients, net worth provisions, ability to challenge presumptions of social and economic disadvantage, and flexibility in goal-setting. In comments on the Senate consideration of the TEA-21 conference report, Senator Baucus concluded by saying:

As I explained in my statements during the debate on the McConnell amendment . . . the program is narrowly tailored, both under the current and the new regulations, which emphasize flexible goals tied to the capacity of firms in the local market, the use of race-neutral measures, and the appropriate use of waivers for good faith efforts. (Congressional Record, May 22, 1998; S5414).

Following Senator Baucus' remarks, Senator Chafee, Chairman of the committee of jurisdiction, requested that he be associated with Senator Baucus' remarks on constitutionality. (S5414).

DBE opponents denied that regulatory change could result in a narrowly tailored program. Senator Smith said "The administration's attempt to comply with the Court's decision by fiddling around with the DOT regulations does not meet the constitutional litmus test." (S1398). The most frequent argument against the efficacy of regulatory change was that a racial classification is inherently unable to be narrowly tailored. (Senator Sessions, S1399-1400; Senator Ashcroft, S1407).

DOT Response: The 1998 debate over DBE legislation was the most thorough in which Congress has engaged since the beginning of the program. The record of this debate clearly supports the Department's view that there is a compelling governmental interest in remedying discrimination and its effects in DOT-assisted contracting. Congress clearly determined that real, pervasive, and injurious discrimination exists. Congress backed up that determination with reference to a wide range of factual material, including private and public contracting, DOT-assisted and state- and locally-funded programs and the financing of the contracting industry. By retaining the DBE statutory provisions

against this factual background, Congress clearly found that there was a compelling governmental interest in having the program.

The courts, including the court in the *Adarand Constructors Inc. v. Peña*, 965 F.Supp. 1556 (D. Colo., 1997) and the court in *In re: Sherbrooke Sodding*, 6-96-CV-41 (D. Minn. 1998), agree that Congress has the power to legislate on a nationwide basis to address nationwide problems. Congress has a unique role as the national legislature to look at the whole of the United States for the basis to find a compelling governmental interest supporting the use of race-based remedies. Congress is not required to make particularized findings of discrimination in individual localities to which a nationwide program may apply. Nor is Congress required to find that the Federal government itself has discriminated before applying a race-conscious remedy. (Id. at 1573).

Having reviewed the extensive evidence of discrimination and its relationship to DOT-assisted contracting, the District Court in *Adarand* determined that current and previous DBE provisions were a "considered response by Congress to the effects of discrimination on the ability of minorities to participate in the mainstream of federal contracting." (Id. at 1576). The court stated that "Congress has a strong basis in evidence for enacting the challenged statutes, which thus serve a 'compelling governmental interest.'" (Id. at 1577). The extensive Congressional debate and information supporting the enactment of the 1998 DBE provision significantly strengthens the existing basis for declaring that this program serves a compelling governmental interest.

The basis for District Court's view that the program at issue in *Adarand* is unconstitutional is stated most clearly in the following passage:

Contrary to the [Supreme] Court's pronouncement that strict scrutiny is not 'fatal in fact,' I find it difficult to envisage a race-based classification that is narrowly tailored. By its very nature, such [a] program is both underinclusive and overinclusive. (Id. at 1580).

By underinclusive, the court said it meant that caucasians and members of non-designated minority groups are excluded. By overinclusive, it said it meant that all the members of the designated groups are presumed to be economically and/or socially disadvantaged, without Congress having inquired whether a particular entity seeking a racial preference has suffered from the effects of past discrimination (citing the Supreme Court's *Croson*

decision, which concerned the powers of state and local governments to use race-based remedies). (Id.)

As Senator Domenici pointed out (S1425), the key words in the District Court's opinion are "Contrary to the [Supreme] Court's pronouncement. * * * The District Court's analysis departs markedly from the controlling decision of the Supreme Court on this issue (*Adarand v. Peña*, 515 U.S. 200 (1995)). The Supreme Court's language with which the District Court disagreed is the following:

Finally, we wish to dispel the notion that strict scrutiny is "strict in theory, but fatal in fact." [citation omitted] The unhappy persistence of both the practice and the lingering effects of racial discrimination against minority groups in this country is an unfortunate reality, and government is not disqualified from acting in response to it * * * When race-based action is necessary to further a compelling interest, such action is within constitutional constraints if it satisfies the "narrow tailoring" test this Court has set out in previous cases. (515 U.S. at 237).

The Supreme Court evidently considers the "not fatal in fact" language to have continuing vitality, having cited it in a subsequent case (*U.S. v. Virginia*, 518 U.S. 515, note 6 (1996)).

Under the District Court's analysis, Congress could never use a race-based classification, no matter how compelling the need, because any such classification would intrinsically fail to be narrowly tailored. This approach effectively moots the determination of whether there is a compelling governmental interest. The Supreme Court's approach, by contrast, permits a racial classification to be used, given the existence of a compelling interest, if it is narrowly tailored.

What is the test for narrow tailoring? As set forth in *United States v. Paradise*, 480 U.S. 149, 171 (1987), the test includes several factors: "the necessity for relief and the efficacy of alternative remedies; the flexibility and duration of the relief, including the availability of waiver provisions; the relationship of the goals to the relevant labor market; and the impact of the relief on the rights of third parties." In *Adarand*, the Supreme Court specifically invited inquiry into whether there was any consideration of the use of race-neutral means to increase minority business participation (related to the efficacy of alternative remedies) and whether the program was appropriately limited so that it will not last longer than the discrimination it is designed to eliminate (related to the duration of relief). (515 U.S. at 238).

This final rule successfully addresses each element of this test:

- *The necessity of relief.* Throughout the debate on the compelling governmental interest, the bipartisan majority of both houses of Congress repeatedly described the necessity of the DBE program's goal-based approach to remedying the effects of discrimination in DOT-assisted contracting. The most significant evidence demonstrating the necessity of a goal-oriented program is the evidence cited of the fall-off in DBE participation in state contracting when goal-oriented programs end, compared to participation rates in the Federal DBE program.

- *Efficacy of alternative remedies.* This element of the narrow tailoring standard is related to the Supreme Court's inquiry concerning race-neutral programs. Under § 26.51 of this rule, recipients are required to meet the maximum feasible portion of their overall goals by using race-neutral measures. Recipients are not required to have contract goals on each contract. Instead, they are instructed to use contract goals only for any portion of their overall goal they cannot meet through race-neutral measures. Contract goals are intended as a safety net to be used when race-neutral means are not effective to ensure that a recipient can achieve "level playing field." Moreover, the regulations provide that recipients must reduce the use of contract goals when other means are sufficient to meet their overall goals. This ensures that race-conscious relief is used only to the extent necessary and is replaced by race-neutral as quickly as possible.

- *Flexibility of relief.* Flexibility is built into the program in a variety of ways. Recipients set their own goals, based on local market conditions; their goals are not imposed by the federal government nor do recipients have to tie them to any uniform national percentage. (§ 26.45). Recipients also choose their own method for goal setting and can choose to base the goal on the evidence that they believe best reflects their market conditions. (§ 26.45). Recipients have broad discretion to choose whether or not to use a goal on any given contract, and if they do choose to use a contract goal, they are free to set it at any level they believe is appropriate for the type and location of the specific work involved. (§ 26.51). The rule also ensures flexibility for contractors by requiring that any contract goal be waived entirely for a prime contractor that demonstrates that it made good faith efforts but was still unable to meet the goal. (§ 26.53). The rule also allows recipients that believe they can achieve equal opportunity for DBEs through different approaches to get waivers releasing

them from almost any of the specific requirements of the rule. (§ 26.103). Recipients can also get exemptions from the rule if they have unique circumstances that make complying with the rule impractical. (§ 26.103).

- *Duration of relief.* The TEA-21 DBE program will end in 2004 unless reauthorized by the Congress. In each successive reauthorization bill for the surface transportation and airport programs, Congress will have the opportunity to examine the current state of transportation contracting and determine whether the DBE program statutes are still necessary to remedy the continuing effects of discrimination. In addition, the duration of relief for individuals and firms are limited by the personal net worth threshold and business size caps. When an individual's personal wealth grows beyond the threshold, he or she will lose the presumption of disadvantage. (§ 26.67). Similarly, when a firm's receipts grows beyond the small business size standards, it loses its eligibility to participate in the program. (§ 26.65). Finally, to ensure that race-conscious remedies are not used any longer than absolutely necessary, § 26.51 requires recipients to reduce the use of contract goals and rely on race-neutral measures to the extent that they are effective.

- *Relationship of goals to the relevant market.* The overall goal setting provisions of § 26.45 require that recipient set overall goals based on demonstrable evidence of the relative availability of ready, willing and able DBEs in the areas from which each recipient obtains contractors. These provisions ensure that there is as close a fit as possible between the goals set by each recipient and the realities of its relevant market. When a recipient sets contract goals, § 26.51 provides that these goals are to be set realistically in relation to the availability of DBEs for the type and location of work involved.

- *Impact of relief on the rights of third parties.* The legitimate interests of third parties (e.g., prime contractors, non-DBE subcontractors) are only minimally impacted by the DBE program, since the program is aimed at replicating a market in which there are no effects of discrimination and the program affects only a relatively small percentage of total federal-aid funds. The design of the overall and contract goal provisions ensures that the use of race-conscious remedies having the potential to affect the interests of third parties is limited to the extent necessary to counter the effects of discrimination. Individual prime contractors are further protected from suffering any undue

burdens by § 26.51, which prevents a prime contractor from losing a contract if it made good faith efforts but was still unable to meet a goal. Non-DBE firms are also protected by § 26.33, which directs recipients to take appropriate steps to address areas of overconcentration of DBE firms in certain types of work that could unduly burden non-DBE firms seeking the same type of work.

- *Inclusion of appropriate beneficiaries.* The certification provisions of Subparts D and E, and particularly the social and economic disadvantage provisions of § 26.67, ensure that only firms owned and controlled by individuals who are in fact socially and economically disadvantaged can participate in the program. Eligibility provisions guard against overinclusiveness by ensuring that individuals with too great net worth are not presumed disadvantaged and by permitting the recipient—on its own initiative or as the result of a complaint—to follow procedures to rebut the presumption of social and/or economic disadvantage. They guard against underinclusiveness by permitting any business owner, including a white male, to demonstrate social and economic disadvantage on an individual basis.

Section-by-Section Analysis

Section 26.1 What Are the Objectives of This Part?

There were relatively few comments on this section of the SNPRM, most of which agreed with the proposed language. We have adopted the suggestion of some commenters that specific reference be made to the role of the DBE program in helping DBEs overcome barriers (e.g., access to capital and bonding) to equal participation. We have also added a specific reference to the role of the program in creating a level playing field on which DBEs can compete fairly for DOT-assisted contracts. Some non-DBE contractors urged that language be added to explicitly oppose "reverse discrimination." The rule clearly states that nondiscrimination is the program's first objective and the Department reiterates here that it opposes unlawful discrimination of any kind.

Section 26.3 To Whom Does This Part Apply?

This provision is unchanged from the SNPRM, except for references to the new TEA-21 statutory provisions. A few commenters wanted this provision to apply to Federal Railroad Administration (FRA) programs, as did

the original version of former part 23. However, FRA does not have specific statutory authority for a DBE program parallel to the TEA-21 language. One commenter asked if the language saying that DBE requirements do not apply to contracts without any DOT funding is inconsistent with Federal Transit Administration (FTA) guidance on applicability. While the structure of the FTA program is such that FTA funds are commingled with local funds in many transit authority contracts (e.g., any contract involving FTA operating assistance funds), to which DBE requirements would apply, a contract which is funded entirely with local funds—and without any Federal funds—would not be subject to requirements under this rule.

Section 26.5 What Do The Terms Used in This Part Mean?

There were relatively few comments on the definitions proposed in the SNPRM. One commenter wanted to substitute the term "historically underutilized business" for DBE. Given the continued use of the DBE term in Congressional consideration of the program, the continued use of the "socially and economically disadvantaged individuals" language in the statute, and the familiarity of concerned parties with the DBE term, we do not believe changing the term would be a good idea.

A few commenters asked for additional definitions or elaboration of existing definitions (e.g., "form of arrangement," "financial assistance program," "commercially useful function"). These terms are either already defined sufficiently or are best understood in context of the operational sections in which they are embedded, and abstract definitions in this section would not add much to anyone's ability to make the program work well. Consequently, we are not adding them. Otherwise the final rule adopts the SNPRM proposals for definitions with only minor editorial changes.

The Department has added, for the sake of clarity and consistency with other Federal programs, definitions of the terms Alaskan native, Alaskan native corporation (ANC), Indian tribe, immediate family member, Native Hawaiian, Native Hawaiian organization, principal place of business, primary industry classification, and tribally-owned concern. These definitions are taken from the SBA's new small disadvantaged business program regulation (13 CFR § 124.3). The definitions of the designated groups included in the definition of "socially

and economically disadvantaged individual" also derive from the SBA regulations, as the Department's DBE statutes require. We believe these will be useful terms of art in implementing the DBE program.

A few commenters requested definitions for the terms "race-conscious" and "race-neutral," and we have provided definitions. A race-conscious program is one that focuses on, and provides benefits only for, DBEs. The use of contract goals is the primary example of a race-conscious measure in the DBE program. A race-neutral program is one that, while benefiting DBEs, is not solely focused on DBE firms. For example, small business outreach programs, technical assistance programs, and prompt payment clauses can assist a wide variety of small businesses, not just DBEs.

Section 26.7 What Discriminatory Actions Are Forbidden?

One commenter wanted to add prohibitions of discrimination based on age, disability and religion. The Department is not doing so, because discrimination on these grounds is already prohibited by other statutes (e.g., the Americans with Disabilities Act with respect to disability). Also, statutes which form the basis for this rule focus on race, color, national origin, and sex. Congress determined that remedial action focused on these areas is necessary. These grounds for discrimination are also most relevant to problems in the DBE program that have been alleged to exist (e.g., disparate treatment of DBE certification applicants by race or sex). Some opponents of the program said that the DBE program discriminates against non-DBEs. However, the Department believes that the program is constitutional and does not violate equal protection requirements. A reference to DOT Title VI regulations has been deleted as unnecessary; otherwise, this provision is the same as in the SNPRM.

Section 26.9 How Does the Department Issue Guidance and Interpretations Under This Part?

Commenters, most of whom were recipients, focused on two issues in this section. First, a majority of the comments favored the "coordination mechanism" concept for ensuring consistent DOT guidance and interpretations. The few that disagreed with this approach did so out of a concern that the mechanism would add delays to the process. These commenters favored additional training

or an 800 number hot line to speed up the process.

We believe that proper coordination of interpretations and guidance is vital to the successful implementation of this rule. As the preambles to the 1992 and 1997 proposed rules mentioned, inconsistent implementation of part 23 has been a continuing problem, which has been criticized by a General Accounting Office report and which has created unnecessary difficulty for recipients, contractors, and the Department itself. A process for ensuring that the Department speaks with one voice on DBE implementation matters, and for letting the public know when DOT has spoken, will greatly improve the service we give our customers.

We do not believe this coordination process will result in significant delays in providing guidance. Nor will it inhibit the ability of DOT staff and customers to communicate with one another. For example, the process does not apply to informal advice provided by staff to recipients or contractors over the phone or in a letter or e-mail. It does maintain, however, the important distinction between informal staff assistance on one hand and a binding institutional position on the other.

For clarity in the process, we have modified the language of the rule text to make clear that interpretations and guidance are binding, official Departmental positions if the Secretary signs them or if the document includes a statement that they have been reviewed and approved by the General Counsel. The General Counsel will consult fully with all concerned offices as part of this review process.

We intend to post significant guidance documents and interpretations on the Department's web site to make them widely and quickly available. As some commenters suggested, we are also continuing to consider forming an advisory committee (or working group of an existing committee) to facilitate customer input into DBE program matters. This is separate from the coordination mechanism, however, which is an internal DOT process.

The rule's provisions regarding exemptions and waivers, previously found in the SNPRM's § 26.9 (c) and (d), are now included as a separate section at § 26.15.

Section 26.11 What Records do Recipients Keep and Report?

The Department asked, in the SNPRM, whether it would be advisable to have one standard reporting form for information about the DBE program. Currently, each operating

administration (OA) has its own reporting form and requirements. Virtually all the commenters that addressed this issue favored a single, DOT-wide reporting form. Commenters also had a wide variety of suggestions for what data should be reported, formats, and retention periods.

The Department is adopting the suggestion of having a single reporting form, which we believe will reduce administrative burdens for recipients, particularly those who receive funds from more than one OA. Because we do not want to delay the issuance of this rule while a form is being developed, we are reserving the date on which this single form requirement will go into effect. We will take comments on the specifics of reporting into account and consult with interested parties as we devise the form, which will be published subsequently in Appendix B to this rule. The Appendix will also address the issues of reporting frequency and record retention periods. Meanwhile, recipients will continue to report as directed by the concerned OA(s), using existing reporting forms.

The rule is also adding a requirement that recipients develop and maintain a "bidders" list. The bidders list is intended to be a count of all firms that are participating, or attempting to participate, on DOT-assisted contracts. The list must include all firms that bid on prime contracts or bid or quote subcontracts on DOT-assisted projects, including both DBEs and non-DBEs. Bidders lists appear to be a promising method for accurately determining the availability of DBE and non-DBE firms and the Department believes that developing bidders data will be useful for recipients. Creating and maintaining a bidders list will give recipients another valuable way to measure the relative availability of ready, willing and able DBEs when setting their overall goals. (See § 26.45). We realize that identifying subcontractors, particularly non-DBEs and all subcontractors that were unsuccessful in their attempts to obtain contracts, may well be a difficult task for many recipients. Mindful of that potential burden, the rule will not impose any procedural requirements for how the data is collected. Recipients are free to choose whether or not they wish to gather this data through their existing bidding and reporting processes. Recipients are encouraged to make use of all of the data already available to them and all methods of reporting and communication with their contracting community that they already have in place. In addition, the Department suggests that recipients consider using a widely publicized public notice or a

widely disseminated survey to encourage all firms that have bid or quoted contracts to make themselves known to recipients.

Once recipients have created the list of bidders, they will have to supplement that information with the age of each firm (since establishment) and the annual gross receipts of the firm (or an average of its annual gross receipts). Recipients can gather this additional information by sending a questionnaire to the firms on the list, or by any other means that the recipient believes will yield reliable information. The recipient's plan for how to create and maintain the list and gather the required information must be included in its DBE program.

Section 26.13 What Assurances Must Recipients and Contractors Make?

There were few comments on this section. Most of these supported the proposal. One comment suggested specific mention of prompt payment, but in view of the substantive requirements on this subject, we do not believe such a mention is needed. Some commenters favored requiring additional public participation as part of the assurance for recipients. Again, given substantive provisions of this rule concerning public participation, we do not believe that repetition here is needed. One commenter said that incorporating the requirements of part 26 in the contract was confusing, since many provisions of part 26 apply only to recipients. We have rewritten the assurance for contractors in response to this concern, specifying that contractors are responsible only for carrying out the requirements of part 26 that apply to them.

Section 26.15 How Can Recipients Apply for Exemptions or Waivers?

There has been some confusion as to this rule's distinction between exemption and waiver. Put simply, exemptions are for unique situations that are most likely not to be either generally applicable to all recipients or to have been contemplated in the rulemaking process. If such a situation occurs and it makes it impractical for a particular recipient to comply with a provision of part 26, the recipient should apply for an exemption from that provision. The waiver provision, by contrast, is not designed for extraordinary circumstances where a recipient may not be able to comply with part 26. Waiver is for a situation where a recipient believes that it can better accomplish the objectives of the DBE program through means other than the specific provisions of part 26.

There were a number of comments about the proposed program waiver provision. Most commenters on this issue favored the proposal, believing it could add flexibility to the way recipients implement the DBE program. A few commenters were concerned that too liberal use of the waiver provision might undermine the goals of the rule.

The Department believes that the waiver provision is an important aspect of the DBE program. The provision ensures that the Department and a recipient can work together to respond to any unique local circumstances. Recipients are encouraged to carefully review the circumstances in their own jurisdictions to determine what mechanisms are best suited to achieving compliance with the overall objectives of the DBE program. If a recipient believes it is appropriate to operate its program differently from the way that a provision of Subpart B or C provides, including, but not limited to, any provisions regarding administrative requirements, overall or contract goals, good faith efforts or counting provisions, it can apply for a waiver. For example, waiver requests could pertain to such subjects as the use of a race-conscious measure other than a contract goal, different ways of counting DBE participation in certain industries, use of separate overall or contract goals to address demonstrated discrimination against specific categories of socially and economically disadvantaged individuals, the use or wording of assurances, differences in information collection requirements and methods, etc.

The Department will, of course, carefully review any applications for waivers to make sure that innovative state or local programs are able to meet the objectives of the statutes and regulation. Decisions on waiver requests are made by the Secretary. This authority has not been delegated to other officials. The waiver provision, which the Department believes will help assist recipients to "narrowly tailor" the program to state and local circumstances and ensure nondiscrimination, remains in the final rule.

Section 26.21 Who Must Have a DBE Program?

The only substantive comment concerning this provision asked that Federal Railroad Administration (FRA) programs be included. The Department is not including FRA programs under this rule because FRA does not have a specific DBE program statute parallel to those covering the Federal Aviation Administration (FAA), FTA, and

FHWA. FRA could consider issuing a rule similar to part 26 under its own, separate statutory authority. The Department shortened paragraph (b)(1) to make it easier to understand. Within 180 days of the effective date of this rule, all recipients with existing programs must submit revised programs to the relevant OA for approval. The only changes from existing programs that recipients would have to make are changes needed to accommodate differences between former part 23 and part 26. Future new recipients would, of course, submit a DBE program as part of the approval process for financial assistance.

Section 26.23 What is the Requirement for a Policy Statement?

Section 26.25 What is the Requirement for a Liaison Officer?

Section 26.27 What Efforts Must Recipients Make Concerning DBE Financial Institutions?

There were no substantive comments concerning §§ 26.23–26.27, and the Department is adopting them as proposed.

Section 26.29 What Prompt Payment Mechanisms Must Recipients Have?

There was substantial comment on the issue of prompt payment. A majority of commenters supported the concept of prompt payment provisions. Some recipients pointed out that they already had prompt payment provisions on the books. DBEs generally supported mandating prompt payment provisions though they, as well as other commenters, recognized that slow payment is a problem affecting many subcontractors, not just DBEs. Some of these comments suggested making prompt payment requirements applicable to subcontracts in general, not just DBE subcontracts. Some recipients were concerned about getting in the middle of disputes between prime contractors and subcontractors. Some commenters wanted the Department to mandate prompt payment provisions, while others preferred that their use by recipients remain optional.

Having considered the variety of views expressed on this subject, the Department believes that prompt payment provisions are an important race-neutral mechanism that can benefit DBEs and all other small businesses. Under part 26, all recipients must include a provision in their contracts requiring prime contractors to make prompt payments to their subcontractors, DBE and non-DBE alike. It is clear that DBE subcontractors are significantly—and, to the extent that

they tend to be smaller than non-DBEs, disproportionately—affected by late payments from prime contractors. Lack of prompt payment constitutes a very real barrier to the ability of DBEs to compete in the marketplace. It is appropriate for the Department to require recipients to take reasonable steps to deal with this barrier. We recognize that delayed payments do not affect only DBE contractors; a prompt payment requirement applying to all subcontracts is an excellent example of a race-neutral measure that will assist DBEs, and we are therefore requiring that recipients' prompt payment mechanisms apply to all subcontracts on Federally-assisted contracts.

Paragraph (a) of this section requires recipients to put into their DBE programs a requirement for a prompt payment contract clause. This clause would appear in every prime contract on which there are subcontracting possibilities, and it would obligate the prime contractor to pay subcontractors within a given number of days from the receipt of each payment the recipient makes to the prime contractor. Payment is required only for satisfactory completion of the subcontractor's work. The clause would also apply to the return of retainage from the prime to the subcontractor. Retainage would have to be returned within a given number of days from the time the subcontractor's work had been satisfactorily completed, even if the prime contract had not yet been completed. A majority of commenters on the retainage issue favored a requirement of this kind.

The number of days involved would be selected by the recipient, subject to OA approval as part of the recipient's DBE program. In approving these time frames, the OAs will consider whether they are realistic and sufficiently brief to ensure genuinely prompt payment. Recipients who already operate under prompt payment statutes may use their existing authority in implementing this requirement. It may be necessary to add to existing contract clauses in some cases (e.g., if existing prompt payment requirements do not cover retainage).

Paragraph (b) lists a series of additional measures that the regulation authorizes, but does not require, recipients to use. These include alternative dispute resolution, holding of payments to primes until subcontractors are paid, and other mechanisms that the recipient may devise. All these mechanisms could be made part of the recipient's DBE programs.

Section 26.31 What Requirements Pertain to the DBE Directory?

Recipients maintain directories listing certified DBEs. The issue most discussed by commenters on this section was whether the directory should include material concerning the qualifications of the firm to do various sorts of work. For example, has the firm been pre-qualified by the recipient? Can it do creditable work? What kinds of work does the firm prefer to do? Some commenters also asked that the directory should list the geographical areas in which the firm is willing to work. Other commenters opposed the idea of including this kind of information in the directory.

The Department believes that the directory and the certification process are closely intertwined. The primary purpose of the directory is to show the results of the certification process. Consequently, the directory should list all firms that the recipient has certified, along with basic identifying information for the firm. Since certification under this rule pertains to the various kinds of work a firm's disadvantaged owners can control, it is important to list those kinds of work in the directory. For example, if a firm seeks to work in fields A, B, and C, but the recipient has determined that its disadvantaged owners can control its operations only with respect to A and B, then the directory would recite that the firm is certified to perform work as a DBE in fields A and B.

The focus of the directory is intended to be eligibility. A directory is a list of firms that have been certified as eligible DBEs, with sufficient identifying information to permit interested firms to contact the DBEs. We do not intend to turn a recipient's directory into a comprehensive business resource manual. For example, information about firms' qualifications, geographical preferences for work, performance track record, capitalization, etc. are not required to be part of the directory. Some commenters favored including one or more of these elements, but we are concerned that other business information—however useful in its own right—could clutter up the directory and dilute its focus on certification.

Section 26.33 What Steps Must a Recipient Take to Address Overconcentration of DBEs in Certain Types of Work?

For some time, the Department has heard allegations that DBEs are overconcentrated in certain fields of highway construction work (e.g., guardrail, fencing, landscaping, traffic

control, striping). The concern expressed is that there are so many DBEs in these areas that non-DBEs are frozen out of the opportunity to work. In an attempt to respond to these concerns, the SNPRM asked for comment on a series of options for "diversification" mechanisms, various incentives and disincentives designed to shift DBE participation to other types of work.

The Department received a great deal of comment on these proposals, almost all of it negative. There were few comments suggesting that overconcentration was a serious problem, and many comments said that the alleged problem was not real. Some FTA and FAA recipients said that if there was a problem with overconcentration, it was limited to the highway construction program. As a general matter, recipients said that the proposed mechanisms were costly, cumbersome, and too prescriptive.

Prime contractors opposed the provisions because they would make it more difficult for them to find DBEs with which to meet their goals, while DBEs opposed them because they felt the provisions would penalize success and force them out of areas of business in which they were experienced. Many commenters suggested using outreach or business development plans as ways of assisting DBEs to move into additional areas of work.

The Department does not have data from commenters or other sources to support a finding that "overconcentration" is a serious, nationwide problem. However, as part of the narrow tailoring of the DBE program, we believe it would be useful to give recipients the authority to address overconcentration problems where they may occur. In keeping with the increased flexibility that this rule provides recipients, we give recipients discretion to identify situations where overconcentration is unduly burdening non-DBE firms. If a recipient finds an area of overconcentration, it would have to devise means of addressing the problem that work in their local situations. Possible means of dealing with the problem could include assisting prime contractors to find DBEs in non-traditional fields or varying the use of contract goals to lessen any burden on particular types of non-DBE specialty contractors. While recipients would have to obtain DOT approval of determinations of overconcentration and measures for dealing with them, the Department is not prescribing any specific mechanisms for doing so.

Section 26.35 What Role do Business Development and Mentor-Protégé Programs Have in the DBE Program?

In the SNPRM, both mentor-protégé programs and business development programs (BDPs) were cast as tools to use for diversification. They still may be used for that purpose, as noted in § 26.33. However, the Department believes that they may have a broader application, and their use in the final rule is not limited to diversification purposes. BDPs, in particular, are good examples of race-neutral methods recipients can use to promote the participation of DBEs and other small businesses in their contracting programs.

There were few comments on these provisions. Recipients wanted flexibility, and suggested that these kinds of programs should be optional. Their comments said that such programs were resource-intensive, and that Federal financial assistance for them would be welcome. One contractor's organization offered its own mentor-protégé plan as a model. A few comments voiced suspicion of mentor-protégé plans, on the basis that they allowed fronts and frauds into the program.

The final rule makes the use of BDPs and mentor-protégé programs optional for recipients. An operating administration can direct a particular recipient to institute a BDP, but BDPs are not mandatory across the board. The operating administration would negotiate with the recipient before mandating a BDP.

One feature added to this provision allows recipients to establish a kind of mini-graduation requirement for firms that voluntarily participate in BDPs. One of the purposes of a BDP is to equip DBE firms to compete in the market outside the DBE program. Therefore, a recipient could ask BDP participants to agree—as a condition of receiving BDP assistance—to agree to leave the DBE program after a certain number of years, or after certain business development objectives had been achieved.

Standing alone, mentor-protégé programs are not an adequate substitute for the DBE program. While they can be an important tool to help selected firms, they cannot be counted on to level the playing field for DBEs in general. An effective mentor-protégé program requires close monitoring to guard against abuse, which further limits the number of DBEs they can assist. Even with these limits, a mentor-protégé program that has safeguards to prevent large non-DBE firms from circumventing the DBE program can be a useful

component of a recipient's overall strategy to ensure equal opportunities for DBEs.

The final rule includes safeguards intended to prevent the misuse of mentor-protégé programs. Only firms that a recipient has already certified as DBEs (necessarily including a determination that they are independent firms) can participate as protégés. This is intended to preclude non-DBE firms from creating captive DBE firms to serve as protégés. A non-DBE mentor firm cannot get credit for more than half its goal on any contract by using its own protégé. Moreover, a non-DBE mentor firm cannot get DBE credit for using its own protégé on more than every other contract performed by the protégé. That is, if Mentor Firm X uses Protégé Firm Y to perform a subcontract, X cannot get DBE credit for using Y on another subcontract until Y had first worked on an intervening prime contract or subcontract with a different prime contractor.

To make mentor-protégé relationships feasible, the rule provides that mentors and protégés are not treated as affiliates of one another for size determination purposes. Mentor-protégé programs and BDPs must be approved by the concerned operating administration before they take effect. Recipients who already have such programs in place would make them part of their revised DBE programs sent to the concerned OA within 180 days of the effective date of part 26.

Section 26.37 What Are a Recipient's Responsibilities for Monitoring the Performance of Other Program Participants?

The few comments on this section asked for more detail and clarification. In the interest of flexibility, the Department is reluctant to be prescriptive in the matter of monitoring and enforcement mechanisms. What we are looking for is a strong and effective set of monitoring and compliance provisions in each recipient's DBE program. These mechanisms could be most anything available to the recipient under Federal, state, or local law (e.g., liquidated damages provisions, responsibility determinations, suspension and debarment rules, etc.)

One of the main purposes of these provisions is to make sure that DBEs actually perform work committed to them at contract award. The results that recipients must measure consist of payments actually made to DBEs, not just promises at the award stage. Credit toward goals can be awarded only when payments (including, for example, the return of retainage payments) are

actually made to DBEs. Under the final rule, recipients would keep a running tally of the extent to which, on each contract, performance had matched promises. Prime contractors whose performance fell short of original commitments would be subject to the compliance mechanisms the recipient had made applicable.

Section 26.41 What Is the Role of the Statutory 10 Percent Goal in This Program?

This is a new section, intended to explain what role the 10 percent statutory goal plays in the DBE program. Under former part 23, the 10 percent figure derived from the statute had a role in the setting of overall goals by recipients. For example, if recipients had a goal of less than 10 percent, the rule required them to make a special justification.

This section makes clear that the 10 percent goal is an aspirational goal that applies to the Department of Transportation on a national level, not to individual recipients. It is a goal that the Department can use to evaluate its overall national success in achieving the objectives that Congress has established for this program. However, the national 10 percent goal is not tied to recipients' goal-setting decisions. Recipients set goals based on what will achieve a level playing field for DBEs in their own programs, without regard to the national goal. Recipients are not required to set their overall or contract goals at 10 percent or any other particular level. Recipients are no longer required to make a special justification if their overall goals are less than 10 percent.

As discussed in connection with the Congressional debate on the TEA-21 DBE provision, Congress viewed flexibility concerning the statutory 10 percent goal as an important feature of narrow tailoring and made clear that it was setting a national goal, not a goal for any individual recipient. The Department wants to ensure that state and local programs have sufficient flexibility to implement their programs in a narrowly tailored way. This section is part of the Department's effort toward that end.

Section 26.43 Can Recipients Use Quotas or Set-Asides as Part of This Program?

The DBE program has often been labeled as a "quota" or "set-aside" program, especially, though not exclusively, by its opponents. This label is, and always has been, incorrect. Fifteen years ago, in the preamble to the Department's first rule implementing a DBE statute, the Department carefully

specified that neither quotas nor set-asides were required (see 48 FR 33437-38; July 21, 1983). This remains true today. However, in light of *Adarand* and this year's Congressional debates on the DBE statutes, we believe this point deserves additional emphasis. This regulation prohibits quotas under any circumstances and makes clear that set-asides can only be used as a means of last resort for redressing egregious discrimination.

A number of non-DBE contractors and their organizations continued to assert, in comments on the SNPRM, that the DBE program operates as a quota program. This section makes clear that recipients cannot use quotas on DOT-assisted contracts under any circumstances. A quota is a simple numerical requirement that a recipient or contractor must meet, without consideration of other factors. For example, if a recipient sets a 12 percent goal on a particular contract and refuses to award the contract to any bidder who does not have 12 percent DBE participation, either refusing to look at showings of good faith efforts or arbitrarily disregarding them, then the recipient has used a quota. The Department's regulations have never endorsed this practice. The issue of good faith efforts is discussed further below in connection with § 26.51.

A set-aside is a very specific tool. A contracting agency sets a contract aside for DBEs if it permits no one but DBEs to compete for the contract. Firms other than DBEs are not eligible to bid. The Department's DBE program has never required the use of set-asides and has allowed recipients to use set-asides only under very limited circumstances.

Under the SNPRM, a recipient could use a set-aside on a DOT-assisted contract only if other methods of meeting overall goals were demonstrated to be unavailing and the recipient had legal authority independent of part 26. Comments were divided concerning the use of set-asides. A number of non-DBE contractors opposed the use of set-asides, some of them saying that set-asides might be something they could live with if their use were balanced by the elimination of DBE contract goals on other contracts in the same field. Some recipients and DBEs said, however, that set-asides were a useful tool to achieve goals, particularly for start-up contractors or small contracts.

The Department has carefully reviewed these comments and continues to believe that set-asides should not be used in the DBE program unless they are absolutely necessary to address a specific problem when no other means

would suffice. If a recipient has been unable to remedy the effects of egregious discrimination through other means, it may, as a last resort, make limited use of set-asides to the extent necessary to resolve the problem.

Section 26.45 How Do Recipients Set Overall Goals?

Since its inception, the recipient's overall goal has been the heart of the DBE program. Responding to *Adarand*, DOT clarified the theory and purpose of the overall goal in the SNPRM. In the proposed rule, the Department made clear that the purpose of the overall goal—and, in fact, the DBE program as a whole—is to achieve a "level playing field" for DBEs seeking to participate in federal-aid transportation contracting. To reach a level playing field, recipients need to examine their programs and their markets and determine the amount of participation they would expect DBEs to achieve in the absence of discrimination and the effects of past discrimination. The focus of the goal section of the SNPRM was to propose ways to measure what a level playing field would look like and to seek input on the availability of data to make such a measurement.

The Proposed Rule and Comments

The Department proposed several options that recipients might use for setting overall goals, including three alternative formulas for measuring the availability of ready, willing and able DBEs in local markets. The specific formulas will be discussed below, but generally, they each called for setting a goal that reflected the percentage of locally available firms that were DBEs (i.e. dividing the number of DBEs by the number of all businesses). On all of the alternatives, the SNPRM sought comments on both the feasibility and practical value of the options, as well as the prospects for combining any of the approaches and the question of whether to mandate a single approach or allow each recipient to choose amongst the options. We invited commenters to propose changes to any of the details of the options or to devise entirely new ones. Finally, we asked commenters for their input on the availability of reliable data for use with each of the options.

Hundreds of commenters of all types—including DBEs and non-DBEs, prime and subcontractors, state and local recipients, industry and interest groups and private individuals—responded with a wealth of feedback, opinions and data. It is an understatement to say that there was no consensus among commenters as to the best way to set overall goals. Support for

the proposed options was almost evenly spread over the choices presented, with many commenters firmly against all of the options. Still more suggested that the current, non-formulaic method was the best way to ensure the flexibility to respond to local market conditions. Similarly, among those who expressed an opinion, commenters were split between the propriety of choosing a single "best" method and imposing it on all recipients and allowing recipients to choose amongst all the options. One of the few universal themes in the goal-setting comments was the problem of the availability of reliable data on the number of DBE and non-DBE contractors.

There were a few common threads that different groups of commenters tended to apply to all of the formulas. Among recipients, many comments focused on the lack of data about non-DBE contractors, especially subcontractors. Recipients often noted that they would not have the information needed for the denominator of any of the formulas (i.e. the total number of available businesses). Non-DBE contractors—and industry groups representing them—generally believed that there should be a capacity measure built into any goal setting mechanism. Finally, DBEs—and their industry associations—were concerned that all of the formulas would create goals based only on the current number of DBEs, locking in the effects of past discrimination by ignoring the fact that the lack of opportunities in the past has suppressed the number of DBE firms available today.

Under the proposed rule's Alternative 1, recipients would calculate the percentage of DBE firms in their directories among all firms available to work on their DOT-assisted contracts. Under Alternative 2, recipients would calculate the percentage of all minority- and women-owned firms in certain SIC codes in their areas among all firms in these SIC codes in the same areas. Under Alternative 3, recipients would calculate a percentage based on the average number of DBE firms that had worked on their DOT-assisted contracts in recent years divided by the average number of all firms that had worked on their DOT-assisted contracts in the same period. The SNPRM also proposed that recipients could use other means, such as disparity studies or goals developed by other recipients serving the same area, as a basis for their goals.

Each of the three proposed alternatives received some support, though this was often the rather tepid endorsement of commenters who felt that one or another alternative was the

best of a bad lot. Non-DBE contractors often claimed that the alternatives would unfairly increase goals, while DBE contractors often claimed that the same proposals would unfairly decrease goals.

Commenters said that data for determining the denominators of the equations in Alternatives 1 and 2, as well as the numerator in Alternative 2, did not exist and that it would be a major, time-consuming job to begin to obtain the data. Adaptation of existing information from other sources (e.g., Census data) was said to have significant statistical difficulties. The difficulty of getting data on out-of-state firms was emphasized in some comments.

Commenters looked on the alternatives as cumbersome, creating unreasonable administrative burdens, and as producing statistical results that were skewed in various ways. The use of DBE directories as the source of the numerator in Alternative 1 was criticized on the basis that directories may contain firms that never actually participate in DOT-assisted contracts. It was suggested that the number of firms bidding rather than the number of firms certified would be a more reliable guide, but it was also pointed out that, because subcontractors seldom formally bid for work, this data would be hard to obtain. Some commenters proposed adding overall population statistics to the mix.

A significant number of commenters—primarily non-DBE contractors, but including some recipients and other commenters as well—emphasized the need to take "capacity" into account. Most popular among these comments was using a capacity version of Alternative 3. These comments did not propose a method of determining the capacity of the firms contracting with the recipient.

The Final Rule

In view of the complexity and importance of the goal setting process and the many issues raised by commenters, the Department has decided to adopt a two step process for goal setting. The process is intended to provide the maximum flexibility for recipients while ensuring that goals are based on the availability of ready, willing and able DBEs in each recipient's relevant market. The Department believes that this approach is critical to meeting our constitutional obligation to ensure that the program is narrowly tailored to remedy the effects of discrimination. The first step of the process will be to create a baseline figure for the relative availability of ready, willing and able DBEs in each

recipient's market. The second step will be to make adjustments from the base figure, relying on an examination of additional evidence, past experience, local expertise and anticipated changes in DOT-assisted contracting over the coming year.

Step 1: Determining a Base Figure for the Overall Goal

The base figure is intended to be a measurement of the current percentage of ready, willing and able businesses that are DBEs. Ensuring that this figure is based on demonstrable evidence of each recipient's relevant market conditions will help to ensure that the program remains narrowly tailored. To be explicit, recipients cannot simply use the 10 percent national goal, their goal from the previous year, or their DBE participation level from the previous year as their base figure. Instead, all recipients must take an actual measurement of their marketplace, using the best evidence they have available, and derive a base figure that is as fair and accurate a representation as possible of the percentage of available businesses that are DBEs.

There are many different ways to measure the contracting market and assess the relative availability of DBEs. As discussed above, the SNPRM proposed three alternate formulas to measure relative availability, none of which were particularly popular with commenters. In this final rule, the Department is placing primary emphasis on the principles underlying the measurement, mandating only that a measurement of the relative availability of DBEs be made on the basis of demonstrable evidence of relevant market conditions, rather than requiring that any particular procedure or formula be used. The final rule contains a number of examples of how to create a base figure which recipients are free to adopt in their entirety or to use as guidelines for how to devise their own measurement.

There are several reasons we have taken this approach. First, the Department is aware of the differences in available data in various markets across the nation. The flexibility inherent in this approach will ensure that all recipients can use the procedure to set a reasonable goal and allow each recipient to use the best data available to it. As discussed in another section, this rule will also provide for the development of more standard data for future goal setting. Second, for many recipients, setting goals in this way will be a new exercise. By fixing only the basic principle, but allowing the methodology to change, recipients will

have the opportunity to fine tune the process each year as their experience grows and the data available to them improve. Finally, the rule makes sure that every recipient will have at least one reasonable and practical goal setting method available to them.

The first example for setting a base figure relies on data sources that are immediately available to all recipients: their DBE directories, and a Census Bureau database that DOT and the Census Bureau will make available to all recipients that wish to use it. This example has its roots in the first two goal setting formulas proposed in the SNPRM. Recipients would first assess the number of ready, willing and able DBEs based on their own directories. For some recipients this will be as simple as counting the number of firms in their directory. For others, particularly those using directories maintained by other agencies, the directories will have to be "filtered" for firms involved in transportation contracting. The resulting number of DBEs would become the numerator. The denominator would then be derived from the Census Bureau's County Business Pattern (CBP) database. We will provide user-friendly electronic access to the database via the internet to allow recipients to input the geographic area and SIC codes in which they contract and receive a number for the availability of all businesses.

There are several issues that must be addressed when comparing numbers derived from two different data sources, some of which were raised in the comments on the SNPRM. Recipients will need to ensure that the scope of businesses included in the numerator is as close as possible to the scope included in the denominator. Using as close as possible to the same SIC codes and geographic base is very important. A recipient using its own DBE directory, particularly one that contains only firms in the fields in which it contracts, will still need to determine what fields it will use for the denominator when sorting through the CBP database. The best way to do this would be to examine their contracting program and determine the SIC codes in which they let the substantial majority of their contracts and subcontracts. The geographic area used for both the numerator and the denominator should cover the area from which the recipient draws the substantial majority of its contractors. While it may be sufficient for some state recipients to use their state borders as their contracting area, local transit and airport recipients will rarely have such an obvious choice. Those recipients will need to more carefully examine the

geographic area from which they draw contractors and base their calculation of both the numerator and denominator of the equation on the same area.

The Department and the Census Bureau will make the CBP data available in a format that gives recipients as much flexibility as possible to tailor the data to their contracting programs. Recipients will be able to extract the data in one block for all of the SIC codes they expect to contract in, or by individual SIC codes, allowing them to

weight the relative availability of DBEs in various fields, giving more weight to the fields in which they spend more money. For example, let us assume a recipient estimates that it will expend 10% of its federal aid funds within SIC code 15, 40% in SIC code 16, 25% in SIC code 17, and the remaining 25% on contracting spread over SIC codes 07, 42 and 87. The recipient could separately determine the relative availability of DBEs for each of the three major construction SIC codes (i.e., 15, 16 and

17) and the relative availability of DBEs in the other three SIC codes grouped together and weight each according to the amount of money to be spent in each area. In this example, the recipient could calculate its weighted base figure by first determining the number of DBEs in its directory for each of the groups, then extracting the availability of CBP businesses for the same groups. It would then perform the following calculation to arrive at a base figure for step one of the goal setting process:

$$\text{Base Figure} = \left[.10 \frac{(\text{DBEs in SIC 15})}{\text{CBPs in SIC 15}} + .40 \frac{(\text{DBEs in 16})}{\text{CBPs in 16}} + .25 \frac{(\text{DBEs in 17})}{\text{CBPs in 17}} + .25 \frac{(\text{DBEs in 07,42,87})}{\text{CBPs in 07,42,87}} \right] \times 100$$

As has been stated generally, this formula is offered only as an example of a way that a recipient could choose to use the CBP database. Recipients using the CBP data should choose whether to weight their calculation, and whether to do so by individual SIC codes or by groups of SIC codes, based on their own assessment of what method will best fit their spending pattern.¹

Finally, there is still the question of the propriety of comparing data from two sources as different as DBE directories and the CBP. As mentioned above, some commenters asserted that the directories may contain firms that do not normally perform DOT-assisted contracts. This problem is greatest, of course, for directories maintained by other agencies for purposes beyond DOT-assisted contracting. We believe that the recipient's knowledge of its contracting needs and the contents of its DBE directory will allow it to solve this problem by sorting the directories by SIC code to extract only the firms likely to be interested in DOT-assisted contracting. Any remaining effect from DBEs that are certified in the relevant SIC codes but still do not intend to compete for DOT-assisted contracts will be more than offset by the hurdles involved in actually becoming a DBE. It is important to note here that the certification process itself, with its paperwork, review and on-site inspection, create a filter on the number of existing firms that will be counted in the numerator without there being any equivalent filter culling firms out of the denominator. Ultimately, the Department chose these two data sources for the example because, while they may not be perfect, they represent

the best universally available current data on both the presence of DBEs and the presence of all businesses in local markets. Any recipient that believes it has available to it better sources of local data from which to make a similar calculation for its base figure is encouraged to use them.

The second example for calculating a base figure is using a bidders list to determine the relative availability of DBEs. The concept is similar to the one described above. The recipient would divide the number of available ready, willing and able DBEs by the number for all firms. The difference is that instead of measuring availability by DBE certifications and Census data, the recipient would measure availability by the number of firms that have directly participated in, or attempted to participate in, DOT-assisted contracting in the recent past. This approach has its roots in Alternative 3 from the SNPRM. Of fundamental importance to this approach is that the recipient would need to include all firms that have sought DOT-assisted contracts, regardless of whether they did so by bidding on a prime contract or quoting a job as a subcontractor. Because most DOT recipients derive the substantial majority of their DBE participation through subcontracting, it is absolutely essential that all DBE and non-DBE firms that quote subcontracts be included in the bidders list.² Bidders lists are a very focussed measure of ready, willing and able firms because they filter the pool of available firms by requiring a demonstration of their ability to participate in the process through tracking and identifying

contracting opportunities, understanding the requirements of a particular job and assembling a bid for it. Another attractive feature of the bidding "filter" is that it applies equally to both DBEs and non-DBEs.

The third example included in the final rule for setting a base figure is using data derived from a disparity study. As was discussed in the SNPRM, the Department is not requiring recipients to do a disparity study, but is only making clear that use of disparity study data by recipients that have them or choose to conduct them is a valid means of setting a goal. Disparity studies generally contain a wide array of statistical data, as well as anecdotal data and analysis that can be particularly useful in the goal setting process. We list disparity studies here, not because they are needed to justify operating the DBE program—Congress has already established the compelling need for the DBE program—but because the data a good disparity study provides can be an excellent guide for a recipient to use to set a narrowly tailored goal.

The Department will not set out specific requirements for what data or analysis is required before a disparity study can be used for setting a goal, because we believe that the design and conduct of the study is best left to the local officials and the professional organizations with which they contract to conduct the studies. Instead, we again offer simple general principles that should apply to all studies used for goal setting. Any study data relied on in the goal setting process should be as recent as possible and be focussed on the transportation contracting industry. When setting the goal, first use the study's statistical evidence to set a base figure for the relative availability of DBEs. Other study information, whether it is anecdotal data, analysis or statistical information about related

¹ While it is not statistically necessary to account for 100% of program dollars when performing this type of weighting, the greater the percentage accounted for, the more accurate the resulting calculation will be.

² To prevent any confusion, it is important to note that the DBE program does not use the so-called "benchmarking" system employed in direct Federal procurement. The benchmarking system relies on a unique database created specifically for use in the federal procurement program.

fields, should be included when making adjustments to the base figure (discussed in more detail below), but not included in the base figure for the relative availability of DBEs.

The last specific example included in the rule is using the goal of another recipient as the base figure for goal setting. This option was also included in the SNPRM. It is intended to avoid duplicative work and to lighten the burden the goal setting process might put on smaller recipients. It is important to note that a recipient could only use another recipient's goal if it was set in accordance with this rule and the other recipient performed similar contracting in a similar market area. Using another recipient's approved goal would only satisfy the first step of the goal setting process. It would serve as the base figure, and could not be used to skip over step two of the process. The recipient would need to examine the same additional evidence it would otherwise use to determine whether to adjust its goal from the base figure, as well as being required to make adjustments to account for differences in its local market or contracting program.

The final rule also maintains the option of devising an alternative method of calculating a base figure for the goal setting process. Explicitly listing this option serves to emphasize the point that the options in the rule are examples meant as guidelines intended to ensure maximum flexibility for recipients. Recipients can use this option to take advantage of their unique expertise or any unique source of data that they have that may not be available to other recipients. The concerned operating administration will review and approve the proposals of recipients that believe they can calculate a base figure that will better reflect their relevant market than any of the examples provided in this rule. Approval will be contingent on the proposals following the same principles that apply to any recipient: the methodology must be based on demonstrable data of relevant market conditions and be designed to reach a goal that the recipient would expect DBEs to achieve in the absence of discrimination.

Step 2: Adjusting the Base Figure

As alluded to above, measuring the relative availability of DBEs to derive a base figure is only the first step of the goal setting process. To ensure that they arrive at goals that truly and accurately reflect the participation they would expect absent the effects of discrimination, recipients must go beyond the formulaic measurement of

current availability to account for other evidence of conditions affecting DBEs. To accomplish this second step, recipients must first survey their jurisdiction to determine what types of relevant evidence is available to them. Then, relying on their own knowledge of their contracting markets they must review the evidence to determine whether either an up or down adjustment from the base figure is needed.

One universally available form of evidence that all recipients should consider is the proven capacity of DBEs to perform work on DOT-assisted contracts. All recipients have been tracking and reporting the dollar volume of work that is contracted and subcontracted to DBEs each year. Viewed in isolation, the past achievements of DBEs do not reflect the availability of DBEs relative to all available businesses, but it is an important and current measure of the ability of DBEs to perform on DOT-assisted contracts.

Though not universally available, there are hundreds of existing disparity studies that contain a wealth of statistical and anecdotal evidence on the utilization of disadvantaged businesses. In addition to being a possible source of data for Step 1 of the goal setting process, disparity studies should be considered during Step 2 of the process. The base figure from Step 1 is intended to determine the relative availability of DBEs. The data and analysis in a disparity study can help a recipient determine whether those existing businesses are under- or over-utilized. If a recipient has a study with disparity ratios showing that existing DBEs are receiving significantly less work than expected, an upward adjustment from the base figure is called for. Similarly, if the disparity ratio shows overutilization, a downward adjustment to the base figure would be warranted. The anecdotal evidence and analysis of contracting requirements and conditions that may have a discriminatory impact on DBEs are also important sources that should be examined when determining what adjustment to make to the base figure.³ Finally, disparity studies that are conducted within a recipient's jurisdiction should be examined even if they were not done specifically for the recipient. For example, a state highway agency may find useful data and

³ It is important to note that adjusting the goal is only part of the response a recipient should make to evidence of discriminatory barriers for DBEs. All recipients have a primary responsibility to ensure non-discrimination in their programs and should act aggressively to remove any discriminatory barriers in their programs.

analysis in either a statewide disparity study covering other agencies or in a disparity study examining contracting in a county or city within the state.

If a recipient uses another recipient's goal as its base figure under Step 1 of the goal setting process, it will have to make additional adjustments to ensure that its final goal is narrowly tailored to its market and contracting program. For example, if a local transit or airport authority adopts a statewide goal as its base figure, it must determine the extent that local relative availability of DBEs differs from the relative availability of DBEs in the contracting area relied on by the state. The local recipient would also need to examine the differences in the type of contracting work in its program and determine whether there are significant differences in the relative availability of DBEs in any fields that are unique to its program—or unique to the program of the other recipient. Similarly, if one local recipient used the goal of another local recipient in the same market as its base figure, it would also need to adjust for differences in the contracting fields used by the two programs.

Finally, the rule contains a brief list of other types of data a recipient could consider when adjusting its base figure to arrive at an overall goal. The list is by no means intended to be exhaustive. Instead, it is meant as a guide to the types of information a recipient should look for in Step 2 of the goal setting process. There is a wide array of relevant local, regional and national information about the utilization of disadvantaged businesses. Recipients are encouraged to cast as wide a net as they can to carefully examine their contracting programs and the public and private markets in which they operate.

Additional Goal Setting Issues

The Department proposed, in both the 1992 NPRM and the 1997 SNPRM, that overall goals be calculated as a percentage of DOT funds a recipient expects to expend in DOT-assisted contracts. This is different from the existing part 23 rule, which asked recipients to set overall goals on the basis of all funds, including state and local funds, to be expended in DOT-assisted contracts. This change is for accounting and administrative convenience and is not intended to have a substantive effect on the program. While not the subject of many comments, those who did comment on the proposal favored the change. The final rule adopts this approach.

A few recipients commented that public participation concerning goal setting was bothersome. Nevertheless,

we view it as an essential part of the goal setting process. There are many stakeholders involved in setting goals, and it is reasonable that they should be involved in the process and have an opportunity for comment. The part 23 provision requiring getting a state governor's approval of a goal of less than 10 percent has been eliminated, both because overall goals are no longer tied to the national 10 percent goal and to reduce administrative burdens.

The goal setting provision of the final rule continues to direct recipients to set one annual overall goal for DBEs, rather than group-specific goals separating minority and women-owned businesses.

Section 26.47 Can Recipients Be Penalized for Failing To Meet Overall Goals?

This is a new section of the regulation, the purpose of which is to clarify the Department's views on the situations in which it is appropriate to impose sanctions on recipients with respect to goals. The provision states explicitly what has long been the Department's policy: no recipient is sanctioned, or found in noncompliance, simply because it fails to meet its overall goal. In fact, through the history of the DBE program, the Department never has sanctioned a recipient for failing to obtain a particular amount of DBE participation.

On the other hand, if a recipient fails to set an overall goal which the concerned operating administration approves, or fails to operate its program in good faith toward the objective of meeting the goal, it is subject to a finding of noncompliance and possible sanctions. For example, if a recipient refuses to establish a goal or, having established one, does little or nothing to work toward attaining it, it would be reasonable for the Department to find the recipient in noncompliance. Like all compliance provisions of the rule, this provision is subject to the "court order" exception recently created by statute (see § 26.101(b)).

Section 26.49 How Are Overall Goals Established for Transit Vehicle Manufacturers?

This provision basically continues in effect the existing transit vehicle manufacturer (TVM) provisions of the rule. The SNPRM proposed to change the existing rule in two respects. FHWA or FAA recipients could avail themselves of similar provisions, if they chose. The final rule retains this flexibility. Also, it was proposed that FTA, rather than manufacturers, would set TVM goals. The few comments we received on this section objected to the

latter change. Consequently, we will not adopt the proposed change and will continue to require the TVMs themselves to set their own goals based on the principles outlined in § 26.45 of this rule.

Section 26.51 What Means Do Recipients Use To Meet Overall Goals?

One of the key points of both the SNPRM and this final rule is that, in meeting overall goals, recipients have to give priority to race-neutral means. By race-neutral means (a term which, for purposes of this rule, includes gender neutrality), we mean outreach, technical assistance, procurement process modification, etc.—measures which can be used to increase opportunities for all small businesses, not just DBEs, and do not involve setting specific goals for the use of DBEs on individual contracts. Contract goals, on the other hand, are race-conscious measures.

In the context of these definitions, it is important to note that awards of contracts to DBEs are not necessarily race-conscious actions. Whenever a DBE receives a prime contract because it is the lowest responsible bidder, the resulting DBE participation was achieved through race-neutral means. Similarly, when a DBE receives a subcontract on a project that does not have a contract goal, its participation was also achieved through race-neutral means. Finally, even on projects that do carry contract goals, when a prime awards a particular subcontract to a DBE because it has proven in the past that it does the best or quickest work, or because it submitted the lowest quote, the resulting DBE participation has, in fact, been achieved through race-neutral means. We also note that the use of race-neutral measures (e.g., outreach, technical assistance) specifically to increase the participation of DBEs does not convert these measures into race-conscious measures.

A number of non-DBE contractors commented that race-neutral measures should not only be given priority, but must be tried and fail before any use of contract goals can occur. This, they asserted, is essential for a program to be narrowly tailored. The law on this point is fairly clear, and does not support the commenters' contention. The extent to which race-neutral alternatives were considered and deemed inadequate to remedy the problem is the relevant narrow tailoring question. Both in past legislation and when considering TEA-21, Congress did consider race-neutral alternatives. In fact, as described above, throughout the debate, Member after Member gave examples of how state and local race-neutral programs without

goals fail to overcome the discriminatory barriers that face DBEs. Congress' careful consideration and conclusion that race-neutral means are insufficient, buttressed by this rule's emphasis on achieving as much of the goal as possible through race-neutral means, satisfies this part of the narrow tailoring requirement.

No one opposed the use of race-neutral means, though a number of DBEs and recipients stressed that these means, standing alone, were insufficient to address discrimination and its effects. Most recipients and non-DBE contractors supported the use of race-neutral measures, though some recipients said that increased use of these measures would require additional resources.

The relationship between race-conscious and race-neutral measures in the final rule is very important. The recipient establishes an overall goal. The recipient estimates, in advance, what part of that goal it can meet through the use of race-neutral means. This projection, and the basis for it, would be provided to the concerned operating administration at the same time as the overall goal, and is subject to OA approval.

The requirement of the rule is that the recipient get the maximum feasible DBE participation through race-neutral means. The recipient uses race-conscious measures (e.g., sets contract goals) to get the remainder of the DBE participation it needs to meet the overall goal. If the recipient expects to be able to meet its entire overall goal through race-neutral means, it could, with OA approval, implement its program without any use of contract goals.

For example, suppose Recipient X establishes an 11 percent overall goal for Fiscal Year 2000. This is the amount of DBE participation that X has determined it would have if the playing field were level. Recipient X projects that, using a combination of race-neutral means, it can achieve 5 percent DBE participation. Recipient X then sets contract goals on some of its contracts throughout the year to bring in an additional 6 percent DBE participation. Recipients would keep data separately on the DBE participation obtained through those contracts that either did or did not involve the use of contract goals. Recipients would use this and other data to adjust their use of race-neutral means and contract goals during the remainder of the year and in future years. For example, if Recipient X projected being able to attain 5 percent DBE participation through race-neutral measures, but was only able to obtain 1 percent from the race-neutral measures

it used, Recipient X would increase its future use of contract goals. On the other hand, if Recipient X exceeded its prediction that it would get 5 percent DBE participation from race-neutral measures and actually obtained 10 percent DBE participation from the contracts on which there were no contract goals, it would reduce its future use of contract goals. A recipient that was consistently able to meet its overall goal using only race-neutral measures would never need to use contract goals.

Most recipients and non-DBE contractors agreed with the SNPRM's proposal that (contrary to the part 23 provision on this subject) contract goals not be required on all contracts. This provision is retained in the final rule. We believe that this provision provides recipients the ability to achieve the objective of a narrowly tailored program. The rule also reiterates that the contract goal need not be set at the same level as the overall goal. To express this more clearly, let us return to the above example of Recipient X. Just because Recipient X has an overall goal of 11 percent, it does not have to set a contract goal on each contract. Nor does it have to establish an 11 percent goal on each contract on which it does set a contract goal. Indeed, since X has projected that it can achieve almost half of its overall goal through race-neutral means, it would most likely set contract goals on some contracts but not on others. On contracts with a contract goal, the goal might be 4 percent one time, 18 percent another time, 9 percent another time, depending on the actual work involved in each contract, the location of the work and the subcontracting opportunities available. The idea is for X to set contract goals that, cumulatively over the year, bring in 6 percent DBE participation, which, added to the 5 percent participation X projects achieving from race-neutral measures, ends up meeting the 11 percent overall goal.

The SNPRM asked for comment on evaluation credits as an additional race-conscious measure that recipients could use to meet overall goals. The vast majority of the many comments on this subject opposed the use of evaluation credits, on both legal (e.g., as contrary to narrow tailoring) and policy (e.g., as confusing and subjective) grounds. A smaller number of commenters favored at least giving recipients discretion to use this tool. While the Department does not agree with the contention that evaluation credits are legally suspect, we do agree with much of the sentiment against using them in the DBE program, particularly the practical difficulties they might involve when applied to

subcontracting (which constitutes the main source of DBE participation in the program). As a result, the final rule does not contain an evaluation credits provision.

The SNPRM proposed certain mechanisms for determining when it was appropriate to ratchet back the use of contract goals. Most commenters said they found these particular mechanisms complicated and confusing. The Department believes that, as a matter of narrow tailoring, it is important to have concrete mechanisms in place to ensure that race-conscious measures like contract goals are used only to the extent necessary to ensure a level playing field. The final rule contains examples of four such mechanisms.

The first mechanism applies to a situation in which a recipient estimates that it can meet its overall goal exclusively through the use of race-neutral goals. In this case, the recipient simply does not set contract goals during the year. The second mechanism takes this approach one step further. If the recipient meets its overall goal two years in a row using only race-neutral measures, the recipient continues to use only race-neutral measures in future years, without having to project each year how much of its overall goal it anticipates meeting through race-neutral and race-conscious means, respectively. However, if in any year the recipient does not meet its overall goal, the recipient must make the projection for the following year, using race-conscious means as needed to meet the goal.

The third mechanism applies to recipients who exceed their overall goals for two years in a row while using contract goals. In the third year, when setting their overall goal and making their projection of the amount of DBE participation they will achieve through race-neutral means, they would determine the average percentage by which they exceeded their overall goals in the two previous years. They would then use that percentage to reduce their reliance on contract goals in the coming year, as noted in the regulatory text example. The rationale for this reduction is that the recipient's overall goal represents its best estimation of the participation level expected for DBEs in the absence of discrimination. By exceeding that goal consistently, the recipient may be relying too heavily on race-conscious measures. Scaling back the use of contract goals—while keeping careful track of DBE participation rates on projects without contract goals—will ensure that the recipient's DBE program remains narrowly tailored to overcoming the continuing effects of discrimination.

The fourth mechanism operates within a given year. If a recipient determines part way through the year that it will exceed (or fall short of) its overall goal, and it is using contract goals during that year, it would scale back its use of contract goals (or increase its use of race-neutral means and/or contract goals) during the remainder of the year to ensure that it is using an appropriate balance of means to meet its "level playing field" objectives.

There were also a number of comments on how contract goals should be expressed. Most favored continuing the existing practice of adding together the Federal and local shares of a contract and expressing the contract goal as a percentage of the sum because it works well and avoids confusion. A few comments favored expressing contract goals as a percentage of only the Federal share of a contract. Ultimately, we believe that it is not necessary for the Department to dictate which method to use. Recipients may continue to use whichever method they feel works best and allows them to accurately track the participation of DBEs in their program. Recipients need only ensure that they are consistent and clearly express the method they are using, and report to the Department the total federal aid dollars spent and the federal aid dollars spent with DBEs.

As a last note on this topic, FAA recipients are reminded that funds derived from passenger facility charges (PFCs) are not covered by this part and should not be counted as part of the Federal share in any goal calculation. If a recipient chooses to express its contract goals as a percentage of the combined Federal and local share, it may include the PFC funds as part of the local share.

Section 26.53 What Are the Good Faith Efforts Procedures Recipients Follow in Situations Where There Are Contract Goals?

There was little disagreement about the main point of this section. When a recipient sets a contract goal, the basic obligation of bidders is to make good faith efforts (GFE) to meet it. They can demonstrate these efforts in either of two ways, which are equally valid. First, they can meet the goal, by documenting that they have obtained commitments for enough DBE participation to meet the goal. Second, even though they have not met the goal, they can document that they have made good faith efforts to do so. The Department emphasizes strongly that this requirement is an important and serious one. A refusal by a recipient to accept valid showings of

good faith is not acceptable under this rule.

Appendix A discusses in greater detail the kinds of good faith efforts bidders are expected to make. There was a good deal of comment concerning its contents. Non-minority contractors recited that good faith efforts standards should be "objective, measurable, realistically achievable, and standardized." Not one of these comments provided any examples or suggestions of what "objective, measurable, realistically achievable, and standardized" standards would look like, however. Certainly a one-size-fits-all checklist is neither desirable nor possible. What constitutes a showing of adequate good faith efforts in a particular procurement is an intrinsically fact-specific judgment that recipients must make. Circumstances of procurements vary widely, and GFE determinations must fit each individual situation as closely as possible.

The proposed good faith efforts appendix suggested that one of the factors recipients could take into account is the behavior of bidders other than the apparent successful bidder. For example, if the latter failed to meet the contract goal, but other bidders did, that could suggest that the apparent successful bidder had not exerted sufficient efforts to get DBE participation. Recipients who commented on this issue favored the concept; non-DBE contractors opposed it. The final rule's Appendix A makes clear that recipients are not to use a "conclusive presumption" approach, in which the apparent successful bidder is summarily found to have failed to make good faith efforts simply because another bidder was able to meet the goal. However, the track record of other bidders can be a relevant factor in a GFE determination, in more than one way. If other bidders have met the goal, and the apparent successful bidder has not, this at least raises the question of whether the apparent successful bidder's efforts were adequate. It does not, by itself, prove that the apparent successful bidder did not make a good faith effort to get DBE participation, however. On the other hand, if the apparent successful bidder—even if it failed to meet the goal—got as much or more DBE participation than other bidders, then this fact would support the apparent successful bidder's showing of GFE. The revised Appendix makes these points.

The proposed good faith efforts appendix also expanded on language in part 23 concerning price-based decisions by prime contractors. The existing language provides that a

recipient can use, as evidence of a bidder's failure to make good faith efforts, the recipient's rejection of a DBE subcontractor's "reasonable price" offer. The SNPRM added that a recipient could set a price differential from 1-10 percent to evaluate bidders' efforts. If a bidder did not meet the goal and rejected a DBE offer within the range, the recipient could view the bidder as not making good faith efforts. This was an attempt to provide additional, quantified, guidance to recipients on this issue.

Comment was mixed on this issue. Non-DBE prime contractors generally opposed the price differential idea, saying that it encouraged deviations from the traditional low bid system. It should be noted, however, that subcontracts are typically awarded outside any formal low bid system. Some recipients thought that it was a bad idea to designate a range, because it would limit their discretion, while others liked the additional definiteness of the range. Most recipients supported the "reasonable price" concept in general, even if they had their doubts about the value of a range. Some DBE organizations favored the range approach.

Taking all the comments into consideration, the Department has decided to retain language similar to that of part 23, without reference to any specific range. Appendix A now provides that the fact that some additional costs may be involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet a DBE contract goal, as long as such costs are reasonable. Along with this emphasis on the reasonableness of the cost necessarily comes the fact that prime contractors are not expected to bear unreasonable costs. The availability of a good faith efforts waiver of the contract goal helps to ensure that a prime contractor will not be in a position where it has to accept an excessive or unreasonable bid from a DBE subcontractor. At the same time, any burden that a non-DBE subcontractor might face is also limited by the reasonableness of competing bids. This approach retains flexibility for recipients while avoiding the concerns commenters expressed about a particular range.

The SNPRM proposed that recipients would have to provide for an administrative review of decisions that a bidder's GFE showing was inadequate. The purpose of the provision was to ensure that recipients did not arbitrarily dismiss bidders' attempts to show that they made good faith efforts. The provision was meant to emphasize the

seriousness with which the Department takes the GFE requirement and to help respond to allegations that some recipients administered the program in a quota-like fashion. The SNPRM also asked whether such a mechanism should be operated entirely by the recipient or whether a committee, including representatives of DBE and non-DBE contractors should be involved.

A number of recipients, and a few contractors, opposed the idea on the basis of concern about administrative burdens on recipients and potential delays in the procurement process. A greater number of commenters, largely non-DBE contractors but also including recipients and DBEs, supported the proposal as ensuring greater fairness in the process. A significant majority of all commenters said that the recipient should operate the system on its own, because a committee would make the process more cumbersome and raise conflict of interest issues.

The Department will adopt this proposal, which should add to the fairness of the system and make allegations of *de facto* quota operations less likely. The Department intends that reconsideration be administered by recipients. The regulation does not call for a committee involving non-recipient personnel. The Department intends that the process be informal and timely. The recipient could ensure that the process be completed within a brief period (e.g., 5-10 days) to minimize any potential delay in procurements. The bidder would have an opportunity to meet with the reconsideration official, but a formal hearing is not required. To ensure fairness, the reconsideration official must be someone who did not participate in the original decision to reject the bidder's showing. The recipient would have to provide a written decision on reconsideration, but there would be no provision for administrative appeals to DOT.

A point raised by several non-DBE commenters was that DBEs should have to make good faith efforts (even when they were not acting as prime contractors). The commenters suggested things like providing capacity statements and documenting that they have bid on contracts. This point is unrelated to the subject of this section, which has to do with what efforts bidders for prime contracts have to make to show that they have made to obtain DBE subcontractors. It is difficult to see what purpose the additional paperwork burdens these commenters' requests would serve.

One of the most hotly debated issues among commenters was whether DBE

firms bidding on prime contracts should have to meet goals and make good faith efforts to employ DBE subcontractors. Under part 23, DBE prime contractors did not have to meet goals or make good faith efforts. The rationale for this position was that, as DBEs, 100 percent of the work of these contractors counted toward recipients' contract goals, which the firms automatically met.

A significant majority of commenters on this issue—particularly non-DBE contractors but also including some recipients and a few DBEs—argued that DBE primes should meet goals and make GFE the same as other contractors. Failing to do so, they said, went beyond providing a level playing field to the point of providing an unfair advantage for DBE bidders for prime contracts. This change would also increase opportunities for DBE subcontractors, they said. One comment suggested requiring DBE prime contractors to meet goals or make GFE, but stressed that work they performed with their own forces as well as work awarded to DBE subcontractors should count toward goals.

Supporters of the current system said that many prime contracts performed by DBEs are too small to permit subcontracting (of course, goals need be set only on contracts with subcontracting possibilities). Moreover, these commenters—mostly DBEs and recipients—said that there was already inequity as between DBEs and non-DBEs, and requiring DBEs to meet the same requirements simply maintained the inequity. There was also some support for a third option the Department included in the SNPRM, in which DBEs would have to meet goals and make GFE to the extent that work they proposed to perform with their own forces was insufficient to meet goals.

The Department believes that, in a rule aimed at providing a level playing field for DBEs, it is appropriate to impose the same requirements on all bidders for prime contracts. Consequently, part 26 will depart from the part 23 approach and require DBE prime contractors to meet goals and make good faith efforts on the same basis as other prime contractors. However, in recognition of the DBE bidders' status as DBEs, we will permit them to count toward goals the work that they commit to performing with their own forces, as well as the work that they commit to be performed by DBE subcontractors. DBE bidders on prime contracts will be expected to make the same outreach efforts as other bidders and to document good faith

efforts in situations where they do not fully meet contract goals.

Under part 23 and the SNPRM, recipients have a choice between handling bidder compliance with contract goals and good faith efforts requirements as a matter of responsiveness or responsibility. Some recipients and other contractors recounted successful experience with one approach or the other, and suggested reasons why everyone should follow each approach (e.g., responsiveness as a deterrent to bid-shopping; responsibility as a more flexible and cost-effective approach). Both approaches have their merits, and the Department believes the best course is to maintain the existing recipient discretion on this issue.

Some recipients use so-called "design-build" or "turnkey" contracts, in which the design and construction of an entire project is contracted out to a master contractor. The master contractor then lets subcontracts, which are often equivalent to the prime contracts that the recipient would let if it were designing and building the project directly. In a sense, the master contractor stands in the shoes of the recipient.

On design-build contracts, the normal process for setting contract goals does not fit the contract award process well. At the time of the award of the master contract, neither the recipient nor the master contractor knows in detail what the project will look like or exactly what contracting opportunities there will be, let alone the identity of DBEs who may subsequently be involved. In these situations, the recipient may alter the normal process, setting a project goal to which the master contractor commits. Later, when the master contractor is letting subcontracts, it will set contract goals as appropriate, standing in the shoes of the recipient. The recipient will exercise oversight of this process.

The final issue in this section has to do with replacement of DBEs that drop out of a contract. What actions, if any, should a prime contractor have to take when a DBE is unable to complete a subcontract, for whatever reason? Should it matter whether or not the DBE's participation is needed to achieve the prime contractor's goal?

Comment on this issue came mostly from recipients, with some non-DBE contractors and a few DBEs providing their views. A majority of the commenters believed that replacement of a fallen-away DBE with another DBE (or making a good faith effort toward that end) should be required only when needed to ensure that the prime contractor continued to meet its contract

goal. Others said that, since using DBEs to which the prime had committed at the time of award was a contractual requirement, replacement or good faith efforts should be required regardless of the prime's ability to meet the goal without the lost DBE's participation.

The Department believes that, in a narrowly tailored rule, it is not appropriate to require DBE participation at a level exceeding that needed to ensure a level playing field.

Consequently, we will require a prime contractor to replace a fallen-away DBE (or to demonstrate that it has made good faith efforts toward that end) only to the extent needed to ensure that the prime contractor is able to achieve the contract goal established by the recipient for the procurement. The Department will also retain the SNPRM provision—supported by most commenters who mentioned it—that a prime contractor may not terminate a DBE firm for convenience and then perform the work with its own forces without the recipient's written consent. This provision is intended to prevent abuse of the program by a prime contractor who would commit to using a DBE and then bump the DBE off the project in favor of doing the work itself.

Section 26.55 How Is DBE Participation Counted Toward Goals?

In a narrowly tailored program, it is important that DBE credit be awarded only for work actually being performed by DBEs themselves. The necessary implication of this principle is that when a DBE prime contractor or subcontractor subcontracts work to another firm, the work counts toward DBE goals only if the other firm is itself a DBE. This represents a change from the existing rule and the SNPRM, which said that all the work of a DBE's contract (implicitly including work subcontracted to non-DBEs) counts toward goals. A few comments urged such a change. The new language is also consistent with the way that the final rule treats goals for DBE prime contractors.

The value of work performed by DBEs themselves is deemed to include the cost of materials and supplies purchased, and equipment leased, by the DBE from non-DBE sources. For example, if a DBE steel erection firm buys steel from a non-DBE manufacturer, or leases a crane from a non-DBE construction firm, these costs count toward DBE goals. There is one exception: if a DBE subcontractor buys supplies or leases equipment from the prime contractor on its contract, these costs do not count toward DBE goals. Several comments from prime contractors suggested these costs should

count, but this situation is too problematic, in our view, from an independence and commercially useful function (CUF) point of view to permit DBE credit.

One of the most difficult issues in this section concerns how to count DBE credit for the services of DBE trucking firms. The SNPRM proposed that, to be performing a CUF, a DBE trucking firm had to own 50 percent of the trucks it used in connection with a contract. A number of comments said that this requirement was out of step with industry practice, which commonly involves companies leasing trucks from owner-operators and other sources for purposes of a project. In response to these comments, the Department revisited this issue and reviewed the trucking CUF policies of a number of states. The resulting provision requires DBEs to have overall control of trucking operations and own at least one truck, but permits leasing from a variety of sources under controlled conditions, with varying consequences for DBE credit awarded.

A DBE need not provide all the trucks on a contract to receive credit for transportation services, but it must control the trucking operations for which it seeks credit. It must have at least one truck and driver of its own, but it can lease the trucks of others, both DBEs and non-DBEs, including owner operators. For work done with its own trucks and drivers, and for work with DBE lessees, the firm receives credit for all transportation services provided. For work done with non-DBE lessees, the firm gets credit only for the fees or commissions it receives for arranging the transportation services, since the services themselves are being performed by non-DBEs.

When we say that a DBE firm must own at least one of the trucks it uses on a contract, we intend for recipients to have a certain amount of discretion for handling unexpected circumstances, beyond the control of the firm. For example, suppose firm X starts the contract with one truck it owns. The truck is disabled by an accident or mechanical problem part way through the contract. Recipients need not conclude that the firm has ceased to perform a commercially useful function.

Most commenters who addressed the issue agreed with the SNPRM proposal that a DBE does not perform a CUF unless it performs at least 30 percent of the work of a contract with its own forces (a few commenters suggested 50 percent). This provision has been retained. A commenter suggested that the use of two-party checks by a DBE and another firm should not

automatically preclude there being a CUF. While we do not believe it is necessary to include rule text language on this point, we agree with the commenter. As long as the other party acts solely as a guarantor, and the funds do not come from the other party, we do not object to this practice where it is a commonly-recognized way of doing business. Recipients who accept this practice should monitor its use closely to avoid abuse.

One commenter noted an apparent inconsistency between counting 100 percent of the value of materials and supplies used by a DBE construction contractor (e.g., in the context of a furnish and install contract) and counting only 60 percent of the value of goods obtained by a non-DBE contractor from a DBE regular dealer. The two situations are treated differently, but there is a policy reason for the difference. There is a continuing concern in the program that, if non-DBEs are able to meet DBE goals readily by doing nothing more than obtaining supplies made by non-DBE manufacturers through DBE regular dealers, the non-DBEs will be less likely to hire DBE subcontractors for other purposes. As a policy matter, the Department does not want to reduce incentives to use DBE subcontractors, so we have not permitted 100 percent credit for supplies in this situation. Giving 100 percent credit for materials and supplies when a DBE contractor performs a furnish and install contract does not create the same type of disincentive, so the policy concern does not apply. In our experience, the 60 percent credit has been an effective incentive for the use of DBE regular dealers, so those firms are not unduly burdened.

Section 26.61 How Are Burdens of Proof Allocated in the Certification Process?

This section, which states a "preponderance of evidence" standard for applicants' demonstration to recipients concerning group membership, ownership, control, and business size, received favorable comment from all commenters who addressed it. We are retaining it with only one change, a reference to the fact that, in the final rule, recipients will collect information concerning the economic status of prospective DBE owners.

Section 26.63 What Rules Govern Group Membership Determinations?

There were several comments on details of this provision. One commenter suggested that tribal

registration be used as an identifier for Native Americans. The suggestion is consistent with long-standing DOT guidance; however this section of the regulation is meant to set out general rules applicable to all determinations of group membership, not to enumerate means of making the determination for specific groups. The same commenter suggested that if someone knowingly misrepresents himself as a group member, he should not be given further consideration for eligibility.

Misrepresentation of any kind on an application is a serious matter. Indeed, misrepresentation of material facts in an application can be grounds for debarment or even criminal prosecution. While it would certainly be appropriate for recipients to take action against someone who so misrepresented himself, the regulatory text on group membership is not the place to make a general point about the consequences of misrepresentation.

Some commenters wanted further definition of what "a long period of time" means. We believe it would be counterproductive to designate a number of years that would apply in all cases, since circumstances are likely to differ. The point is to avoid "certification conversions" in which an individual suddenly discovers, not long before the application process, ancestry or culture with which he previously has had little involvement.

We are adopting the SNPRM provision without substantive change.

Section 26.65 What Rules Govern Business Size Determinations?

By statute, the Department is mandated to apply SBA small business size standards to determining whether a firm is a small business. The Department is also mandated to apply the statutory size cap (\$16.6 million in the current legislation, which the Department adjusts for inflation from time to time). Consequently, the Department cannot adopt the variety of comments we received to adjust size standards or the gross receipts cap to take differences among industries or regions into account. We are adopting the proposed language, using the new statutory gross receipts cap. As under part 23, a firm must fit under both the relevant SBA size standard and the generally applicable DOT statutory cap to be eligible for certification.

A few commenters asked for additional guidance for situations in which a firm is working in more than one SIC code, and the SBA size standards for the different SIC codes are different. First, size determinations are made for the firm as a whole, not for one

division or another. Second, suppose the size of Firm X (e.g., determined through looking at the firm's gross receipts) is \$5 million, and X is seeking certification as a DBE in SIC code yyyy and zzzz, whose SBA small business size standards are \$3.5 and \$7 million, respectively. Firm X would be a small business that could be certified as a DBE, and that could receive DBE credit toward goals, in SIC code zzzz but not in SIC code yyyy. This approach to the issue of differing standards being involved with the same firm fits in well with the general requirement of part 26 that certification be for work in particular SIC codes.

Section 26.67 What Rules Determine Social and Economic Disadvantage?

The statutes governing the DBE program continue to state that members of certain designated groups are presumed to be both socially and economically disadvantaged. Therefore, the Department is not adopting comments suggesting that one or both of the presumptions be eliminated from the DBE rule. While the rule does specify that applicants who are members of the designated groups do have to submit a signed certification that they are, in fact, socially and economically disadvantaged, this requirement should not be read as making simple "self-certification" sufficient to establish disadvantage. As has been the case since the beginning of the DBE program, the presumptions of social and economic disadvantage are rebuttable.

The Department is making an important change in this provision in response to comments about how to rebut the presumption of economic disadvantage. Recipient comments unanimously said that recipients should collect financial information, such as statements of personal net worth (PNW) and income tax returns, in order to determine whether the presumption of economic disadvantage really applies to individual applicants. Particularly in the context of a narrowly tailored program, in which it is important to ensure that the benefits are focussed on genuinely disadvantaged people (not just anyone who is a member of a designated group), we believe that these comments have merit. While charges by opponents of the program that fabulously wealthy persons could readily participate under part 23 have been exceedingly hyperbolic and inaccurate (e.g., references to the Sultan of Brunel as a potential DBE), it is appropriate to give recipients this tool to make sure that non-disadvantaged persons do not participate.

For this reason, part 26 requires recipients to obtain a signed and notarized statement of personal net worth from all persons who claim to own and control a firm applying for DBE certification and whose ownership and control are relied upon for DBE certification. These statements must be accompanied by appropriate supporting documentation (e.g., tax returns, where relevant). The rule does not prescribe the exact supporting documentation that should be provided, and recipients should strive for a good balance between the need for thorough examination of applicants' PNW and the need to limit paperwork burdens on applicants. For reasons of avoiding a retroactive paperwork burden on firms that are now certified, the rule does not require recipients to obtain this information from currently certified firms. These firms would submit the information the next time they apply for renewal or recertification. The final rule's provisions on calculating personal net worth are derived directly from SBA regulations on this subject (see 13 CFR § 124.104(c)(2), as amended on June 30, 1998).

One of the primary concerns of DBE firms commenting about submitting personal financial information is ensuring that the information remains confidential. In response to this concern, the rule explicitly requires that this material be kept confidential. It may be provided to a third party only with the written consent of the individual to whom the information pertains. This provision is specifically intended to preempt any contrary application of state or local law (e.g., a state freedom of information act that might be interpreted to require a state transportation agency to provide to a requesting party the personal income tax return of a DBE applicant who had provided the return as supporting documentation for his PNW statement). There is one exception to this confidentiality requirement. If there is a certification appeal in which the economic disadvantage of an individual is at issue (e.g., the recipient has determined that he or she is not economically disadvantaged and the individual seeks DOT review of the decision), the personal financial information would have to be provided to DOT as part of the administrative record. The Department would treat the information as confidential.

Creating a clear and definitive standard for determining when an individual has overcome the economic disadvantage that the DBE program is meant to remedy has long been a contentious issue. In 1992, the

Department proposed to use a personal net worth standard of \$750,000 to rebut the presumption of disadvantage for members of the designated groups. In 1997, the Department proposed a similar idea, though rather than use the \$750,000 figure, the SNPRM asked the public for input on what the specific amount should be. Finally, as discussed in detail above, the issue of ensuring that wealthy individuals do not participate in the DBE program was a central part of the 1998 Congressional debate.

Public comment on both proposals was sharply divided. Roughly equal numbers of commenters thought \$750,000 was too high as thought it was too low. Commenters proposed figures ranging from \$250,000 to \$2 million. Others supported the \$750,000 level, which is based on the SBA's threshold for participation in the SDB program (it is also the retention level for the 8(a) program). One theme running through a number of comments was that recipients should have discretion to vary the threshold depending on such factors as the local economy or the type of firms involved. Some comments opposed the idea of a PNW threshold altogether or suggested an alternative approach (e.g., based on Census data about the distribution of wealth).

Others commented that rebutting the presumption did not go far enough, pointing out that the only way to ensure that wealthy people did not participate in the program was for the threshold to act as a complete bar on the eligibility of an individual to participate in the program. Congress appears to share this concern. While they differed on the effectiveness of past DOT efforts, both proponents and opponents of the program agreed that preventing the participation of wealthy individuals was central to ensuring the constitutionality of the DBE program.

The Department agrees and, in light of the comments and the intervening TEA-21 debate, is adopting the clearest and most effective standard available: when an individual's personal net worth exceeds the \$750,000 threshold, the presumption of economic disadvantage is conclusively rebutted and the individual is no longer eligible to participate in the DBE program. The Department is using the \$750,000 figure because it is a well established and effective part of the SBA programs and is a reasonable middle ground in view of the wide range of comments calling for higher or lower thresholds. Using a figure any lower, as some commenters noted, could penalize success and make growth for DBEs difficult (since, for example, banks and insurers frequently

look to the personal assets of small business owners in making lending and bonding decisions). Operating the threshold as a cap on eligibility for all applicants also serves to treat men and women, minorities and non-minorities equally.

When a recipient determines, from the PNW statement and supporting information, that an individual's personal net worth exceeds \$750,000, the recipient must deem the individual's presumption of economic disadvantage to have been conclusively rebutted. No hearing or other proceeding is called for in this case. When this happens in the course of an application for DBE eligibility, the certification process for the applicant firm stops, unless other socially and economically disadvantaged owners can account for the required 51 percent ownership and control. A recipient cannot count the participation of the owner whose presumption of economic disadvantage has been conclusively rebutted toward the ownership and control requirements for DBE eligibility.

There may be other situations in which a recipient has a reasonable basis (e.g., from information in its own files, as the result of a complaint from a third party) for believing that an individual who benefits from the statutory presumptions is not really socially and/or economically disadvantaged. In these cases, the recipient may begin a proceeding to rebut the presumptions. For example, if a recipient had reason to believe that the owner of a currently-certified firm had accumulated personal assets well in excess of \$750,000, it might begin such a proceeding. The recipient has the burden of proving, by a preponderance of evidence, that the individual is not disadvantaged. However, the recipient may require the individual to produce relevant information.

It is possible that, at some time in the future, SBA may consider changing the \$750,000 cap amount. The Department anticipates working closely with SBA on any such matter and seeking comment on any potential changes to this rule that would be coordinated with changes SBA proposes for Federal procurement programs in this area.

Under part 23, recipients had to accept 8(a)-certified firms (except for those who exceeded the statutory gross receipts cap). The SNPRM proposed some modifications of this requirement. Recipients were concerned that in some situations information used for 8(a) certification could be inaccurate or out of date. They noted differences between 8(a) and DBE certification standards and procedures. They asked for the ability to

look behind 8(a) certifications and make their own certification decisions.

In response to these comments, the Department is providing greater discretion to recipients. Under part 26, recipients can treat 8(a) certifications as they do certifications made by other DOT recipients. A recipient can accept such a certification in lieu of conducting its own certification process or it can require the firm to go through part or all of its own application process. Because SBA is beginning a certification process for firms participating in the small and disadvantaged business (SDB) program, we will treat certified SDB firms in the same way. If an SDB firm is certified by SBA or an organization recognized by SBA as a certifying authority, a recipient may accept this certification instead of doing its own certification. (This does not apply to firms whose participation in the SDB program is based on a self-certification.) We note that this way of handling SBA program certifications is in the context of the development by DOT recipients of uniform certification programs. If a unified certification program (UCP) accepts a firm's 8(a) or 8(d) certification, then the firm will be certified for all DOT recipients in the state.

People who are not presumed socially and economically disadvantaged can still apply for DBE certification. To do so, they must demonstrate to the recipient that they are disadvantaged as individuals. Using the guidance provided in Appendix E, recipients must make case-by-case decisions concerning such applications. It should be emphasized that the DBE program is a disadvantage-based program, not one limited to members of certain designated groups. For this reason, recipients must take these applications seriously and consider them fairly. The applicant has the burden of proof concerning disadvantage, however.

Section 26.69 What Rules Govern Determinations of Ownership?

Commenters on the ownership provisions of the SNPRM addressed a variety of points. Most commenters agreed that the general burden of proof on applicants should be the preponderance of the evidence. A few commenters thought that this burden should also apply in situations where a firm was formerly owned by a non-disadvantaged individual. For some of these situations, the SNPRM proposed the higher "clear and convincing evidence" standard, because of the heightened opportunities for abuse involved. The Department believes this safeguard is necessary, and we will

retain the higher standard in these situations.

Commenters asked for more guidance in evaluating claims that a contribution of expertise from disadvantaged owners should count toward the required 51 percent ownership. They cited the potential for abuse. The Department believes that there may be circumstances in which expertise can be legitimately counted toward the ownership requirement. For example, suppose someone with a great deal of expertise in a computer-related field, without whom the success of his or her high-tech start-up business would not be feasible, receives substantial capital from a non-disadvantaged source.

We have modified the final rule provision to reflect a number of considerations. Situations in which expertise must be recognized for this purpose are limited. The expertise must be outstanding and in a specialized field: everyday experience in administration, construction, or a professional field is unlikely to meet this test. (This is not a "sweat equity" provision.) We believe that it is fair that the critical expertise of this individual be recognized in terms of the ownership determination. At the same time, the individual must have a significant financial stake in the company. This program focuses on entrepreneurial activity, not simply expertise. While we will not designate a specific percentage of ownership that such an individual must have, entrepreneurship without a reasonable degree of financial risk is inconceivable.

The SNPRM's proposals on how to treat assets obtained through inheritance, divorce, and gifts were somewhat controversial. Most comments agreed with the proposal that assets acquired through death or divorce be counted. One commenter objected to the provision that such assets always be counted, saying that the owner should have to make an additional demonstration that it truly owned the assets before the recipient counted them. We do not see the point of such an additional showing. If a white male business owner dies, and his widow inherits the business, the assets are clearly hers, and the deceased husband will play no further role in operating the firm. Likewise, assets a woman obtains through a divorce settlement are unquestionably hers. Absent a term of a divorce settlement or decree that limits the customary incidents of ownership of the assets or business (a contingency for which the proposed provision provided), there is no problem for which an additional showing of some

sort by the owner would be a useful remedy.

A majority of comments on the issue of gifts opposed the SNPRM proposal, saying that gifts should not be counted toward ownership at all. The main reason was that allowing gifts would make it easier for fronts to infiltrate the program. Some comments also had a flavor of opposition to counting what commenters saw as unearned assets. The Department understands these concerns. If a non-disadvantaged individual who provides a gift is no longer connected with the business, or a disadvantaged individual makes the gift, the issue of the firm being a potential front is much reduced. Where a non-disadvantaged individual makes a gift and remains involved with the business, the concern about potential fronts is greater.

For this reason, the SNPRM erected a presumption that assets acquired by gift in this situation would not count. The applicant could overcome this presumption only by showing, through clear and convincing evidence—a high standard of proof—that the transfer was not for the purpose of gaining DBE certification and that the disadvantaged owner really controls the company. This provides effective safeguards against fraud, without going to the unfair extreme of creating a conclusive presumption that all gifts are illegitimate. Also, for purposes of ownership, all assets are created equal. If the money that one invests in a company is really one's own, it does not matter whether it comes from the sweat of one's brow, a bank loan, a gift or inheritance, or hitting the lottery. As long as there are sufficient safeguards in place to protect against fronts—and we believe the rule provides them—the origin of the assets is unimportant. We are adopting the proposed provisions without change.

Commenters were divided about how to handle marital property, especially in community property states. Some commenters believed that such assets should not be counted at all. This was based, in part, on the concern that allowing such assets to be counted could make it difficult to screen out interspousal gifts designed to set up fronts, even if irrevocable transfers of assets were made. Other commenters said they thought the proposal was appropriate, and some of these thought the requirement for irrevocable transfers was unfair.

The Department is adopting the proposed language. In a community property state, or elsewhere where property is jointly held between spouses, the wife has a legal interest in

a portion of the property. It is really hers. It would be inappropriate to treat this genuine property interest as if it did not exist for purposes of DBE ownership.

To ensure the integrity of the program, it is necessary to put safeguards in place. The regulation does so. First, recipients would not count more assets toward DBE ownership than state law treats as belonging to the wife (the final rule provision adds language to this effect). Second, the irrevocable transfer requirement prevents the husband from being in a position to continue to claim any ownership rights in the assets. If an irrevocable transfer of assets constitutes a gift from a non-disadvantaged spouse who remains involved in the business, then the presumption/clear and convincing evidence mechanism discussed above for gifts would apply to the transaction. If recipients in community property states wanted to establish a mechanism for allocating assets between spouses that was consistent with state law, but did not require court involvement or other more formal procedures, they could propose doing so as part of their DBE programs, subject to operating administration approval.

Most commenters supported the SNPRM's proposal concerning trusts, particularly the distinction drawn between revocable living and irrevocable trusts. One commenter favored counting revocable living trusts when the same disadvantaged individual is both the grantor and beneficiary. The Department believes there is merit in making this exception. If the same disadvantaged individual is grantor, beneficiary, and trustee (i.e., an individual puts his own money in a revocable living trust for tax planning or other legitimate purposes and he alone plays the roles of grantor, beneficiary, and trustee), the situation seems indistinguishable for DBE program purposes from the situation of the same individual controlling his assets without the trust. In all other situations, revocable living trusts would not count.

Some comments asked for clarification of the 51 percent ownership requirement, a subject on which the Department has received a number of questions over the years. The Department has clarified this requirement, with respect to corporations, by stating that socially and economically disadvantaged individuals must own 51 percent of each class of voting stock of a corporation, as well as 51 percent of the aggregate stock. A similar point applies to partnerships and limited liability companies. This latter type of company was not

mentioned in the SNPRM, but a commenter specifically requested clarification concerning it. (We have also noted, in § 26.83, that limited liability companies must report changes in management responsibility to recipients. This is intended to include situations where management responsibility is rotated among members.) These clarifications are consistent with SBA regulations.

There are some ownership issues (e.g., concerning stock options and distribution of dividends) that SBA addresses in some detail in its regulations (see 13 CFR § 124.105 (c), (e), (f)) that were not the subject of comments to the DOT SNPRM. These issues have not been prominent in DOT certification practice, to the best of our knowledge, so we are not adding them to the rule. However, we would use the SBA provisions as guidance in the event such issues arise.

Section 26.71 What Rules Govern Determinations Concerning Control?

Commenters generally agreed with the proposed provisions concerning expertise and delegation of responsibilities, 51 percent control of voting stock, and differences in remuneration. A few commenters expressed concern about having to make judgments concerning expertise. However, this expertise standard, as a matter of interpretation, has been part of the DBE program since the mid-1980s. We do not believe that articulating it in the regulatory text should cause problems, and we believe it is a very reasonable and understandable approach to expertise issues. The provision concerning 51 percent ownership of voting stock, as discussed above, has been relocated in the ownership section of the rule. The Department has added three useful clarifications of the general requirement that disadvantaged owners must control the firm (e.g., by serving as president or CEO, controlling a corporate board). These clarifications are based on SBA's regulations (see 13 CFR § 124.106(a)(2), (b), (d)(1)). The Department intends to use other material in 13 CFR § 124.106 as guidance on control matters, when applicable. Otherwise, the Department is adopting these provisions as proposed.

There was some concern about the proposal concerning licensing. Some recipients thought that it would be better to require a license as proof of control in the case of all licensed occupations. We do not think it is justifiable for the DBE program to require more than state law does. If state law allows someone to run a certain

type of business (e.g., electrical contractors, engineers) without personally having a license in that occupation, then we do not think it is appropriate for the recipient to refuse to consider that someone without a license may be able to control the business. The rule is very explicit in saying that the recipient can consider the presence or absence of a license in determining whether someone really has sufficient ability to control a firm.

Family-owned firms have long been a concern in the program. The SNPRM provided explicitly that if the threads of control in a family-run business cannot be disentangled, such that the recipient can specifically find that a woman or other disadvantaged individual independently controls the business, the recipient may not certify the firm. A business that is controlled by the family as a group, as distinct from controlled individually by disadvantaged individuals, is not eligible.

Notwithstanding this provision, a few recipients commented that certifying any businesses in which non-disadvantaged family members participate would open the program to fronts. We do not agree. Non-disadvantaged individuals can participate in any DBE firm, as long as disadvantaged individuals control the firm. It is not fair and does not achieve any reasonable program objective to say that an unrelated white male may perform functions in a DBE while the owner's brother may never do so.

Commenters generally supported the provision calling for recipients to certify firms only for types of work in which disadvantaged owners had the ability to control the firm's operations. One commenter suggested that recipients, while not requiring recertification of firms seeking to perform additional types of work as DBEs (e.g., work in other than their primary industrial classification), should have to approve a written request from firms in this position. We do believe it is necessary for recipients to verify that disadvantaged owners can control work in an additional area, and we have added language to this effect. Recipients will have discretion about how to administer this verification process.

Commenters asked for additional clarification about the eligibility of people who work only part-time in a firm. We have done so by adding examples of situations that do not lead to eligibility (part-time involvement in a full-time firm and absentee ownership) and a situation that may, depending on circumstances, be compatible with eligibility (running a part-time firm all the time it is operating). It should be

noted that this provision does not preclude someone running a full-time firm from having outside employment. Outside employment is incompatible with eligibility only when it interferes with the individual's ability to control the DBE firm on a full-time basis.

One commenter brought to the Department's attention the situation of DBEs who use "employee leasing companies." According to the commenter, employee leasing companies fill a number of administrative functions for employers, such as payroll, personnel, forwarding of taxes to governmental entities, and drug testing. Typically, the employees of the underlying firm are transferred to the payroll of the employee leasing firm, which in turn leases them back to the underlying employer. The underlying employer continues to hire, fire, train, assign, direct, control etc. the employees with respect to their on-the-job duties. While the employee leasing firm sends payments to the IRS, Social Security, and state tax authorities on behalf of the underlying employer, it is the latter who is remains responsible for paying the taxes.

For practical and legal purposes, the underlying employer retains an employer-employee relationship with the leased employees. The employee leasing company does not get involved in the operations of the underlying employer. In this situation, the use of an employee leasing company by a DBE does not preclude the DBE from meeting the control requirements of this rule. Nor does the employee leasing company become an affiliate of the DBE for business size purposes. Case-by-case judgement, of course, remains necessary. Should an employee leasing company in fact exercise control over the on-the-job activities of employees of the DBE, then the ability of the DBE to meet control requirements would be compromised.

One commenter said, as a general matter, that independence and control should be considered separately. We view independence as an aspect of control: If a firm is not independent of some other business, then the other firm, not the disadvantaged owners, exercise control. While independence is an aspect of control that recipients must review, we do not see any benefit in separating consideration of the two concepts.

A recent court decision (*Jack Wood Construction Co., Inc. v. U.S. Department of Transportation*, 12 F. Supp. 2d 25 (D.D.C., 1998)) overturned a DOT Office of Civil Rights certification appeal decision that upheld a denial of certification based on lack of control.

The court, reading existing part 23 closely, said that a non-disadvantaged individual who was an employee, but not an owner, of a firm could disproportionately control the affairs of a firm without making it ineligible. The court also said that the existing rule language did not make it necessary for a disadvantaged owner to have both technical and managerial competence to control a firm. Part 26 solves both problems that the court found to exist in part 23's control provisions (see § 26.71(e)-(g)).

Section 26.73 What Are Other Rules Affecting Certification?

There were relatively few comments on this section. One commenter disagreed with the proposal to continue the provision that a firm owned by a DBE firm, rather than by socially and economically disadvantaged individuals, was not eligible. The argument against this provision, as we understand it, is that precluding a DBE firm from being owned by, for example, a holding company that is in turn owned by disadvantaged individuals would deny those individuals a financing and tax planning tool available to other businesses.

This argument has merit in some circumstances. The purpose of the DBE program is to help create a level playing field for DBEs. It would be inconsistent with the program's intent to deny DBEs a financial tool that is generally available to other businesses. The Department will allow this exception. Recipients must be careful, however, to ensure that certifying a firm under this exception does not have the effect of allowing the firm, or its parent company, to evade any of the requirements or restrictions of the certification process. The arrangement must be consistent with local business practices and must not have the effect of diluting actual ownership by disadvantaged individuals below the 51 percent requirement. All other certification requirements, including control by disadvantaged individuals and size limits, would continue to apply.

Another commenter suggested a firm should not be certified as a DBE if its owners have interests in non-DBE businesses. We believe that a *per se* rule to this effect would be too draconian. If owners of a DBE—whether disadvantaged individuals or not—also have interests in other businesses, the recipient can look at the relationships among the businesses to determine if the DBE is really independent.

One commenter opposed basing certification on the present status of

firms, seeking discretion to deny certification based on the history of the firm. We believe there is no rational or legal basis for denying certification to a firm on the basis of what it was in the past. Is it a small business presently owned and controlled by socially and economically disadvantaged individuals? If so, it would be contrary to the statute, and to the intent of the program, to deny certification because at some time—perhaps years—in the past, it was not owned and controlled by such individuals. The rule specifies that recipients may consider whether a firm has engaged in a pattern of conduct evincing an intent to evade or subvert the program.

The final provision of this section concerns firms owned by Alaska Native Corporations (ANCs), Indian tribes, and Native Hawaiian Organizations. Like the NPRM, it provides that firms owned by these entities can be eligible DBEs, even though their ownership does not reside, as such, in disadvantaged individuals. These firms must meet the size standards applicable to other firms, including affiliation (lest large combinations of tribal or ANC-owned corporations put other DBEs at a strong competitive disadvantage). Also, they must be controlled by socially and economically disadvantaged individuals. For example, if a tribe or ANC owns a company, but its daily business operations are controlled by a non-disadvantaged white male, the firm would not be eligible.

Commenters pointed us to the following provision of the Alaska Native Claims Settlement Act (ANCSA):

(e) Minority and economically disadvantaged status—

(1) For all purposes of Federal law, a Native Corporation shall be considered to be a corporation owned and controlled by Natives and a minority and economically disadvantaged business enterprise if the Settlement Common Stock of the corporation and other stock of the corporation held by holders of Settlement Common Stock and by Natives and descendants of Natives, represents a majority of both the total equity of the corporation and the total voting power of the corporation for the purposes of electing directors.

(2) For all purposes of Federal law, direct and indirect subsidiary corporations, joint ventures, and partnerships of a Native Corporation qualifying pursuant to paragraph (1) shall be considered to be entities owned and controlled by Natives and a minority and economically disadvantaged business enterprise if the shares of stock or other units of ownership interest in any such entity held by such Native Corporation and by the holders of its Settlement Common Stock represent a majority of both—

(A) The total equity of the subsidiary corporation, joint venture, or partnership; and

(B) The total voting power of the subsidiary corporation, joint venture, or partnership for the purpose of electing directors, the general partner, or principal officers. (43 U.S.C. 1626(e)).

The question for the Department is whether, reading this language together with the language of the Department's DBE statutes, DOT must alter these provisions.

The DOT DBE statute (TEA-21 version) provides as follows:

(b) Disadvantaged Business Enterprises.—

(1) General rule.—Except to the extent that the Secretary determines otherwise, not less than 10 percent of the amounts made available for any program under titles I, III, and V of this Act shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals.

(2) Definitions.—In this subsection, the following definitions apply:

(A) Small business concern.—The term "small business concern" has the meaning such term has under section 3 of the Small Business Act (15 U.S.C. 632); except that such term shall not include any concern or group of concerns controlled by the same socially and economically disadvantaged individual or individuals which has average annual gross receipts over the preceding 3 fiscal years in excess of \$16,600,000, as adjusted by the Secretary for inflation.

(B) Socially and economically disadvantaged individuals.—The term "socially and economically disadvantaged individuals" has the meaning such term has under section 8(d) of the Small Business Act (15 U.S.C. 637(d)) and relevant subcontracting regulations promulgated pursuant thereto; except that women shall be presumed to be socially and economically disadvantaged individuals for purposes of this subsection.

(4) Uniform certification.—The Secretary shall establish minimum uniform criteria for State governments to use in certifying whether a concern qualifies for purposes of this subsection. Such minimum uniform criteria shall include but not be limited to on-site visits, personal interviews, licenses, analysis of stock ownership, listing of equipment, analysis of bonding capacity, listing of work completed, resume of principal owners, financial capacity, and type of work preferred.

While the language § 1626(e) is broad, the terms used in the two statutes are not identical. Section 1626(e) refers to "minority and economically disadvantaged business enterprise[s]", while the Department's statutes refer to "small business concerns owned and controlled by socially and economically disadvantaged individuals." Requirements applicable to the former need not necessarily apply to the latter.

The legislative history of § 1626(e) lends support to distinguishing the two statutes. The following excerpt from House Report 102-673 suggests that the intent of Congress in enacting this provision was to focus on direct Federal procurement programs:

[The statute] amends section [1626(e)] of ANCSA to clarify that Alaska Native Corporations are minority and economically disadvantaged business enterprises for the purposes of implementing the SBA programs . . . This section would further clarify that Alaska Native Corporations and their subsidiary companies are minority and economically disadvantaged business enterprises for purposes of qualifying for participation in federal contracting and subcontracting programs, the largest of which include the SBA 8(a) program and the Department of Defense Small and Disadvantaged Business Program. These programs were established to increase the participation of certain segments of the population that have historically been denied access to Federal procurement activities. While this section eliminates the need for Alaska Native Corporations or their subsidiaries to prove their "economic" disadvantage the corporations would still be required to meet size requirements as small businesses. This will continue to be determined on a case-by-case basis. (Id. at 19.)

This statute, in other words, was meant to apply to direct Federal procurement programs like the 8(a) program or the DOD SBD program, rather than a program involving state and local procurements reimbursed by DOT financial assistance.

The TEA-21 program is a more recent, more specific statute governing DOT recipients' programs. In contrast, the older, more general section 1626(e) evinces no specific intent to govern the DOT DBE program. There is no evidence that Congress, in enacting section 1626(e), had any awareness of or intent to alter the DOT DBE program.

A number of provisions of the TEA-21 statute suggest that Congress intended to impose specific requirements for the DOT program, without regard to other more general statutory references. For example, the \$16.6 million size cap and the uniform certification requirements suggest that Congress wanted the eligibility for the DOT program to be determined in very specific ways, giving no hint that they intended these specific requirements to be overridden in the case of ANCs.

The Department concludes that section 1626(e) is distinguishable from the DOT DBE statutes, and that the latter govern the implementation of the DBE program. The Department is not compelled to alter its approach to certification in the case of ANCs.

Section 26.81 What Are the Requirements for Unified Certification Programs?

As was the case following the 1992 NPRM, a significant majority of the large number of commenters addressing the issue favored implementing the proposed UCP requirement, which the final rule retains largely as proposed. A few commenters suggested that airports be included in UCPs for concession purposes as well as for FAA-assisted contracting, because there are not any significant differences between the certification standards for concessionaires and contractors (the only exception is size standards, which are easy to apply). We agree, and the final rule does not make an exception for concessions (regardless of the CFR part in which the concessions provisions appear). Some commenters wanted either a longer or shorter implementation period than the SNPRM proposed, but we believe the proposal is a good middle ground between the goal of establishing UCPs as soon as possible and the time recipients will need to resolve organizational, operational, and funding issues.

There were a number of comments and questions about details of the UCP provision. One recipient wondered whether a UCP may or must be separate from a recipient and what the legal liability implications of various arrangements might be. As far as the rule is concerned, a UCP can either be situated within a recipient's organization or elsewhere. Recipients can take state law concerning liability into account in determining how best to structure a UCP in their state. Another recipient asked if existing UCPs could be exempted from submitting plans for approval. Rather than being exempted, we believe that it would be appropriate for such UCPs to submit their existing plans. They would have to change them only to the extent needed to conform to the requirements of the rule.

Some commenters asked about the relationship of UCPs to recipients. For example, should a recipient be able to certify a firm that the UCP had not certified (or whose application the UCP had not yet acted on) or refuse to recognize the UCP certification of a firm the recipient did not think should be eligible? In both cases, the answer is no. Allowing this kind of discretion would fatally undermine the "one-stop shopping" rationale of UCPs. However, a recipient could, like any other party, initiate a third-party challenge to a UCP certification action, the result of which could be appealed to DOT.

We would emphasize that the form of the UCP is a matter for negotiation among DOT recipients in a state, and this regulation does not prescribe its organization. A number of models are available, including single state agencies, consortia of recipients that hire a contractor or share the workload among themselves, mandatory reciprocity among recipients, etc. It might be conceivable for a UCP to be a "virtual entity" that is not resident in any particular location. What matters is that the UCP meet the functional requirements of this rule and actually provide one-stop shopping service to applicants. The final rule adds a provision to clarify that UCPs—even when not part of a recipient's own organization—must comply with all provisions of this rule concerning certification and nondiscrimination. Recipients cannot use a UCP that does not do so. For example, if a UCP fails to comply with part 26 certification standards and procedures, or discriminates against certain applicants, the Secretary reserves the right to direct recipients not to use the UCP, effectively "decertifying" the UCP for purposes of DOT-assisted programs. In this case, which we hope will never happen, the Department would work with recipients in the state on interim measures and replacement of the erring UCP.

The SNPRM proposed "pre-certification." That is, the UCP would have to certify a firm before the firm became eligible to participate as a DBE in a contract. The application could not be submitted as a last-minute request in connection with a procurement action, which could lead to hasty and inaccurate certification decisions. Commenters were divided on this issue, with most expressing doubts about the concept. The Department believes that avoiding last-minute (and especially post-bid opening) applications is important to an orderly and accurate certification process, so we are retaining this requirement. However, we are modifying the timing of the requirement, by requiring that certification take place before the bid/offer due date, rather than before the issuance of the solicitation. The certification action must be completed by this date in order for the firm's proposed work on the particular contract to be credited toward DBE goals. It is not enough for the application to have been submitted by the deadline.

The SNPRM proposed that, once UCPs were up and running, a UCP in State A would not have to process an application from a firm whose principal

place of business was in State B unless State B had first certified the firm. Most commenters supported this proposal, one noting that it would help eliminate problems of having to make costly out-of-state site visits. It would also potentially reduce confusion caused by multiple, and potentially conflicting, outcomes in certification decisions. One commenter was concerned that this provision would lead to "free-rider" problems among recipients. The Department will be alert to this possibility, but we do not see it as precluding going forward with this provision. We have added a provision making explicit that when State B has certified a firm, it would have an obligation to send copies of the information and documents it had on the firm to State A when the firm applied there.

All save one of the comments on mandatory reciprocity opposed the concept. That is, commenters favored UCPs being able to choose whether or not to accept certification decisions made by other UCPs. The Department urges UCPs to band together in multi-state or regional alliances, but we believe that it is best to leave reciprocity discretionary. Mandatory reciprocity, even among UCPs, could lead to forum shopping problems.

UCPs will have a common directory, which will have to be maintained in electronic form (i.e., on the internet). One commenter suggested that this electronic directory be updated daily. We think this comment has merit, and the final rule will require recipients to keep a running update of the electronic directory, making changes as they occur.

Section 26.83 What Procedures Do Recipients Follow in Making Certification Decisions?

Commenters generally supported this certification process section, and we are adopting it with only minor changes. Commenters suggested that provision for electronic filing of applications be discretionary rather than mandatory. We agree, and the final rule does not mandate development of electronic filing systems. Some commenters remained concerned about site visits and asked for more guidance on the subject. We intend to provide future guidance on this subject.

Most commenters who addressed the subject favored the development of a mandatory, nationwide, standard DOT application form for DBE eligibility. A number of commenters supplied the forms they use as examples. We believe that this is a good idea, which will help avoid confusion among applicants in a nationwide program. However, we have

not yet developed a form for this purpose. The final rule reserves a requirement for recipients to use a uniform form. We intend to work on developing such a form during the next year, in consultation with recipients and applicants. Meanwhile, recipients can continue to use existing forms, modified as necessary to conform to the requirements of this part.

The SNPRM said recipients could charge a reasonable fee to applicants. A majority of commenters, both recipients and DBEs, opposed the idea of a fee or said it should be capped at a low figure. Fees are not mandatory, and they would be limited, under the final rule, to modest application fees (not intended to recover the cost of the certification process). However, if a recipient wants to charge a modest application fee, we do not see that it is inconsistent with the nature of the program to allow it to do so. Fee waivers would be required if necessary (i.e., a firm who showed they could not afford it). All fees would have to be approved by the concerned OA as part of the DBE program approval process, which would preclude excessive fees.

Given that reciprocity is discretionary among recipients, we thought it would be useful to spell out the options a recipient has when presented by an applicant with the information that another recipient has certified the firm. The recipient may accept the other recipient's certification without any additional procedures. The recipient can make an independent decision based, in whole or in part, on the information developed by the first recipient (e.g., application forms, supporting documents, reports of site visits). The recipient may make the applicant start an entire new application process. The choice among these options is up to the recipient. (As noted above, UCPs will have these same options.)

Most commenters on the subject supported the three-year term for certifications. Some wanted a shorter or longer period. We believe the three-year term is appropriate, particularly given the safeguards of annual and update affidavits that the rule provides. In response to a few comments that recipients should have longer than the proposed 21 days after a change in circumstances to submit an update affidavit, we have extended the period to 30 days. If recipients want to have a longer term in their DBE programs than the three years provided in the rule, they can do so, with the Department's approval, as part of their DBE programs.

A few recipients said that the 90-day period for making decisions on

applications (with the possibility of a 60-day extension) was too short. Particularly since this clock does not begin ticking until a complete application, including necessary supporting documentation, is received from the applicant, we do not think this time frame is unreasonable. We would urge recipients and applicants to work together to resolve minor errors or data gaps during the assembly of the package, before this time period begins to run.

Section 26.85 What Rules Govern Recipients' Denials of Initial Requests for Certification?

A modest number of commenters addressed this section, most of whom supported it as proposed. One commenter noted that it was appropriate to permit minor errors to be corrected in an application without invoking the 12-month reapplication waiting period. We agree, and we urge recipients to follow such a policy. Most commenters thought 12 months was a good length for a reapplication period. A few opposed the idea of a waiting period or thought a shorter period was appropriate. The rule keeps 12 months, but permits recipients to seek DOT approval, through the DBE program review process, for shorter periods.

Section 26.87 What Procedures Does a Recipient Use To Remove a DBE's Eligibility?

As long ago as 1983, the Department (in the preamble to the first DBE rule) strongly urged recipients to use appropriate due process procedures for decertification actions. Recipient procedures are still inconsistent and, in some cases, inadequate, in this respect. Quite recently, for example, litigation forced one recipient to rescind a decertification of an apparently ineligible firm because it had failed to provide administrative due process. We believe that proper due process procedures are crucial to maintaining the integrity of this program. The majority of commenters agreed, though a number of commenters had concerns about particular provisions of the SNPRM proposal.

Some recipients, for example, thought separation of functions was an unnecessary requirement, or too burdensome, particularly for small recipients. We believe separation of functions is essential: there cannot be a fair proceeding if the same party acts as prosecutor and judge. We believe that the burdens are modest, particularly in the context of state DOTs and statewide UCPs. We acknowledge that for small recipients, like small airports and transit

authorities, small staffs may create problems in establishing separation of functions (e.g., if there is only one person in the organization who is knowledgeable about the DBE program). For this reason, the rule will permit small recipients to comply with this requirement to the extent feasible until UCPs are in operation (at which time the UCPs would have to ensure separation of functions in all such cases). The organizational scheme for providing separation of functions will be part of each recipient's DBE program. In the case of a small recipient, if the DBE program showed that other alternatives (e.g., the airport using the transit authority's DBE officer as the decisionmaker in decertification actions, and vice-versa) were unavailable, the Department could approve something less than ideal separation of functions for the short term before the UCP becomes operational. In reviewing certification appeals from such recipients, the Department would take into account the absence of separation of functions.

It is very important that the decisionmaker be someone who is familiar with the DBE certification requirements of this part. The decisionmaker need not be an administrative law judge or some similar official; a knowledgeable program official is preferable to an ALJ who lacks familiarity with the program.

Another aspect of the due process requirements that commenters addressed was the requirement for a record of the hearing, which some commenters found to be burdensome. We want to emphasize that, while recipients have to keep a hearing record (including a verbatim record of the hearing), they do not need to produce a transcript unless there is an appeal. A hearing record is essential, because DOT appellate review is a review of the administrative record.

Some commenters suggested deleting two provisions. One of these allowed recipients to impose a sort of administrative temporary restraining order on firms pending a final decertification decision. The other allowed the effect of a decertification decision to be retroactive to the date of the complaint. The Department agrees that these two provisions could lead to unfairness, and so we have deleted them.

Section 26.89 What Is the Process for Certification Appeals to the Department of Transportation?

Several commenters addressed this section, supporting it with a few requests for modification. Some

commenters wanted a time limit for DOT consideration of appeals. We have added a provision saying that if DOT takes longer than 180 days from the time we receive a complete package, we will write everyone concerned with an explanation of the delay and a new target date for completion. Some commenters thought a different time limit for appeals to the Department (e.g., 180 days) would be beneficial. We believe that 90 days is enough time for someone to decide whether a decision of a recipient or UCP should be appealed and write a letter to DOT. This time period starts to run from the date of the final recipient decision on the matter. DOT can accept late-filed appeals on the basis of a showing of good cause (e.g., factors beyond the control of the appellant). Some recipients thought that more time might be necessary to compile an administrative record, so we have permitted DOT to grant extensions for good cause. Generally, however, the Department will adhere to the 90-day time period in order to prevent delays in the appeals process. As a clarification, we have added a provision that all recipients involved must provide administrative record material to DOT when there is an appeal. For example, State A has relied on the information gathered by State B to certify Firm X. A competitor files an ineligibility complaint with State A, which decertifies the firm. Firm X appeals to the Department. Both State A and State B must provide their administrative record materials to DOT for purposes of the appeal. (The material would be provided to the Departmental Office of Civil Rights.)

Section 26.91 What Actions Do Recipients Take Following DOT Certification Appeal Decisions?

There were few comments concerning this section. Some comments suggested DOT appeal decisions should have mandatory nationwide effect. That is if DOT upheld the decertification action of Recipient A, Recipients B, C, D, E, etc. should automatically decertify the firm. This approach is inconsistent with the administrative review of the record approach this rule takes for appeals to DOT.

A DOT decision that A's decertification was supported by substantial evidence is not a DOT decision that the firm is ineligible. It is only a finding that A had enough evidence to decertify the firm. Other results might also be supported by substantial evidence. Nevertheless, when the Department takes action on an appeal, other recipients would be well

advised to review their own decisions to see if any new proceedings are appropriate. One comment suggested the Department should explain a refusal to accept a complaint. This is already the Department's practice.

The SNPRM included a proposal to permit direct third-party complaints to the Department. There were few comments on this proposal, which would have continued an existing DOT practice. Some of these comments suggested dropping this provision, saying it made more sense to have all certification matters handled at the recipient level in the first instance. Others raised procedural issues (e.g., the possibility of the Department holding *de novo* hearings). The Department has reconsidered this proposal, and we have decided to delete it. We believe it will avoid administrative confusion and simplify procedures for everyone if all certification actions begin at the recipient level, with DOT appellate review on the administrative record.

Subpart F—Compliance and Enforcement

There were very few comments concerning this subpart, which we are adopting as proposed. One section has been added to reflect language in TEA-21 that prohibits sanctions against recipients for noncompliance in situations where compliance is precluded by a final Federal court order finding the program unconstitutional.

DBE Participation in Airport Concessions

The Department proposed a number of changes to its airport concessions DBE program rule in the 1997 SNPRM. We received a substantial number of comments on these proposals. The Department is continuing to work on its responses to these comments, as well as on refinements of the rule to ensure that it is narrowly tailored. This work is not complete. Rather than postpone issuance of the rest of the rule pending completion of this work, we are not issuing final concessions provisions at this time. The existing concessions provisions of 49 CFR part 23 will remain in place pending completion of the revised rule.

Regulatory Analyses and Notices

Executive Order 12866

This rule is a significant rule under Executive Order 12866, because of the substantial public interest concerning and policy importance of programs to ensure nondiscrimination in Federally-assisted contracting. It also affects a wide variety of parties, including

recipients in three important DOT financial assistance programs and the DBE and non-DBE contractors that work for them. It has been reviewed by the Office of Management and Budget. It is also a significant rule for purposes of the Department's Regulatory Policies and Procedures.

We do not believe that the rule will have significant economic impacts, however. In evaluating the potential economic impact of this rule, we begin by noting that it does not create a new program. It simply revises the rule governing an existing program. The economic impacts of the DBE program are created by the existing regulation and the statutes that mandate it, not by these revisions. The changes that we propose in this program are likely to have some positive economic impacts. For example, "one-stop shopping" and clearer standards in certification are likely to reduce costs for small businesses applying for DBE certification, as well as reducing administrative burdens on recipients.

The rule's "narrow tailoring" changes are likely to be neutral in terms of their overall economic impact. These could have some distributive impacts (e.g., if the proposed goal-setting mechanism results in changes in DBE goals, a different mix of firms may work on recipients' contracts), but there would probably not be net gains or losses to the economy. There could be some short-term costs to recipients owing to changes in program administration resulting from "narrow tailoring," however.

In any event, the economic impacts are quite speculative and appear nearly impossible to quantify. Comments did not provide, and the Department does not have, any significant information that would allow the Department to estimate any such impacts.

Regulatory Flexibility Act Analysis

The DBE program is aimed at improving contracting opportunities for small businesses owned and controlled by socially and economically disadvantaged individuals. Virtually all the businesses it affects are small entities. There is no doubt that a DBE rule always affects a substantial number of small entities.

This rule, while improving program administration and facilitating DBE participation (e.g., by making the certification process clearer) and responding to legal developments, appears essentially cost-neutral with respect to small entities in general (as noted above, the one-stop shopping feature is intended to benefit small entities seeking to participate). It does

not impose new burdens or costs on small entities, compared to the existing rule. It does not affect the total funds or business opportunities available to small businesses that seek to work in DOT financial assistance programs. To the extent that the proposals in this rule (e.g., with respect to changes in the methods used to set overall goals) lead to different goals than the existing rule, some small firms may gain, and others lose, business.

There is no data of which the Department is aware that would permit us, at this time, to measure the distributive effects of the revisions on various types of small entities. It is likely that any attempt to gauge these effects would be highly speculative. For this reason, we are not able to make a quantitative, or even a precise qualitative, estimate of these effects.

Paperwork Reduction Act

A number of provisions of this rule involve information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA). One of these provisions, concerning a report of DBE achievements that recipients make to the Department, is the subject of an existing OMB approval under the PRA.

With one exception, the other information collection requirements of the rule continue existing part 23 requirements, major elements of the DBE program that recipients and contractors have been implementing since 1980 or 1983. While the final rule modifies these requirements in some ways, the Department believes the overall burden of these requirements will remain the same or shrink. These requirements are the following:

- Firms applying for DBE certification must provide information to recipients to allow them to make eligibility decisions. Currently certified firms must provide information to recipients to allow them to review the firms' continuing eligibility. (After the UCP requirements of the rule are implemented, the burdens of the certification provisions should be substantially reduced.)

- When contractors bid on prime contracts that have contract goals, they must document their DBE participation and/or the good faith efforts they have made to meet the contract goals. (Given the final rule's emphasis on race-neutral measures, it is likely the burden in this area will be reduced.)

- Recipients must maintain a directory of certified DBE firms. (Once UCPs are implemented, there will be 52 consolidated directories rather than the hundreds now required, reducing burdens substantially.)

- Recipients must calculate overall goals and transmit them to the Department for approval. (The process of setting overall goals is more flexible, but may also be more complex, than under part 23. As they make their transition to the final rule's goal-setting process during the first years of implementation, recipients may temporarily expend more hours than in the past on information-related tasks.)

- Recipients must have a DBE program approved by the Department. (The final rule includes a one-time requirement to submit a revised program document making changes to conform to the new regulation.)

The Department estimates that these program elements will result in a total of approximately 1.58 million burden hours to recipients and contractors combined during the first year of implementation and approximately 1.47 million annual burden hours thereafter.

The final rule also includes one new information collection element. It calls for recipients to collect and maintain data concerning both DBE and non-DBE bidders on DOT-assisted contracts. This information is intended to assist recipients in making more precise determinations of the availability of DBEs and the shape of the "level playing field" the maintenance of which is a major objective of the rule. The Department estimates that this requirement will add 254,595 burden hours in the first year of implementation. This figure is projected to decline to 193,261 hours in the second year and to 161,218 hours in the third and subsequent years.

Both as the result of comments and what the Department learns as it implements the DBE program under part 26, it is possible for the Department's information needs and the way we meet them to change. Sometimes the way we collect information can be changed informally (e.g., by guidance telling recipients they need not repeat information that does not change significantly from year to year). In other circumstances, a technical amendment to the regulation may be needed. In any case, the Department will remain sensitive to situations in which modifying information collection requirements becomes appropriate.

As required by the PRA, the Department has submitted an information collection approval request to OMB. Organizations and individuals desiring to submit comments on information collection requirements should direct them to the Department's docket for this rulemaking. You may also submit copies of your comments to

the Office of Information and Regulatory Affairs (OIRA), OMB, Room 10235, New Executive Office Building, Washington, DC, 20503; Attention: Desk Officer for U.S. Department of Transportation.

The Department considers comments by the public on information collections for several purposes:

- Evaluating the necessity of information collections for the proper performance of the Department's functions, including whether the information has practical utility.
- Evaluating the accuracy of the Department's estimate of the burden of the information collections, including the validity of the methods and assumptions used.

- Enhancing the quality, usefulness, and clarity of the information to be collected.

- Minimizing the burden of the collection of information on respondents, including through the use of electronic and other methods.

The Department points out that, with the exception of the bid data collection, all the information collection elements discussed in this section of the preamble have not only been part of the Department's DBE program for many years, but have also been the subject of extensive public comment following the 1992 NPRM and 1997 SNPRM. Among the over 900 comments received in response to these notices were a number addressing administrative burden issues surrounding these program elements. In this final rule, the Department has responded to these comments.

OMB is required to make a decision concerning information collections within 30-60 days of the publication of this notice. Therefore, for best effect, comments should be received by DOT/OMB within 30 days of publication. Following receipt of OMB approval, the Department will publish a Federal Register notice containing the applicable OMB approval numbers.

Federalism

The rule does not have sufficient Federalism impacts to warrant the preparation of a Federalism assessment. While the rule concerns the activities of state and local governments in DOT financial assistance programs, the rule does not significantly alter the role of state and local governments vis-a-vis DOT from the present part 23. The availability of program waivers could allow greater flexibility for state and local participants, however.

List of Subjects

49 CFR Part 23

Administrative practice and procedure, Airports, Civil rights,

Concessions, Government contracts, Grant programs—transportation, Minority businesses, Reporting and recordkeeping requirements.

49 CFR Part 26

Administrative practice and procedure, Airports, Civil rights, Government contracts, Grant programs—transportation, Highways and roads, Mass transportation, Minority businesses, Reporting and recordkeeping requirements. Issued this 8th day of January, 1999, at Washington, DC.

Rodney E. Slater,

Secretary of Transportation.

For the reasons set forth in the preamble, the Department amends 49 CFR subtitle A as follows:

PART 23—PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISE IN AIRPORT CONCESSIONS

1. Revise the heading of 49 CFR part 23 as set forth above.
2. Revise the authority citation for 49 CFR part 23 to read as follows:
Authority: 42 U.S.C. 200d et seq.; 49 U.S.C. 47107 and 47123; Executive Order 12138, 3 CFR, 1979 Comp., p. 393.

Revision 1: Authority for Part 23 is restated.

Subparts A, C, D, and E—[Removed and Reserved]

3. Remove and reserve subparts A, C, D, and E of part 23.
 - § 23.89 [Amended]
 4. Amend § 23.89 as follows:
 - a. In the definition of "disadvantaged business," remove the words "§ 23.61 of subpart D of this part" and add the words "49 CFR part 26"; and remove the words "§ 23.61" in the last line of the definition and add the words "49 CFR part 26".
 - b. In the definition of "small business concern," paragraph (b), remove the words "§ 23.43(d)" and add the words "§ 23.43(d) in effect prior to March 4, 1999 (See 49 CFR Parts 1 to 99 revised as of October 1, 1998.)".
 - c. In the definition of "socially and economically disadvantaged individuals," remove the words "§ 23.61 of subpart D of this part" and add "49 CFR part 26".
 - § 23.93 [Amended]
 5. Amend § 23.93(a) introductory text by removing the words "§ 23.7" and adding the words "§ 26.7".
 - § 23.95 [Amended]
 6. Amend § 23.95(a)(1) by removing the words "based on the factors listed in § 23.45(g)(5)" and adding the words "consistent with the process for setting overall goals set forth in 49 CFR 26.45".
- Revision 2: In §
7. In addition, amend § 23.95 as follows:
 - a. In paragraph (f)(1), remove the words "§ 23.51" and add the words "49 CFR part 26, subpart E";

b. In paragraph (f)(2), remove the words "Except as provided in § 23.51(c), each" and add "Each";

c. Remove paragraph (f)(5); d. In paragraph (g)(1), remove the words "§ 23.53" and add the words "49 CFR part 26, subpart D".

Revision 2. In §23.95 remove and reserve paragraphs (f)(2) and (f)(3).

§ 23.97 [Amended]

8. Amend § 23.97 by removing the words "§ 23.55" and adding the words "49 CFR 26.89".

§ 23.11 [Removed]

9. Remove § 23.111.

10. Add a new 49 CFR part 26, to read as follows:

PART 26—PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES IN DEPARTMENT OF TRANSPORTATION FINANCIAL ASSISTANCE PROGRAMS

Subpart A—General

- Sec. 26.1 What are the objectives of this part?
- 26.3 To whom does this part apply?
- 26.5 What do the terms used in this part mean?
- 26.7 What discriminatory actions are forbidden?
- 26.9 How does the Department issue guidance and interpretations under this part?
- 26.11 What records do recipients keep and report?

26.13 What assurances must recipients and contractors make?

26.15 How can recipients apply for exemptions or waivers?

Subpart B—Administrative Requirements for DBE Programs for Federally-Assisted Contracting

- 26.21 Who must have a DBE program?
- 26.23 What is the requirement for a policy statement?
- 26.25 What is the requirement for a liaison officer?
- 26.27 What efforts must recipients make concerning DBE financial institutions?
- 26.29 What prompt payment mechanisms may recipients have?
- 26.31 What requirements pertain to the DBE directory?
- 26.33 What steps must a recipient take to address overconcentration of DBEs in certain types of work?
- 26.35 What role do business development and mentor-protégé programs have in the DBE program?
- 26.37 What are a recipient's responsibilities for monitoring the performance of other program participants?

Subpart C—Goals, Good Faith Efforts, and Counting

- 26.41 What is the role of the statutory 10 percent goal in this program?
- 26.43 Can recipients use set-asides or quotas as part of this program?
- 26.45 How do recipients set overall goals?
- 26.47 Can recipients be penalized for failing to meet overall goals?
- 26.49 How are overall goals established for transit vehicle manufacturers?

26.51 What means do recipients use to meet overall goals?

26.53 What are the good faith efforts procedures recipients follow in situations where there are contract goals?

26.55 How is DBE participation counted toward goals?

Subpart D—Certification Standards

- 26.61 How are burdens of proof allocated in the certification process?
- 26.63 What rules govern group membership determinations?
- 26.65 What rules govern business size determinations?
- 26.67 What rules govern determinations of social and economic disadvantage?
- 26.69 What rules govern determinations of ownership?
- 26.71 What rules govern determinations concerning control?
- 26.73 What are other rules affecting certification?

Subpart E—Certification Procedures

- 26.81 What are the requirements for Unified Certification Programs?
- 26.83 What procedures do recipients follow in making certification decisions?
- 26.85 What rules govern recipients' denials of initial requests for certification?
- 26.87 What procedures does a recipient use to remove a DBE's eligibility?
- 26.89 What is the process for certification appeals to the Department of Transportation?
- 26.91 What actions do recipients take following DOT certification appeal decisions?

Subpart F—Compliance and Enforcement

- 26.101 What compliance procedures apply to recipients?
- 26.103 What enforcement actions apply in FHWA and FTA programs?
- 26.105 What enforcement actions apply in FAA Programs?
- 26.107 What enforcement actions apply to firms participating in the DBE program?
- 26.109 What are the rules governing information, confidentiality, cooperation, and intimidation or retaliation?
- Appendix A to part 26—Guidance Concerning Good Faith Efforts
- Appendix B to part 26—Forms [Reserved]
- Appendix C to part 26—DBE Business Development Program Guidelines
- Appendix D to part 26—Mentor-Protégé Program Guidelines
- Appendix E to part 26—Individual Determinations of Social and Economic Disadvantage
- Authority: 23 U.S.C. 324; 42 U.S.C. 2000d et seq.; 49 U.S.C. 1615, 47107, 47113, 47123;

Revision 3. Authority is revised by adding: Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113

Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113.

Subpart A—General

§ 26.1 What are the objectives of this part?

This part seeks to achieve several objectives:

- (a) To ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs;
 - (b) To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
 - (c) To ensure that the Department's DBE program is narrowly tailored in accordance with applicable law;
 - (d) To ensure that only firms that fully meet this part's eligibility standards are permitted to participate as DBEs;
 - (e) To help remove barriers to the participation of DBEs in DOT-assisted contracts;
 - (f) To assist the development of firms that can compete successfully in the marketplace outside the DBE program;
- and

(g) To provide appropriate flexibility to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.

§ 26.3 To whom does this part apply?

(a) If you are a recipient of any of the following types of funds, this part applies to you:

(1) Federal-aid highway funds authorized under Titles I (other than Part B) and V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), Pub. L. 102-240, 105 Stat. 1914, or Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21), Pub. L. 105-178, 112 Stat. 107.

(2) Federal transit funds authorized by Titles I, III, V and VI of ISTEA, Pub. L. 102-240 or by Federal transit laws in Title 49, U.S. Code, or Titles I, III, and V of the TEA-21, Pub. L. 105-178.

(3) Airport funds authorized by 49 U.S.C. 47101, et seq.

(b) [Reserved]

(c) If you are letting a contract, and that contract is to be performed entirely outside the United States, its territories and possessions, Puerto Rico, Guam, or the Northern Marianas Islands, this part does not apply to the contract.

(d) If you are letting a contract in which DOT financial assistance does not participate, this part does not apply to the contract.

26.5 What do the terms used in this part mean?

Affiliation has the same meaning the term has in the Small Business Administration (SBA) regulations, 13 CFR part 121.

(1) Except as otherwise provided in 13 CFR part 121, concerns are affiliates of each other when, either directly or indirectly:

- (i) One concern controls or has the power to control the other; or
- (ii) A third party or parties controls or has the power to control both; or
- (iii) An identity of interest between or among parties exists such that affiliation may be found.

(2) In determining whether affiliation exists, it is necessary to consider all appropriate factors, including common ownership, common management, and contractual relationships. Affiliates must be considered together in determining whether a concern meets small business size criteria and the statutory cap on the participation of firms in the DBE program.

Alaska Native means a citizen of the United States who is a person of one-fourth degree or more Alaskan Indian (including Tsimshian Indians not enrolled in the Metlakla Indian Community), Eskimo, or Aleut blood, or a combination of those bloodlines. The term includes, in the absence of proof of a minimum blood quantum, any citizen whom a Native village or Native group regards as an Alaska Native if their father or mother is regarded as an Alaska Native.

Alaska Native Corporation (ANC) means any Regional Corporation, Village Corporation, Urban Corporation, or Group Corporation organized under the laws of the State of Alaska in accordance with the Alaska Native Claims Settlement Act, as amended (43 U.S.C. 1601, et seq.).

Compliance means that a recipient has correctly implemented the requirements of this part.

Rev 4. Add: to Contract definition: For purposes of this part, a lease is considered to be a contract.

Contract means a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For purposes of this part, a lease is considered to be a contract.

Contractor means one who participates, through a contract or subcontract (at any tier), in a DOT-assisted highway, transit, or airport program.

Department or DOT means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA).

Disadvantaged business enterprise or DBE means a for-profit small business concern—

- (1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
- (2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

DOT-assisted contract means any contract between a recipient and a contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees, except a contract solely for the purchase of land.

Good faith efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Immediate family member means father, mother, husband, wife, son, daughter, brother, sister, grandmother, grandfather, grandson, granddaughter, mother-in-law, or father-in-law.

Indian tribe means any Indian tribe, band, nation, or other organized group or community of Indians, including any ANC, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians, or is recognized as such by the State in which the tribe, band, nation, group, or community resides. See definition of "tribally-owned concern" in this section.

Joint venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

Native Hawaiian means any individual whose ancestors were natives, prior to 1778, of the area which now comprises the State of Hawaii.

Native Hawaiian Organization means any community service organization serving Native Hawaiians in the State of Hawaii which is a not-for-profit organization chartered by the State of Hawaii, is controlled by Native Hawaiians, and whose business activities will principally benefit such Native Hawaiians.

Noncompliance means that a recipient has not correctly implemented the requirements of this part.

Operating Administration or OA means any of the following parts of DOT: the Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA). The "Administrator" of an operating administration includes his or her designees.

Personal net worth means the net value of the assets of an individual remaining after total liabilities are deducted. An individual's personal net worth does not include: The individual's ownership interest in an applicant or participating DBE firm; or the individual's equity in his or her primary place of residence. An individual's personal net worth includes only his or her own share of assets held jointly or as community property with the individual's spouse.

Primary industry classification means the four digit Standard Industrial Classification (SIC) code designation which best describes the primary business of a firm. The SIC code designations are described in the Standard Industry Classification Manual. As the North American Industrial Classification System (NAICS) replaces the SIC system, references to SIC codes and the SIC Manual are deemed to refer to the NAICS manual and applicable codes. The SIC Manual and the NAICS Manual are available through the National Technical Information Service (NTIS) of the U.S. Department of Commerce (Springfield, VA, 22261). NTIS also makes materials available through its web site (www.ntis.gov/naics).

Primary recipient means a recipient which receives DOT financial assistance and passes some or all of it on to another recipient.

Principal place of business means the business location where the individuals who manage the firm's day-to-day operations spend most working hours and where top management's business records are kept. If the offices from which management is directed and where business records are kept are in different locations, the recipient will determine the principal place of business for DBE program purposes.

Program means any undertaking on a recipient's part to use DOT financial assistance, authorized by the laws to which this part applies.

Race-conscious measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender-neutrality.

Recipient is any entity, public or private, to which DOT financial assistance is extended, whether directly or through another recipient, through the programs of the FAA, FHWA, or FTA, or who has applied for such assistance.

Secretary means the Secretary of Transportation or his/her designee.

Set-aside means a contracting practice restricting eligibility for the competitive award of a contract solely to DBE firms.

Small Business Administration or SBA means the United States Small Business Administration.

Small business concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in § 26.65(b).

Socially and economically disadvantaged individual means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is—

(1) Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.

(2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) "Black Americans," which includes persons having origins in any of the Black racial groups of Africa;

(ii) "Hispanic Americans," which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii) "Native Americans," which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;

(iv) "Asian-Pacific Americans," which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunel, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) "Subcontinent Asian Americans," which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi) Women;

(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

Tribally-owned concern means any concern at least 51 percent owned by an Indian tribe as defined in this section.

You refers to a recipient, unless a statement in the text of this part or the context requires otherwise (i.e., "You must do XYZ" means that recipients must do XYZ).

§ 26.7 What discriminatory actions are forbidden?

(a) You must never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by this part on the basis of race, color, sex, or national origin.

(b) In administering your DBE program, you must not, directly or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the program with respect to individuals of a particular race, color, sex, or national origin.

§ 26.9 How does the Department issue guidance and interpretations under this part?

(a) This part applies instead of subparts A and C through E of 49 CFR part 23 in effect prior to March 4, 1999. (See 49 CFR Parts 1 to 99, revised as of October 1, 1998.) Only guidance and interpretations (including interpretations set forth in certification appeal decisions) consistent with this part 26 and issued after March 4, 1999 have definitive, binding effect in implementing the provisions of this part and constitute the official position of the Department of Transportation.

(b) The Secretary of Transportation, Office of the Secretary of Transportation, FHWA, FTA, and FAA may issue written interpretations of or written guidance concerning this part. Written interpretations and guidance are valid and binding, and constitute the official position of the Department of Transportation, only if they are issued over the signature of the Secretary of Transportation or if they contain the following statement:

The General Counsel of the Department of Transportation has reviewed this document and approved it as consistent with the language and intent of 49 CFR part 26.

§ 26.11 What records do recipients keep and report?

(a) [Reserved]

(b) You must continue to provide data about your DBE program to the Department as directed by DOT operating administrations.

(c) You must create and maintain a bidders list, consisting of all firms bidding on prime contracts and bidding or quoting subcontracts on DOT-assisted projects. For every firm, the following information must be included:

- (1) Firm name;
- (2) Firm address;
- (3) Firm's status as a DBE or non-

DBE;

- (4) The age of the firm; and
- (5) The annual gross receipts of the

firm.

§ Section 26.13 What assurances must recipients and contractors make?

(a) Each financial assistance agreement you sign with a DOT operating administration (or a primary recipient) must include the following assurance: The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

(b) Each contract you sign with a contractor (and each subcontract the prime contractor signs with a subcontractor) must include the following assurance: The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract

or such other remedy as the recipient deems appropriate.

§ 26.15 How can recipients apply for exemptions or waivers?

(a) You can apply for an exemption from any provision of this part. To apply, you must request the exemption in writing from the Office of the Secretary of Transportation, FHWA, FTA, or FAA. The Secretary will grant the request only if it documents special or exceptional circumstances, not likely to be generally applicable, and not contemplated in connection with the rulemaking that established this part, that make your compliance with a specific provision of this part impractical. You must agree to take any steps that the Department specifies to comply with the intent of the provision from which an exemption is granted. The Secretary will issue a written response to all exemption requests.

(b) You can apply for a waiver of any provision of Subpart B or C of this part including, but not limited to, any provisions regarding administrative requirements, overall goals, contract goals or good faith efforts. Program waivers are for the purpose of authorizing you to operate a DBE program that achieves the objectives of this part by means that may differ from one or more of the requirements of Subpart B or C of this part. To receive a program waiver, you must follow these procedures:

(1) You must apply through the concerned operating administration. The application must include a specific program proposal and address how you will meet the criteria of paragraph (b)(2) of this section. Before submitting your application, you must have had public participation in developing your proposal, including consultation with the DBE community and at least one public hearing. Your application must include a summary of the public participation process and the information gathered through it.

(2) Your application must show that—

(i) There is a reasonable basis to conclude that you could achieve a level of DBE participation consistent with the objectives of this part using different or innovative means other than those that are provided in subpart B or C of this part;

(ii) Conditions in your jurisdiction are appropriate for implementing the proposal;

(iii) Your proposal would prevent discrimination against any individual or group in access to contracting opportunities or other benefits of the program; and

(iv) Your proposal is consistent with applicable law and program requirements of the concerned operating administration's financial assistance program.

(3) The Secretary has the authority to approve your application. If the Secretary grants your application, you may administer your DBE program as provided in your proposal, subject to the following conditions:

(i) DBE eligibility is determined as provided in subparts D and E of this part, and DBE participation is counted as provided in § 26.49;

(ii) Your level of DBE participation continues to be consistent with the objectives of this part;

(iii) There is a reasonable limitation on the duration of your modified program; and

(iv) Any other conditions the Secretary makes on the grant of the waiver.

(4) The Secretary may end a program waiver at any time and require you to comply with this part's provisions. The Secretary may also extend the waiver, if he or she determines that all requirements of paragraphs (b)(2) and

(3) of this section continue to be met.

Any such extension shall be for no longer than period originally set for the duration of the program.

Subpart B—Administrative Requirements for DBE Programs for Federally-Assisted Contracting § 26.21 Who must have a DBE program?

(a) If you are in one of these categories and let DOT-assisted contracts, you must have a DBE program meeting the requirements of this part:

- (1) All FHWA recipients receiving funds authorized by a statute to which this part applies;

Revision 5: Revise § 26.21(a)(2) to read:

(2) FTA recipients that receive \$250,000 in FTA planning, capital or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49.

~~(2) FTA recipients that receive \$250,000 or more in FTA planning, capital, and/or operating assistance in a Federal fiscal year;~~

(2) FTA recipients that receive \$250,000 in FTA planning, capital or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49.

(3) FAA recipients that receive a grant of \$250,000 or more for airport planning or development.

(b)(1) You must submit a DBE program conforming to this part by August 31, 1999 to the concerned operating administration (OA). Once the OA has approved your program, the approval counts for all of your DOT-assisted programs (except that goals are reviewed and approved by the particular operating administration that provides funding for your DOT-assisted contracts).

Revision 6 in §
(2) You do not have to submit regular updates of your DBE programs, as long as you remain in compliance. However, you must submit significant changes in the program for approval.

(c) You are not eligible to receive DOT financial assistance unless DOT has

approved your DBE program and you are in compliance with it and this part. You must continue to carry out your program until all funds from DOT financial assistance have been expended.

§ 26.23 What is the requirement for a policy statement?

You must issue a signed and dated policy statement that expresses your commitment to your DBE program, states its objectives, and outlines responsibilities for its implementation. You must circulate the statement throughout your organization and to the DBE and non-DBE business communities that perform work on your DOT-assisted contracts.

§ 26.25 What is the requirement for a liaison officer?

You must have a DBE liaison officer, who shall have direct, independent access to your Chief Executive Officer concerning DBE program matters. The liaison officer shall be responsible for implementing all aspects of your DBE program. You must also have adequate staff to administer the program in compliance with this part.

26.27 What efforts must recipients make concerning DBE financial institutions?

You must thoroughly investigate the full extent of services offered by financial institutions owned and controlled by socially and economically disadvantaged individuals in your community and make reasonable efforts to use these institutions. You must also encourage prime contractors to use such institutions.

§ 26.29 What prompt payment mechanisms must recipients have?

(a) You must establish, as part of your DBE program, a contract clause to require prime contractors to pay subcontractors for satisfactory performance of their contracts no later than a specific number of days from receipt of each payment you make to the prime contractor. This clause must also require the prompt return of retainage payments from the prime contractor to the subcontractor within a specific number of days after the subcontractor's work is satisfactorily completed.

(1) This clause may provide for appropriate penalties for failure to comply, the terms and conditions of which you set.

(2) This clause may also provide that any delay or postponement of payment among the parties may take place only for good cause, with your prior written approval.

(b) You may also establish, as part of your DBE program, any of the following

additional mechanisms to ensure prompt payment:

(1) A contract clause that requires prime contractors to include in their subcontracts language providing that prime contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes. You may specify the nature of such mechanisms.

(2) A contract clause providing that the prime contractor will not be reimbursed for work performed by subcontractors unless and until the prime contractor ensures that the subcontractors are promptly paid for the work they have performed.

(3) Other mechanisms, consistent with this part and applicable state and local law, to ensure that DBEs and other contractors are fully and promptly paid.

§ 26.31 What requirements pertain to the DBE directory?

You must maintain and make available to interested persons a directory identifying all firms eligible to participate as DBEs in your program. In the listing for each firm, you must include its address, phone number, and the types of work the firm has been certified to perform as a DBE. You must revise your directory at least annually and make updated information available to contractors and the public on request.

§ 26.33 What steps must a recipient take to address overconcentration of DBEs in certain types of work?

(a) If you determine that DBE firms are so overconcentrated in a certain type of work as to unduly burden the opportunity of non-DBE firms to participate in this type of work, you must devise appropriate measures to address this overconcentration.

(b) These measures may include the use of incentives, technical assistance, business development programs, mentor-protégé programs, and other appropriate measures designed to assist DBEs in performing work outside of the specific field in which you have determined that non-DBEs are unduly burdened. You may also consider varying your use of contract goals, to the extent consistent with § 26.51, to ensure that non-DBEs are not unfairly prevented from competing for subcontracts.

(c) You must obtain the approval of the concerned DOT operating administration for your determination of overconcentration and the measures you devise to address it. Once approved, the measures become part of your DBE program.

§ 26.35 What role do business development and mentor-protégé programs have in the DBE program?

(a) You may or, if an operating administration directs you to, you must establish a DBE business development program (BDP) to assist firms in gaining the ability to compete successfully in the marketplace outside the DBE program. You may require a DBE firm, as a condition of receiving assistance through the BDP, to agree to terminate its participation in the DBE program after a certain time has passed or certain objectives have been reached. See Appendix C of this part for guidance on administering BDP programs.

(b) As part of a BDP or separately, you may establish a "mentor-protégé" program, in which another DBE or non-DBE firm is the principal source of business development assistance to a DBE firm.

(1) Only firms you have certified as DBEs before they are proposed for participation in a mentor-protégé program are eligible to participate in the mentor-protégé program.

(2) During the course of the mentor-protégé relationship, you must:

(i) Not award DBE credit to a non-DBE mentor firm for using its own protégé firm for more than one half of its goal on any contract let by the recipient; and

(ii) Not award DBE credit to a non-DBE mentor firm for using its own protégé firm for more than every other contract performed by the protégé firm.

(3) For purposes of making determinations of business size under this part, you must not treat protégé firms as affiliates of mentor firms, when both firms are participating under an approved mentor-protégé program. See Appendix D of this part for guidance concerning the operation of mentor-protégé programs.

(c) Your BDPs and mentor-protégé programs must be approved by the concerned operating administration before you implement them. Once approved, they become part of your DBE program.

§ 26.37 What are a recipient's responsibilities for monitoring the performance of other program participants?

(a) You must implement appropriate mechanisms to ensure compliance with the part's requirements by all program participants (e.g., applying legal and contract remedies available under Federal, state and local law). You must set forth these mechanisms in your DBE program.

(b) Your DBE program must also include a monitoring and enforcement mechanism to verify that the work committed to DBEs at contract award is

actually performed by the DBEs. This mechanism must provide for a running tally of actual DBE attainments (e.g., payments actually made to DBE firms) and include a provision ensuring that DBE participation is credited toward overall or contract goals only when payments are actually made to DBE firms.

Subpart C—Goals, Good Faith Efforts, and Counting

§ 26.41 What is the role of the statutory 10 percent goal in this program?

(a) The statutes authorizing this program provide that, except to the extent the Secretary determines otherwise, not less than 10 percent of the authorized funds are to be expended with DBEs.

(b) This 10 percent goal is an aspirational goal at the national level, which the Department uses as a tool in evaluating and monitoring DBEs' opportunities to participate in DOT-assisted contracts.

(c) The national 10 percent goal does not authorize or require recipients to set overall or contract goals at the 10 percent level, or any other particular level, or to take any special administrative steps if their goals are above or below 10 percent.

§ 26.43 Can recipients use set-asides or quotas as part of this program?

(a) You are not permitted to use quotas for DBEs on DOT-assisted contracts subject to this part.

(b) You may not set-aside contracts for DBEs on DOT-assisted contracts subject to this part, except that, in limited and extreme circumstances, you may use set-asides when no other method could be reasonably expected to redress egregious instances of discrimination.

§ 26.45 How do recipients set overall goals?

(a) You must set an overall goal for DBE participation in your DOT-assisted contracts.

(b) Your overall goal must be based on demonstrable evidence of the availability of ready, willing and able DBEs relative to all businesses ready, willing and able to participate on your DOT-assisted contracts (hereafter, the "relative availability of DBEs"). The goal must reflect your determination of the level of DBE participation you would expect absent the effects of discrimination. You cannot simply rely on either the 10 percent national goal, your previous overall goal or past DBE participation rates in your program without reference to the relative availability of DBEs in your market.

(c) Step 1. You must begin your goal setting process by determining a base figure

for the relative availability of DBEs. The following are examples of approaches that you may take toward determining a base figure. These examples are provided as a starting point for your goal setting process. Any percentage figure derived from one of these examples should be considered a basis from which you begin when examining all evidence available in your jurisdiction. These examples are not intended as an exhaustive list. Other methods or combinations of methods to determine a base figure may be used, subject to approval by the concerned operating administration.

(1) Use DBE Directories and Census Bureau Data. Determine the number of ready, willing and able DBEs in your market from your DBE directory. Using the Census Bureau's County Business

Pattern (CBP) data base, determine the number of all ready, willing and able businesses available in your market that perform work in the same SIC codes. (Information about the CBP data base may be obtained from the Census Bureau at their web site, www.census.gov/epcd/cbp/view/cbpview.html.) Divide the number of DBEs by the number of all businesses to derive a base figure for the relative availability of DBEs in your market.

(2) Use a bidders list. Determine the number of DBEs that have bid or quoted on your DOT-assisted prime contracts or subcontracts in the previous year. Determine the number of all businesses that have bid or quoted on prime or subcontracts in the same time period. Divide the number of DBE bidders and quoters by the number for all businesses to derive a base figure for the relative availability of DBEs in your market.

(3) Use data from a disparity study. Use a percentage figure derived from data in a valid, applicable disparity study.

(4) Use the goal of another DOT recipient. If another DOT recipient in the same, or substantially similar, market has set an overall goal in compliance with this rule, you may use that goal as a base figure for your goal.

Revision 8: In §26.45(c)(5) Remove the words "Subject to the approval of the DOT operating administration, you" and add "You" in its place.

(5) Alternative methods. Subject to the approval of the DOT operating administration, you may use other methods to determine a base figure for your overall goal. Any methodology you choose must be based on demonstrable evidence of local market conditions and be designed to ultimately attain a goal that is rationally related to the relative availability of DBEs in your market.

(d) Step 2. Once you have calculated a base figure, you must examine all of the evidence

available in your jurisdiction to determine what adjustment, if any, is needed to the base figure in order to arrive at your overall goal.

(i) There are many types of evidence that must be considered when adjusting the base figure. These include:

(i) The current capacity of DBEs to perform work in your DOT-assisted contracting program, as measured by the volume of work DBEs have performed in recent years;

(ii) Evidence from disparity studies conducted anywhere within your jurisdiction, to the extent it is not already accounted for in your base figure; and

(iii) If your base figure is the goal of another recipient, you must adjust it for differences in your local market and your contracting program.

(2) You may also consider available evidence from related fields that affect the opportunities for DBEs to form, grow and compete. These include, but are not limited to:

(i) Statistical disparities in the ability of DBEs to get the financing, bonding and insurance required to participate in your program;

(ii) Data on employment, self-employment, education, training and union apprenticeship programs, to the extent you can relate it to the opportunities for DBEs to perform in your program.

(3) If you attempt to make an adjustment to your base figure to account for the continuing effects of past discrimination (often called the "but for" factor) or the effects of an ongoing DBE program, the adjustment must be based on demonstrable evidence that is logically and directly related to the effect for which the adjustment is sought.

(e) Once you have determined a percentage figure in accordance with paragraphs (c) and (d) of this section, you should express your overall goal as follows:

(1) If you are an FHWA recipient, as a percentage of all Federal-aid highway funds you will expend in FHWA-assisted contract in the forthcoming fiscal year;

(2) If you are an FTA or FAA recipient as a percentage of all FTA or FAA funds (exclusive of FTA funds to be used for the purchase of transit vehicles) that you will expend in FTA or FAA-assisted contracts in the forthcoming fiscal year. In appropriate cases, the FTA or FAA Administrator may permit you to express your overall goal as a percentage of funds for a particular grant or project or group of grants and/or projects.

(f)(1) If you set overall goals on a fiscal year basis, you must submit them to the applicable DOT operating administration for review on August 1 of each year, unless the Administrator of the concerned operating administration establishes a different submission date.

(2) If you are an FTA or FAA recipient and set your overall goal on a project or grant basis, you must submit the goal for review at a time determined by the FTA or FAA Administrator.

(3) You must include with your overall goal submission a description of the methodology you used to establish the goal, including your base figure and the evidence with which it was calculated, and the adjustments you made to the base figure and the evidence relied on for the adjustments. You should also include a summary listing of the relevant available evidence in your jurisdiction and, where applicable, an explanation of why you did not use that evidence to adjust your base figure. You must also include your projection of the portions of the overall goal you expect to meet through race-neutral and race-conscious measures, respectively (see § 26.51 (c)).

(4) You are not required to obtain prior operating administration concurrence with the your overall goal. However, if the operating administration's review suggests that your overall goal has not been correctly calculated, or that your method for calculating goals is inadequate, the operating administration may, after consulting with you, adjust your overall goal or require that you do so. The adjusted overall goal is binding on you.

(5) If you need additional time to collect data or take other steps to develop an approach to setting overall goals, you may request the approval of the concerned operating administration for an interim goal and/or goal-setting mechanism. Such a mechanism must:

(i) Reflect the relative availability of DBEs in your local market to the maximum extent feasible given the data available to you; and

(ii) Avoid imposing undue burdens on non-DBEs.

(g) In establishing an overall goal, you must provide for public participation. This public participation must include:

(1) Consultation with minority, women's and general contractor groups, community organizations, and other officials or organizations which could be expected to have information concerning the availability of disadvantaged and non-disadvantaged businesses, the effects of discrimination on opportunities for DBEs, and your efforts to establish a level playing field for the participation of DBEs.

(2) A published notice announcing your proposed overall goal, informing the public that the proposed goal and its rationale are available for inspection during normal business hours at your principal office for 30 days following the date of the notice, and informing the public that you and the Department will accept comments on the goals for 45 days from the date of the notice. The notice must include addresses to which comments may be sent, and you must publish it in general circulation media and available minority-focused media and trade association publications.

(h) Your overall goals must provide for participation by all certified DBEs and must not be subdivided into group-specific goals.

§ 26.47 Can recipients be penalized for failing to meet overall goals?

(a) You cannot be penalized, or treated by the Department as being in noncompliance with this rule, because your DBE participation falls short of your overall goal, unless you have failed to administer your program in good faith.

(b) If you do not have an approved DBE program or overall goal, or if you fail to implement your program in good faith, you are in noncompliance with this part.

§ 26.49 How are overall goals established for transit vehicle manufacturers?

(a) If you are an FTA recipient, you must require in your DBE program that each transit vehicle manufacturer, as a condition of being authorized to bid or propose on FTA-assisted transit vehicle procurements, certify that it has complied with the requirements of this section. You do not include FTA assistance used in transit vehicle procurements in the base amount from which your overall goal is calculated.

(b) If you are a transit vehicle manufacturer, you must establish and submit for FTA's approval an annual overall percentage goal. In setting your overall goal, you should be guided, to the extent applicable, by the principles underlying § 26.45. The base from which you calculate this goal is the amount of FTA financial assistance included in transit vehicle contracts you will perform during the fiscal year in question. You must exclude from this base funds attributable to work performed outside the United States and its territories, possessions, and commonwealths. The requirements and procedures of this part with respect to submission and approval of overall goals apply to you as they do to recipients.

(c) As a transit vehicle manufacturer, you may make the certification required by this section if you have submitted the goal this section requires and FTA has approved it or not disapproved it.

(d) As a recipient, you may, with FTA approval, establish project-specific goals for DBE participation in the procurement of transit vehicles in lieu of complying through the procedures of this section.

(e) If you are an FHWA or FAA recipient, you may, with FHWA or FAA approval, use the procedures of this section with respect to procurements of vehicles or specialized equipment. If you choose to do so, then the manufacturers of this equipment must meet the same requirements (including goal approval by FHWA or FAA) as transit vehicle manufacturers must meet in FTA-assisted procurements.

§ 26.51 What means do recipients use to meet overall goals?

(a) You must meet the maximum feasible portion of your overall goal by using race-neutral means of facilitating DBE participation. Race-neutral DBE participation includes any time a DBE wins a prime contract through customary competitive procurement procedures, is awarded a subcontract on a prime contract that does not carry a DBE goal, or even if there is a DBE goal, wins a subcontract from a prime contractor that did not consider its DBE status in making the award (e.g., a prime contractor that uses a strict low bid system to award subcontracts).

(b) Race-neutral means include, but are not limited to, the following:

(1) Arranging solicitations, times for the presentation of bids, quantities, specifications, and delivery schedules in ways that facilitate DBE, and other small businesses, participation (e.g., unbundling large contracts to make them more accessible to small businesses, requiring or encouraging prime contractors to subcontract portions of work that they might otherwise perform with their own forces);

(2) Providing assistance in overcoming limitations such as inability to obtain bonding or financing (e.g., by such means as simplifying the bonding process, reducing bonding requirements, eliminating the impact of surety costs from bids, and providing services to help DBEs, and other small businesses, obtain bonding and financing);

(3) Providing technical assistance and other services;

(4) Carrying out information and communications programs on contracting procedures and specific

contract opportunities (e.g., ensuring the inclusion of DBEs, and other small businesses, on recipient mailing lists for bidders; ensuring the dissemination to bidders on prime contracts of lists of potential subcontractors; provision of information in languages other than English, where appropriate);

(5) Implementing a supportive services program to develop and improve immediate and long-term business management, record keeping, and financial and accounting capability for DBEs and other small businesses;

(6) Providing services to help DBEs, and other small businesses, improve long-term development, increase opportunities to participate in a variety of kinds of work, handle increasingly significant projects, and achieve eventual self-sufficiency;

(7) Establishing a program to assist new, start-up firms, particularly in fields in which DBE participation has historically been low;

(8) Ensuring distribution of your DBE directory, through print and electronic means, to the widest feasible universe of potential prime contractors; and

(9) Assisting DBEs, and other small businesses, to develop their capability to utilize emerging technology and conduct business through electronic media.

(c) Each time you submit your overall goal for review by the concerned operating administration, you must also submit your projection of the portion of the goal that you expect to meet through race-neutral means and your basis for that projection. This projection is subject to approval by the concerned operating administration, in conjunction with its review of your overall goal.

(d) You must establish contract goals to meet any portion of your overall goal you do not project being able to meet using race-neutral means.

(e) The following provisions apply to the use of contract goals:

(1) You may use contract goals only on those DOT-assisted contracts that have subcontracting possibilities.

(2) You are not required to set a contract goal on every DOT-assisted contract. You are not required to set each contract goal at the same percentage level as the overall goal. The goal for a specific contract may be higher or lower than that percentage level of the overall goal, depending on such factors as the type of work involved, the location of the work, and the availability of DBEs for the work of the particular contract. However, over the period covered by your overall goal, you must set contract goals so that they will cumulatively result in meeting any portion of your overall goal you do not

project being able to meet through the use of race-neutral means.

(3) Operating administration approval of each contract goal is not necessarily required. However, operating administrations may review and approve or disapprove any contract goal you establish.

(4) Your contract goals must provide for participation by all certified DBEs and must not be subdivided into group-specific goals.

(f) To ensure that your DBE program continues to be narrowly tailored to overcome the effects of discrimination, you must adjust your use of contract goals as follows:

(1) If your approved projection under paragraph (c) of this section estimates that you can meet your entire overall goal for a given year through race-neutral means, you must implement your program without setting contract goals during that year.

Example to Paragraph (f)(1): Your overall goal for Year I is 12 percent. You estimate that you can obtain 12 percent or more DBE participation through the use of race-neutral measures, without any use of contract goals. In this case, you do not set any contract goals for the contracts that will be performed in Year I.

(2) If, during the course of any year in which you are using contract goals, you determine that you will exceed your overall goal, you must reduce or eliminate the use of contract goals to the extent necessary to ensure that the use of contract goals does not result in exceeding the overall goal. If you determine that you will fall short of your overall goal, then you must make appropriate modifications in your use of race-neutral and/or race-conscious measures to allow you to meet the overall goal.

Example to Paragraph (f)(2): In Year II, your overall goal is 12 percent. You have estimated that you can obtain 5 percent DBE participation through use of race-neutral measures. You therefore plan to obtain the remaining 7 percent participation through use of DBE goals. By September, you have already obtained 11 percent DBE participation for the year. For contracts let during the remainder of the year, you use contract goals only to the extent necessary to obtain an additional one percent DBE participation. However, if you determine in September that your participation for the year is likely to be only 8 percent total, then you would increase your use of race-neutral and/or race-conscious means during the remainder of the year in order to achieve your overall goal.

(3) If the DBE participation you have obtained by race-neutral means alone meets or exceeds your overall goals for two consecutive years, you are not required to make a projection of the

amount of your goal you can meet using such means in the next year. You do not set contract goals on any contracts in the next year. You continue using only race-neutral means to meet your overall goals unless and until you do not meet your overall goal for a year.

Example to Paragraph (f)(3): Your overall goal for Years I and Year II is 10 percent. The DBE participation you obtain through race-neutral means alone is 10 percent or more in each year. (For this purpose, it does not matter whether you obtained additional DBE participation through using contract goals in these years.) In Year III and following years, you do not need to make a projection under paragraph (c) of this section of the portion of your overall goal you expect to meet using race-neutral means. You simply use race-neutral means to achieve your overall goals. However, if in Year VI your DBE participation falls short of your overall goal, then you must make a paragraph (c) projection for Year VII and, if necessary, resume use of contract goals in that year.

(4) If you obtain DBE participation that exceeds your overall goal in two consecutive years through the use of contract goals (i.e., not through the use of race-neutral means alone), you must reduce your use of contract goals proportionately in the following year.

Example to Paragraph (f)(4): In Years I and II, your overall goal is 12 percent, and you obtain 14 and 16 percent DBE participation, respectively. You have exceeded your goals over the two-year period by an average of 25 percent. In Year III, your overall goal is again 12 percent, and your paragraph (c) projection estimates that you will obtain 4 percent DBE participation through race-neutral means and 8 percent through contract goals. You then reduce the contract goal projection by 25 percent (i.e., from 8 to 6 percent) and set contract goals accordingly during the year. If in Year III you obtain 11 percent participation, you do not use this contract goal adjustment mechanism for Year IV, because there have not been two consecutive years of exceeding overall goals.

(g) In any year in which you project meeting part of your goal through race-neutral means and the remainder through contract goals, you must maintain data separately on DBE achievements in those contracts with and without contract goals, respectively. You must report this data to the concerned operating administration as provided in § 26.11.

§ 26.53 What are the good faith efforts procedures recipients follow in situations where there are contract goals?

(a) When you have established a DBE contract goal, you must award the contract only to a bidder/offeror who makes good faith efforts to meet it. You must determine that a bidder/offeror has made good faith efforts if the bidder/

offeror does either of the following things:

(1) Documents that it has obtained enough DBE participation to meet the goal; or

(2) Documents that it made adequate good faith efforts to meet the goal, even though it did not succeed in obtaining enough DBE participation to do so. If the bidder/offeror does document adequate good faith efforts, you must not deny award of the contract on the basis that the bidder/offeror failed to meet the goal. See Appendix A of this part for guidance in determining the adequacy of a bidder/offeror's good faith efforts.

(b) In your solicitations for DOT-assisted contracts for which a contract goal has been established, you must require the following:

(1) Award of the contract will be conditioned on meeting the requirements of this section;

(2) All bidders/offerors will be required to submit the following information to the recipient, at the time provided in paragraph (b)(3) of this section:

(i) The names and addresses of DBE firms that will participate in the contract;

(ii) A description of the work that each DBE will perform;

(iii) The dollar amount of the participation of each DBE firm participating;

(iv) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;

(v) Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and

(vi) If the contract goal is not met, evidence of good faith efforts (see Appendix A of this part); and

(3) At your discretion, the bidder/offeror must present the information required by paragraph (b)(2) of this section—

(i) Under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or

(ii) At any time before you commit yourself to the performance of the contract by the bidder/offeror, as a matter of responsibility.

(c) You must make sure all information is complete and accurate and adequately documents the bidder/offeror's good faith efforts before committing yourself to the performance of the contract by the bidder/offeror.

(d) If you determine that the apparent successful bidder/offeror has failed to meet the requirements of paragraph (a)

of this section, you must, before awarding the contract, provide the bidder/offeror an opportunity for administrative reconsideration.

(1) As part of this reconsideration, the bidder/offeror must have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so.

(2) Your decision on reconsideration must be made by an official who did not take part in the original determination that the bidder/offeror failed to meet the goal or make adequate good faith efforts to do so.

(3) The bidder/offeror must have the opportunity to meet in person with your reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do so.

(4) You must send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

(5) The result of the reconsideration process is not administratively appealable to the Department of Transportation.

(e) In a "design-build" or "turnkey" contracting situation, in which the recipient lets a master contract to a contractor, who in turn lets subsequent subcontracts for the work of the project, a recipient may establish a goal for the project. The master contractor then establishes contract goals, as appropriate, for the subcontracts it lets. Recipients must maintain oversight of the master contractor's activities to ensure that they are conducted consistent with the requirements of this part.

(f)(1) You must require that a prime contractor not terminate for convenience a DBE subcontractor listed in response to paragraph (b)(2) of this section (or an approved substitute DBE firm) and then perform the work of the terminated subcontract with its own forces or those of an affiliate, without your prior written consent.

(2) When a DBE subcontractor is terminated, or fails to complete its work on the contract for any reason, you must require the prime contractor to make good faith efforts to find another DBE subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal you established for the procurement.

(3) You must include in each prime contract a provision for appropriate administrative remedies that you will invoke if the prime contractor fails to comply with the requirements of this section.

(g) You must apply the requirements of this section to DBE bidders/offerors for prime contracts. In determining whether a DBE bidder/offeror for a prime contract has met a contract goal, you count the work the DBE has committed to performing with its own forces as well as the work that it has committed to be performed by DBE subcontractors and DBE suppliers.

§ 26.55 How is DBE participation counted toward goals?

(a) When a DBE participates in a contract, you count only the value of the work actually performed by the DBE toward DBE goals.

(1) Count the entire amount of that portion of a construction contract (or other contract not covered by paragraph (a)(2) of this section) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work of the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).

(2) Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, toward DBE goals, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.

(3) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

(b) When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.

(c) Count expenditures to a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract.

(1) A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities

by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, you must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

(2) A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, you must examine similar transactions, particularly those in which DBEs do not participate.

(3) If a DBE does not perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or the DBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, you must presume that it is not performing a commercially useful function.

(4) When a DBE is presumed not to be performing a commercially useful function as provided in paragraph (c)(3) of this section, the DBE may present evidence to rebut this presumption. You may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

(5) Your decisions on commercially useful function matters are subject to review by the concerned operating administration, but are not administratively appealable to DOT.

(d) Use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

(1) The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(5) The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(6) For purposes of this paragraph (d), a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

(e) Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

(1)(i) If the materials or supplies are obtained from a DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this paragraph (e)(1), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

(2)(i) If the materials or supplies are purchased from a DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals.

(ii) For purposes of this section, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(A) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the

purchase and sale or lease of the products in question.

(B) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in this paragraph (e)(2)(ii) if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

(C) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this paragraph (e)(2).

(3) With respect to materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals, however.

(f) If a firm is not currently certified as a DBE in accordance with the standards of subpart D of this part at the time of the execution of the contract, do not count the firm's participation toward any DBE goals, except as provided for in § 26.87(i).

(g) Do not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward your overall goal.

(h) Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements or your overall goal until the amount being counted toward the goal has been paid to the DBE.

Subpart D—Certification Standards

§ 26.81 How are burdens of proof allocated in the certification process?

(a) In determining whether to certify a firm as eligible to participate as a DBE, you must apply the standards of this subpart.

(b) The firm seeking certification has the burden of demonstrating to you, by a preponderance of the evidence, that it meets the requirements of this subpart concerning group membership or individual disadvantage, business size, ownership, and control.

(c) You must rebuttably presume that members of the designated groups

identified in § 26.67(a) are socially and economically disadvantaged. This means that they do not have the burden of proving to you that they are socially and economically disadvantaged. However, applicants have the obligation to provide you information concerning their economic disadvantage (see § 26.67).

(d) Individuals who are not presumed to be socially and economically disadvantaged, and individuals concerning whom the presumption of disadvantage has been rebutted, have the burden of proving to you, by a preponderance of the evidence, that they are socially and economically disadvantaged. (See Appendix E of this part.)

(e) You must make determinations concerning whether individuals and firms have met their burden of demonstrating group membership, ownership, control, and social and economic disadvantage (where disadvantage must be demonstrated on an individual basis) by considering all the facts in the record, viewed as a whole.

§ 26.63 What rules govern group membership determinations?

(a) If you have reason to question whether an individual is a member of a group that is presumed to be socially and economically disadvantaged, you must require the individual to demonstrate, by a preponderance of the evidence, that he or she is a member of the group.

(b) In making such a determination, you must consider whether the person has held himself out to be a member of the group over a long period of time prior to application for certification and whether the person is regarded as a member of the group by the relevant community. You may require the applicant to produce appropriate documentation of group membership.

(1) If you determine that an individual claiming to be a member of a group presumed to be disadvantaged is not a member of a designated disadvantaged group, the individual must demonstrate social and economic disadvantage on an individual basis.

(2) Your decisions concerning membership in a designated group are subject to the certification appeals procedure of § 26.89.

§ 26.65 What rules govern business size determinations?

(a) To be an eligible DBE, a firm (including its affiliates) must be an existing small business, as defined by Small Business Administration (SBA) standards. You must apply current SBA business size standard(s) found in 13 CFR part 121 appropriate to the type (s) of work the firm seeks to perform in DOT-assisted contracts.

(b) Even if it meets the requirements of paragraph (a) of this section, a firm is not an eligible DBE in any Federal fiscal year if the

firm (including its affiliates) has had average annual gross receipts, as defined by SBA regulations (see 13 CFR 121.402), over the firm's previous three fiscal years, in excess of \$16.6 million. The Secretary adjusts this amount for inflation from time to time.

Revision 7: In § 26.67, Revise paragraph (a)(2)(I); redesignate paragraph (a)(2)(II) as (a)(2)(III) and add new paragraph (a)(2)(II)
§ 26.67 What rules determine social and economic disadvantage?

(a) Presumption of disadvantage.

(1) You must rebuttably presume that citizens of the United States (or lawfully admitted permanent residents) who are women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, Subcontinent Asian Americans, or other minorities found to be disadvantaged by the SBA, are socially and economically disadvantaged individuals. You must require applicants to submit a signed, notarized certification that each presumptively disadvantaged owner is, in fact, socially and economically disadvantaged.

(2)(i) You must require each individual owner of a firm applying to participate as a DBE (except a firm applying to participate as an airport concessionaire) whose ownership and control are relied upon for DBE certification to submit a signed, notarized statement of personal net worth, with appropriate supporting documentation. This statement and documentation must not be unduly lengthy, burdensome or intrusive.

(ii) Notwithstanding any provision of state law, you must not release an individual's personal net worth statement nor any documentation supporting it to any third party without the written consent of the submitter. *Provided* that you must transmit this information to DOT in any certification appeal proceeding under § 26.89 in which the disadvantaged status of the individual is in question.

In determining net worth, you must exclude an individual's ownership interest in the applicant firm and the individual's equity in his or her primary residence (except any portion of such equity that is attributable to excessive withdrawals from the applicant firm). A contingent liability does not reduce an individual's net worth. The personal net worth of an individual claiming to be an Alaska Native will include assets and income from sources other than an Alaska Native Corporation and exclude any of the following which the individual receives from any Alaska Native Corporation: cash (including cash dividends on stock received from an ANC) to the extent that it does not, in the aggregate, exceed \$2,000 per individual per annum; stock (including stock issued or distributed by an ANC as a dividend or distribution on stock); a partnership interest; land or an interest in land (including land or an interest in land received from an ANC as a dividend or distribution on stock); and an interest in a settlement trust.

(b) Rebuttal of presumption of disadvantage.

(1) If the statement of personal net worth that an individual submits under paragraph (a)(2) of this section shows that the individual's personal net worth exceeds \$750,000, the individual's presumption of economic disadvantage is rebutted. You are not required to have a proceeding under paragraph (b)(2) of this section in order to rebut the presumption of economic disadvantage in this case.

(2) If you have a reasonable basis to believe that an individual who is a member of one of the designated groups is not, in fact, socially and/or economically disadvantaged you may, at any time, start a proceeding to determine whether the presumption should be regarded as rebutted with respect to that individual. Your proceeding must follow the procedures of § 26.87.

(3) In such a proceeding, you have the burden of demonstrating, by a preponderance of the evidence, that the individual is not socially and economically disadvantaged. You may require the individual to produce information relevant to the determination of his or her disadvantage.

(4) When an individual's presumption of social and/or economic disadvantage has been rebutted, his or her ownership and control of the firm in question cannot be used for purposes of DBE eligibility under this subpart unless and until he or she makes an individual showing of social and/or economic disadvantage. If the basis for rebutting the presumption is a determination that the individual's personal net worth exceeds \$750,000, the individual is no longer eligible for participation in the program and cannot regain eligibility by making an individual showing of disadvantage.

(c) 8(a) and SDB Firms. If a firm applying for certification has a current, valid certification from or recognized by the SBA under the 8(a) or small and disadvantaged business (SDB) program (except an SDB certification based on the firm's self-certification as an SDB), you may accept the firm's 8(a) or SDB certification in lieu of conducting your own certification proceeding, just as you may accept the certification of another DOT recipient for this purpose. You are not required to do so, however.

(d) Individual determinations of social and economic disadvantage. Firms owned and controlled by individuals who are not presumed to be socially and economically disadvantaged (including individuals whose presumed disadvantage has been rebutted) may apply for DBE.

certification. You must make a case-by-case determination of whether each individual whose ownership and control are relied upon for DBE certification is socially and economically disadvantaged. In such a proceeding, the applicant firm has the burden of demonstrating to you, by a preponderance of the evidence, that the individuals who own and control it are socially and economically disadvantaged. An individual whose personal net worth exceeds \$750,000 shall not be deemed to be economically disadvantaged. In making these determinations, use the guidance found in Appendix E of this part. You must require that applicants provide sufficient information to permit determinations under the guidance of Appendix E of this part.

§ 26.69 What rules govern determinations of ownership?

(a) In determining whether the socially and economically disadvantaged participants in a firm own the firm, you must consider all the facts in the record, viewed as a whole.

(b) To be an eligible DBE, a firm must be at least 51 percent owned by socially and economically disadvantaged individuals.

(1) In the case of a corporation, such individuals must own at least 51 percent of the each class of voting stock outstanding and 51 percent of the aggregate of all stock outstanding.

(2) In the case of a partnership, 51 percent of each class of partnership interest must be owned by socially and economically disadvantaged individuals. Such ownership must be reflected in the firm's partnership agreement.

(3) In the case of a limited liability company, at least 51 percent of each class of member interest must be owned by socially and economically disadvantaged individuals.

(c) The firm's ownership by socially and economically disadvantaged individuals must be real, substantial, and continuing, going beyond pro forma ownership of the firm as reflected in ownership documents. The disadvantaged owners must enjoy the customary incidents of ownership, and share in the risks and profits commensurate with their ownership interests, as demonstrated by the substance, not merely the form, of arrangements.

(d) All securities that constitute ownership of a firm shall be held directly by disadvantaged persons. Except as provided in this paragraph (d), no securities or assets held in trust, or by any guardian for a minor, are

considered as held by disadvantaged persons in determining the ownership of a firm. However, securities or assets held in trust are regarded as held by a disadvantaged individual for purposes of determining ownership of the firm, if—

(1) The beneficial owner of securities or assets held in trust is a disadvantaged individual, and the trustee is the same or another such individual; or

(2) The beneficial owner of a trust is a disadvantaged individual who, rather than the trustee, exercises effective control over the management, policy-making, and daily operational activities of the firm. Assets held in a revocable living trust may be counted only in the situation where the same disadvantaged individual is the sole grantor, beneficiary, and trustee.

(e) The contributions of capital or expertise by the socially and economically disadvantaged owners to acquire their ownership interests must be real and substantial. Examples of insufficient contributions include a promise to contribute capital, an unsecured note payable to the firm or an owner who is not a disadvantaged individual, or mere participation in a firm's activities as an employee. Debt instruments from financial institutions or other organizations that lend funds in the normal course of their business do not render a firm ineligible, even if the debtor's ownership interest is security for the loan.

(f) The following requirements apply to situations in which expertise is relied upon as part of a disadvantaged owner's contribution to acquire ownership:

(1) The owner's expertise must be—

(i) In a specialized field;

(ii) Of outstanding quality;

(iii) In areas critical to the firm's operations;

(iv) Indispensable to the firm's potential success;

(v) Specific to the type of work the firm performs; and

(vi) Documented in the records of the firm. These records must clearly show the contribution of expertise and its value to the firm.

(2) The individual whose expertise is relied upon must have a significant financial investment in the firm.

(g) You must always deem as held by a socially and economically disadvantaged individual, for purposes of determining ownership, all interests in a business or other assets obtained by the individual—

(1) As the result of a final property settlement or court order in a divorce or legal separation, provided that no term or condition of the agreement or divorce

decree is inconsistent with this section; or

(2) Through inheritance, or otherwise because of the death of the former owner.

(h)(1) You must presume as not being held by a socially and economically disadvantaged individual, for purposes of determining ownership, all interests in a business or other assets obtained by the individual as the result of a gift, or transfer without adequate consideration, from any non-disadvantaged individual or non-DBE firm who is—

(i) Involved in the same firm for which the individual is seeking certification, or an affiliate of that firm;

(ii) Involved in the same or a similar line of business; or

(iii) Engaged in an ongoing business relationship with the firm, or an affiliate of the firm, for which the individual is seeking certification.

(2) To overcome this presumption and permit the interests or assets to be counted, the disadvantaged individual must demonstrate to you, by clear and convincing evidence, that—

(i) The gift or transfer to the disadvantaged individual was made for reasons other than obtaining certification as a DBE; and

(ii) The disadvantaged individual actually controls the management, policy, and operations of the firm, notwithstanding the continuing participation of a non-disadvantaged individual who provided the gift or transfer.

(i) You must apply the following rules in situations in which marital assets form a basis for ownership of a firm:

(1) When marital assets (other than the assets of the business in question), held jointly or as community property by both spouses, are used to acquire the ownership interest asserted by one spouse, you must deem the ownership interest in the firm to have been acquired by that spouse with his or her own individual resources, provided that the other spouse irrevocably renounces and transfers all rights in the ownership interest in the manner sanctioned by the laws of the state in which either spouse or the firm is domiciled. You do not count a greater portion of joint or community property assets toward ownership than state law would recognize as belonging to the socially and economically disadvantaged owner of the applicant firm.

(2) A copy of the document legally transferring and renouncing the other spouse's rights in the jointly owned or community assets used to acquire an ownership interest in the firm must be included as part of the firm's application for DBE certification.

(j) You may consider the following factors in determining the ownership of a firm. However, you must not regard a contribution of capital as failing to be real and substantial, or find a firm ineligible, solely because—

(1) A socially and economically disadvantaged individual acquired his or her ownership interest as the result of a gift, or transfer without adequate consideration, other than the types set forth in paragraph (h) of this section;

(2) There is a provision for the co-signature of a spouse who is not a socially and economically disadvantaged individual on financing agreements, contracts for the purchase or sale of real or personal property, bank signature cards, or other documents; or

(3) Ownership of the firm in question or its assets is transferred for adequate consideration from a spouse who is not a socially and economically disadvantaged individual to a spouse who is such an individual. In this case, you must give particularly close and careful scrutiny to the ownership and control of a firm to ensure that it is owned and controlled, in substance as well as in form, by a socially and economically disadvantaged individual.

§ 26.71 What rules govern determinations concerning control?

(a) In determining whether socially and economically disadvantaged owners control a firm, you must consider all the facts in the record, viewed as a whole.

(b) Only an independent business may be certified as a DBE. An independent business is one the viability of which does not depend on its relationship with another firm or firms.

(1) In determining whether a potential DBE is an independent business, you must scrutinize relationships with non-DBE firms, in such areas as personnel, facilities, equipment, financial and/or bonding support, and other resources.

(2) You must consider whether present or recent employer/employee relationships between the disadvantaged owner(s) of the potential DBE and non-DBE firms or persons associated with non-DBE firms compromise the independence of the potential DBE firm.

(3) You must examine the firm's relationships with prime contractors to determine whether a pattern of exclusive or primary dealings with a prime contractor compromises the independence of the potential DBE firm.

(4) In considering factors related to the independence of a potential DBE firm, you must consider the consistency of relationships between the potential

DBE and non-DBE firms with normal industry practice.

(c) A DBE firm must not be subject to any formal or informal restrictions which limit the customary discretion of the socially and economically disadvantaged owners. There can be no restrictions through corporate charter provisions, by-law provisions, contracts or any other formal or informal devices (e.g., cumulative voting rights, voting powers attached to different classes of stock, employment contracts, requirements for concurrence by non-disadvantaged partners, conditions precedent or subsequent, executory agreements, voting trusts, restrictions on or assignments of voting rights) that prevent the socially and economically disadvantaged owners, without the cooperation or vote of any non-disadvantaged individual, from making any business decision of the firm. This paragraph does not preclude a spousal co-signature on documents as provided for in § 26.69(j)(2).

(d) The socially and economically disadvantaged owners must possess the power to direct or cause the direction of the management and policies of the firm and to make day-to-day as well as long-term decisions on matters of management, policy and operations.

(1) A disadvantaged owner must hold the highest officer position in the company (e.g., chief executive officer or president).

(2) In a corporation, disadvantaged owners must control the board of directors.

(3) In a partnership, one or more disadvantaged owners must serve as general partners, with control over all partnership decisions.

(e) Individuals who are not socially and economically disadvantaged may be involved in a DBE firm as owners, managers, employees, stockholders, officers, and/or directors. Such individuals must not, however, possess or exercise the power to control the firm, or be disproportionately responsible for the operation of the firm.

(f) The socially and economically disadvantaged owners of the firm may delegate various areas of the management, policymaking, or daily operations of the firm to other participants in the firm, regardless of whether these participants are socially and economically disadvantaged individuals. Such delegations of authority must be revocable, and the socially and economically disadvantaged owners must retain the power to hire and fire any person to whom such authority is delegated. The managerial role of the socially and economically disadvantaged owners in

the firm's overall affairs must be such that the recipient can reasonably conclude that the socially and economically disadvantaged owners actually exercise control over the firm's operations, management, and policy.

(g) The socially and economically disadvantaged owners must have an overall understanding of, and managerial and technical competence and experience directly related to, the type of business in which the firm is engaged and the firm's operations. The socially and economically disadvantaged owners are not required to have experience or expertise in every critical area of the firm's operations, or to have greater experience or expertise in a given field than managers or key employees. The socially and economically disadvantaged owners must have the ability to intelligently and critically evaluate information presented by other participants in the firm's activities and to use this information to make independent decisions concerning the firm's daily operations, management, and policymaking. Generally, expertise limited to office management, administration, or bookkeeping functions unrelated to the principal business activities of the firm is insufficient to demonstrate control.

(h) If state or local law requires the persons to have a particular license or other credential in order to own and/or control a certain type of firm, then the socially and economically disadvantaged persons who own and control a potential DBE firm of that type must possess the required license or credential. If state or local law does not require such a person to have such a license or credential to own and/or control a firm, you must not deny certification solely on the ground that the person lacks the license or credential. However, you may take into account the absence of the license or credential as one factor in determining whether the socially and economically disadvantaged owners actually control the firm.

(i)(1) You may consider differences in remuneration between the socially and economically disadvantaged owners and other participants in the firm in determining whether to certify a firm as a DBE. Such consideration shall be in the context of the duties of the persons involved, normal industry practices, the firm's policy and practice concerning reinvestment of income, and any other explanations for the differences proffered by the firm. You may determine that a firm is controlled by its socially and economically disadvantaged owner although that

owner's remuneration is lower than that of some other participants in the firm.

(2) In a case where a non-disadvantaged individual formerly controlled the firm, and a socially and economically disadvantaged individual now controls it, you may consider a difference between the remuneration of the former and current controller of the firm as a factor in determining who controls the firm, particularly when the non-disadvantaged individual remains involved with the firm and continues to receive greater compensation than the disadvantaged individual.

(j) In order to be viewed as controlling a firm, a socially and economically disadvantaged owner cannot engage in outside employment or other business interests that conflict with the management of the firm or prevent the individual from devoting sufficient time and attention to the affairs of the firm to control its activities. For example, absentee ownership of a business and part-time work in a full-time firm are not viewed as constituting control. However, an individual could be viewed as controlling a part-time business that operates only on evenings and/or weekends, if the individual controls it all the time it is operating.

(k)(1) A socially and economically disadvantaged individual may control a firm even though one or more of the individual's immediate family members (who themselves are not socially and economically disadvantaged individuals) participate in the firm as a manager, employee, owner, or in another capacity. Except as otherwise provided in this paragraph, you must make a judgment about the control the socially and economically disadvantaged owner exercises vis-a-vis other persons involved in the business as you do in other situations, without regard to whether or not the other persons are immediate family members.

(2) If you cannot determine that the socially and economically disadvantaged owners—as distinct from the family as a whole—control the firm, then the socially and economically disadvantaged owners have failed to carry their burden of proof concerning control, even though they may participate significantly in the firm's activities.

(l) Where a firm was formerly owned and/or controlled by a non-disadvantaged individual (whether or not an immediate family member), ownership and/or control were transferred to a socially and economically disadvantaged individual, and the non-disadvantaged individual remains involved with the firm in any capacity, the disadvantaged individual

now owning the firm must demonstrate to you, by clear and convincing evidence, that:

(1) The transfer of ownership and/or control to the disadvantaged individual was made for reasons other than obtaining certification as a DBE; and

(2) The disadvantaged individual actually controls the management, policy, and operations of the firm, notwithstanding the continuing participation of a non-disadvantaged individual who formerly owned and/or controlled the firm.

(m) In determining whether a firm is controlled by its socially and economically disadvantaged owners, you may consider whether the firm owns equipment necessary to perform its work. However, you must not determine that a firm is not controlled by socially and economically disadvantaged individuals solely because the firm leases, rather than owns, such equipment, where leasing equipment is a normal industry practice and the lease does not involve a relationship with a prime contractor or other party that compromises the independence of the firm.

(n) You must grant certification to a firm only for specific types of work in which the socially and economically disadvantaged owners have the ability to control the firm. To become certified in an additional type of work, the firm need demonstrate to you only that its socially and economically disadvantaged owners are able to control the firm with respect to that type of work. You may not, in this situation, require that the firm be recertified or submit a new application for certification, but you must verify the disadvantaged owner's control of the firm in the additional type of work.

(o) A business operating under a franchise or license agreement may be certified if it meets the standards in this subpart and the franchiser or licensor is not affiliated with the franchisee or licensee. In determining whether affiliation exists, you should generally not consider the restraints relating to standardized quality, advertising, accounting format, and other provisions imposed on the franchisee or licensee by the franchise agreement or license, provided that the franchisee or licensee has the right to profit from its efforts and bears the risk of loss commensurate with ownership. Alternatively, even though a franchisee or licensee may not be controlled by virtue of such provisions in the franchise agreement or license, affiliation could arise through other means, such as common management or excessive restrictions on

the sale or transfer of the franchise interest or license.

(p) In order for a partnership to be controlled by socially and economically disadvantaged individuals, any non-disadvantaged partners must not have the power, without the specific written concurrence of the socially and economically disadvantaged partner(s), to contractually bind the partnership or subject the partnership to contract or tort liability.

(q) The socially and economically disadvantaged individuals controlling a firm may use an employee leasing company. The use of such a company does not preclude the socially and economically disadvantaged individuals from controlling their firm if they continue to maintain an employer-employee relationship with the leased employees. This includes being responsible for hiring, firing, training, assigning, and otherwise controlling the on-the-job activities of the employees, as well as ultimate responsibility for wage and tax obligations related to the employees.

§ 26.73 What are other rules affecting certification?

(a)(1) Consideration of whether a firm performs a commercially useful function or is a regular dealer pertains solely to counting toward DBE goals the participation of firms that have already been certified as DBEs. Except as provided in paragraph (a)(2) of this section, you must not consider commercially useful function issues in any way in making decisions about whether to certify a firm as a DBE.

(2) You may consider, in making certification decisions, whether a firm has exhibited a pattern of conduct indicating its involvement in attempts to evade or subvert the intent or requirements of the DBE program.

(b) You must evaluate the eligibility of a firm on the basis of present circumstances. You must not refuse to certify a firm based solely on historical information indicating a lack of ownership or control of the firm by socially and economically disadvantaged individuals at some time in the past, if the firm currently meets the ownership and control standards of this part. Nor must you refuse to certify a firm solely on the basis that it is a newly formed firm.

(c) DBE firms and firms seeking DBE certification shall cooperate fully with your requests (and DOT requests) for information relevant to the certification process. Failure or refusal to provide such information is a ground for a denial or removal of certification.

(d) Only firms organized for profit may be eligible DBEs. Not-for-profit organizations, even though controlled by socially and economically disadvantaged individuals, are not eligible to be certified as DBEs.

(e) An eligible DBE firm must be owned by individuals who are socially and economically disadvantaged. Except as provided in this paragraph, a firm that is not owned by such individuals, but instead is owned by another firm—even a DBE firm—cannot be an eligible DBE.

(1) If socially and economically disadvantaged individuals own and control a firm through a parent or holding company, established for tax, capitalization or other purposes consistent with industry practice, and the parent or holding company in turn owns and controls an operating subsidiary, you may certify the subsidiary if it otherwise meets all requirements of this subpart. In this situation, the individual owners and controllers of the parent or holding company are deemed to control the subsidiary through the parent or holding company.

(2) You may certify such a subsidiary only if there is cumulatively 51 percent ownership of the subsidiary by socially and economically disadvantaged individuals. The following examples illustrate how this cumulative ownership provision works:

Example 1: Socially and economically disadvantaged individuals own 100 percent of a holding company, which has a wholly-owned subsidiary. The subsidiary may be certified, if it meets all other requirements.

Example 2: Disadvantaged individuals own 100 percent of the holding company, which owns 51 percent of a subsidiary. The subsidiary may be certified, if all other requirements are met.

Example 3: Disadvantaged individuals own 80 percent of the holding company, which in turn owns 70 percent of a subsidiary. In this case, the cumulative ownership of the subsidiary by disadvantaged individuals is 56 percent (80 percent of the 70 percent). This is more than 51 percent, so you may certify the subsidiary, if all other requirements are met.

Example 4: Same as Example 2 or 3, but someone other than the socially and economically disadvantaged owners of the parent or holding company controls the subsidiary. Even though the subsidiary is owned by disadvantaged individuals, through the holding or parent company, you cannot certify it because it fails to meet control requirements.

Example 5: Disadvantaged individuals own 60 percent of the holding company, which in turn owns 51 percent of a subsidiary. In this case, the cumulative ownership of the subsidiary by disadvantaged individuals is about 31 percent. This is less than 51 percent, so you cannot certify the subsidiary.

Example 6: The holding company, in addition to the subsidiary seeking certification, owns several other companies. The combined gross receipts of the holding companies and its subsidiaries are greater than the size standard for the subsidiary seeking certification and/or the gross receipts cap of § 26.65(b). Under the rules concerning affiliation, the subsidiary fails to meet the size standard and cannot be certified.

(f) Recognition of a business as a separate entity for tax or corporate purposes is not necessarily sufficient to demonstrate that a firm is an independent business, owned and controlled by socially and economically disadvantaged individuals.

(g) You must not require a DBE firm to be prequalified as a condition for certification unless the recipient requires all firms that participate in its contracts and subcontracts to be prequalified.

(h) A firm that is owned by an Indian tribe, Alaska Native Corporation, or Native Hawaiian organization as an entity, rather than by Indians, Alaska Natives, or Native Hawaiians as individuals, may be eligible for certification. Such a firm must meet the size standards of § 26.65. Such a firm must be controlled by socially and economically disadvantaged individuals, as provided in § 26.71.

Subpart E—Certification Procedures

§ 26.81 What are the requirements for Unified Certification Programs?

(a) You and all other DOT recipients in your state must participate in a Unified Certification Program (UCP).

(1) Within three years of March 4, 1999, you and the other recipients in your state must sign an agreement establishing the UCP for that state and submit the agreement to the Secretary for approval. The Secretary may, on the basis of extenuating circumstances shown by the recipients in the state, extend this deadline for no more than one additional year.

(2) The agreement must provide for the establishment of a UCP meeting all the requirements of this section. The agreement must specify that the UCP will follow all certification procedures and standards of this part, on the same basis as recipients; that the UCP shall cooperate fully with oversight, review, and monitoring activities of DOT and its operating administrations; and that the UCP shall implement DOT directives and guidance concerning certification matters. The agreement shall also commit recipients to ensuring that the UCP has sufficient resources and expertise to carry out the requirements of this part. The agreement shall include an implementation schedule ensuring

that the UCP is fully operational no later than 18 months following the approval of the agreement by the Secretary.

(3) Subject to approval by the Secretary, the UCP in each state may take any form acceptable to the recipients in that state.

(4) The Secretary shall review the UCP and approve it, disapprove it, or remand it to the recipients in the state for revisions. A complete agreement which is not disapproved or remanded within 180 days of its receipt is deemed to be accepted.

(5) If you and the other recipients in your state fail to meet the deadlines set forth in this paragraph (a), you shall have the opportunity to make an explanation to the Secretary why a deadline could not be met and why meeting the deadline was beyond your control. If you fail to make such an explanation, or the explanation does not justify the failure to meet the deadline, the Secretary shall direct you to complete the required action by a date certain. If you and the other recipients fail to carry out this direction in a timely manner, you are collectively in noncompliance with this part.

(b) The UCP shall make all certification decisions on behalf of all DOT recipients in the state with respect to participation in the DOT DBE Program.

(1) Certification decisions by the UCP shall be binding on all DOT recipients within the state.

(2) The UCP shall provide "one-stop shopping" to applicants for certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients in the state.

(3) All obligations of recipients with respect to certification and nondiscrimination must be carried out by UCPs, and recipients may use only UCPs that comply with the certification and nondiscrimination requirements of this part.

(c) All certifications by UCPs shall be pre-certifications; i.e., certifications that have been made final before the due date for bids or offers on a contract on which a firm seeks to participate as a DBE.

(d) A UCP is not required to process an application for certification from a firm having its principal place of business outside the state if the firm is not certified by the UCP in the state in which it maintains its principal place of business. The "home state" UCP shall share its information and documents concerning the firm with other UCPs that are considering the firm's application.

(e) Subject to DOT approval as provided in this section, the recipients in two or more states may form a regional UCP. UCPs may also enter into written reciprocity agreements with other UCPs. Such an agreement shall outline the specific responsibilities of each participant. A UCP may accept the certification of any other UCP or DOT recipient.

(f) Pending the establishment of UCPs meeting the requirements of this section, you may enter into agreements with other recipients, on a regional or inter-jurisdictional basis, to perform certification functions required by this part. You may also grant reciprocity to other recipient's certification decisions.

(g) Each UCP shall maintain a unified DBE directory containing, for all firms certified by the UCP (including those from other states certified under the provisions of this section), the information required by § 26.31. The UCP shall make the directory available to the public electronically, on the internet, as well as in print. The UCP shall update the electronic version of the directory by including additions, deletions, and other changes as soon as they are made.

(h) Except as otherwise specified in this section, all provisions of this subpart and subpart D of this part pertaining to recipients also apply to UCPs.

§ 26.83 What procedures do recipients follow in making certification decisions?

(a) You must ensure that only firms certified as eligible DBEs under this section participate as DBEs in your program.

(b) You must determine the eligibility of firms as DBEs consistent with the standards of subpart D of this part. When a UCP is formed, the UCP must meet all the requirements of subpart D of this part and this subpart that recipients are required to meet.

(c) You must take all the following steps in determining whether a DBE firm meets the standards of subpart D of this part:

(1) Perform an on-site visit to the offices of the firm. You must interview the principal officers of the firm and review their résumés and/or work histories. You must also perform an on-site visit to job sites if there are such sites on which the firm is working at the time of the eligibility investigation in your jurisdiction or local area. You may rely upon the site visit report of any other recipient with respect to a firm applying for certification;

(2) If the firm is a corporation, analyze the ownership of stock in the firm;

(3) Analyze the bonding and financial capacity of the firm;

(4) Determine the work history of the firm, including contracts it has received and work it has completed;

(5) Obtain a statement from the firm of the type of work it prefers to perform as part of the DBE program and its preferred locations for performing the work, if any;

(6) Obtain or compile a list of the equipment owned by or available to the firm and the licenses the firm and its key personnel possess to perform the work it seeks to do as part of the DBE program;

(7) Require potential DBEs to complete and submit an appropriate application form.

(i) *Uniform form.* [Reserved]
(ii) You must make sure that the applicant attests to the accuracy and truthfulness of the information on the application form. This shall be done either in the form of an affidavit sworn to by the applicant before a person who is authorized by state law to administer oaths or in the form of an unsworn declaration executed under penalty of perjury of the laws of the United States.

(iii) You must review all information on the form prior to making a decision about the eligibility of the firm.

(d) When another recipient, in connection with its consideration of the eligibility of a firm, makes a written request for certification information you have obtained about that firm (e.g., including application materials or the report of a site visit, if you have made one to the firm), you must promptly make the information available to the other recipient.

(e) When another DOT recipient has certified a firm, you have discretion to take any of the following actions:

(1) Certify the firm in reliance on the certification decision of the other recipient;

(2) Make an independent certification decision based on documentation provided by the other recipient, augmented by any additional information you require the applicant to provide; or

(3) Require the applicant to go through your application process without regard to the action of the other recipient.

(f) Subject to the approval of the concerned operating administration as part of your DBE program, you may impose a reasonable application fee for certification. Fee waivers shall be made in appropriate cases.

(g) You must safeguard from disclosure to unauthorized persons information gathered as part of the certification process that may

reasonably be regarded as proprietary or other confidential business information, consistent with applicable Federal, state, and local law.

(h) Once you have certified a DBE, it shall remain certified for a period of at least three years unless and until its certification has been removed through the procedures of § 26.87. You may not require DBEs to reapply for certification as a condition of continuing to participate in the program during this three-year period, unless the factual basis on which the certification was made changes.

(i) If you are a DBE, you must inform the recipient or UCP in writing of any change in circumstances affecting your ability to meet size, disadvantaged status, ownership, or control requirements of this part or any material change in the information provided in your application form.

(1) Changes in management responsibility among members of a limited liability company are covered by this requirement.

(2) You must attach supporting documentation describing in detail the nature of such changes.

(3) The notice must take the form of an affidavit sworn to by the applicant before a person who is authorized by state law to administer oaths or of an unsworn declaration executed under penalty of perjury of the laws of the United States. You must provide the written notification within 30 days of the occurrence of the change. If you fail to make timely notification of such a change, you will be deemed to have failed to cooperate under § 26.109(c).

(j) If you are a DBE, you must provide to the recipient, every year on the anniversary of the date of your certification, an affidavit sworn to by the firm's owners before a person who is authorized by state law to administer oaths or an unsworn declaration executed under penalty of perjury of the laws of the United States. This affidavit must affirm that there have been no changes in the firm's circumstances affecting its ability to meet size, disadvantaged status, ownership, or control requirements of this part or any material changes in the information provided in its application form, except for changes about which you have notified the recipient under paragraph (i) of this section. The affidavit shall specifically affirm that your firm continues to meet SBA business size criteria and the overall gross receipts cap of this part, documenting this affirmation with supporting documentation of your firm's size and gross receipts. If you fail to provide this affidavit in a timely manner, you will be

deemed to have failed to cooperate under § 26.109(c).

(k) If you are a recipient, you must make decisions on applications for certification within 90 days of receiving from the applicant firm all information required under this part. You may extend this time period once, for no more than an additional 60 days, upon written notice to the firm, explaining fully and specifically the reasons for the extension. You may establish a different time frame in your DBE program, upon a showing that this time frame is not feasible, and subject to the approval of the concerned operating administration. Your failure to make a decision by the applicable deadline under this paragraph is deemed a constructive denial of the application, on the basis of which the firm may appeal to DOT under § 26.89.

§ 26.85 What rules govern recipients' denials of initial requests for certification?

(a) When you deny a request by a firm, which is not currently certified with you, to be certified as a DBE, you must provide the firm a written explanation of the reasons for the denial, specifically referencing the evidence in the record that supports each reason for the denial. All documents and other information on which the denial is based must be made available to the applicant, on request.

(b) When a firm is denied certification, you must establish a time period of no more than twelve months that must elapse before the firm may reapply to the recipient for certification. You may provide, in your DBE program, subject to approval by the concerned operating administration, a shorter waiting period for reapplication. The time period for reapplication begins to run on the date the explanation required by paragraph (a) of this section is received by the firm.

(c) When you make an administratively final denial of certification concerning a firm, the firm may appeal the denial to the Department under § 26.89.

§ 26.87 What procedures does a recipient use to remove a DBE's eligibility?

(a) *Ineligibility complaints.* (1) Any person may file with you a written complaint alleging that a currently-certified firm is ineligible and specifying the alleged reasons why the firm is ineligible. You are not required to accept a general allegation that a firm is ineligible or an anonymous complaint. The complaint may include any information or arguments supporting the complainant's assertion that the firm is ineligible and should not

continue to be certified. Confidentiality of complainants' identities must be protected as provided in § 26.109(b).

(2) You must review your records concerning the firm, any material provided by the firm and the complainant, and other available information. You may request additional information from the firm or conduct any other investigation that you deem necessary.

(3) If you determine, based on this review, that there is reasonable cause to believe that the firm is ineligible, you must provide written notice to the firm that you propose to find the firm ineligible, setting forth the reasons for the proposed determination. If you determine that such reasonable cause does not exist, you must notify the complainant and the firm in writing of this determination and the reasons for it. All statements of reasons for findings on the issue of reasonable cause must specifically reference the evidence in the record on which each reason is based.

(b) *Recipient-initiated proceedings.* If, based on notification by the firm of a change in its circumstances or other information that comes to your attention, you determine that there is reasonable cause to believe that a currently certified firm is ineligible, you must provide written notice to the firm that you propose to find the firm ineligible, setting forth the reasons for the proposed determination. The statement of reasons for the finding of reasonable cause must specifically reference the evidence in the record on which each reason is based.

(c) *DOT directive to initiate proceeding.* (1) If the concerned operating administration determines that information in your certification records, or other information available to the concerned operating administration, provides reasonable cause to believe that a firm you certified does not meet the eligibility criteria of this part, the concerned operating administration may direct you to initiate a proceeding to remove the firm's certification.

(2) The concerned operating administration must provide you and the firm a notice setting forth the reasons for the directive, including any relevant documentation or other information.

(3) You must immediately commence and prosecute a proceeding to remove eligibility as provided by paragraph (b) of this section.

(d) *Hearing.* When you notify a firm that there is reasonable cause to remove its eligibility, as provided in paragraph (a), (b), or (c) of this section, you must

give the firm an opportunity for an informal hearing, at which the firm may respond to the reasons for the proposal to remove its eligibility in person and provide information and arguments concerning why it should remain certified.

(1) In such a proceeding, you bear the burden of proving, by a preponderance of the evidence, that the firm does not meet the certification standards of this part.

(2) You must maintain a complete record of the hearing, by any means acceptable under state law for the retention of a verbatim record of an administrative hearing. If there is an appeal to DOT under § 26.89, you must provide a transcript of the hearing to DOT and, on request, to the firm. You must retain the original record of the hearing. You may charge the firm only for the cost of copying the record.

(3) The firm may elect to present information and arguments in writing, without going to a hearing. In such a situation, you bear the same burden of proving, by a preponderance of the evidence, that the firm does not meet the certification standards, as you would during a hearing.

(e) *Separation of functions.* You must ensure that the decision in a proceeding to remove a firm's eligibility is made by an office and personnel that did not take part in actions leading to or seeking to implement the proposal to remove the firm's eligibility and are not subject, with respect to the matter, to direction from the office or personnel who did take part in these actions.

(1) Your method of implementing this requirement must be made part of your DBE program.

(2) The decisionmaker must be an individual who is knowledgeable about the certification requirements of your DBE program and this part.

(3) Before a UCP is operational in its state, a small airport or small transit authority (i.e., an airport or transit authority serving an area with less than 250,000 population) is required to meet this requirement only to the extent feasible.

(f) *Grounds for decision.* You must not base a decision to remove eligibility on a reinterpretation or changed opinion of information available to the recipient at the time of its certification of the firm. You may base such a decision only on one or more of the following:

(1) Changes in the firm's circumstances since the certification of the firm by the recipient that render the firm unable to meet the eligibility standards of this part;

(2) Information or evidence not available to you at the time the firm was certified;

(3) Information that was concealed or misrepresented by the firm in previous certification actions by a recipient;

(4) A change in the certification standards or requirements of the Department since you certified the firm; or

(5) A documented finding that your determination to certify the firm was factually erroneous.

(g) *Notice of decision.* Following your decision, you must provide the firm written notice of the decision and the reasons for it, including specific references to the evidence in the record that supports each reason for the decision. The notice must inform the firm of the consequences of your decision and of the availability of an appeal to the Department of Transportation under § 26.89. You must send copies of the notice to the complainant in an ineligibility complaint or the concerned operating administration that had directed you to initiate the proceeding.

(h) *Status of firm during proceeding.*

(1) A firm remains an eligible DBE during the pendency of your proceeding to remove its eligibility.

(2) The firm does not become ineligible until the issuance of the notice provided for in paragraph (g) of this section.

(i) *Effects of removal of eligibility.* When you remove a firm's eligibility, you must take the following action:

(1) When a prime contractor has made a commitment to using the ineligible firm, or you have made a commitment to using a DBE prime contractor, but a subcontract or contract has not been executed before you issue the decertification notice provided for in paragraph (g) of this section, the ineligible firm does not count toward the contract goal or overall goal. You must direct the prime contractor to meet the contract goal with an eligible DBE firm or demonstrate to you that it has made a good faith effort to do so.

(2) If a prime contractor has executed a subcontract with the firm before you have notified the firm of its ineligibility, the prime contractor may continue to use the firm on the contract and may continue to receive credit toward its DBE goal for the firm's work. In this case, or in a case where you have let a prime contract to the DBE that was later ruled ineligible, the portion of the ineligible firm's performance on the contract remaining after you issued the notice of its ineligibility shall not count toward your overall goal, but may count toward the contract goal.

(3) *Exception:* If the DBE's ineligibility is caused solely by its having exceeded the size standard during the performance of the contract, you may continue to count its participation on that contract toward overall and contract goals.

(j) *Availability of appeal.* When you make an administratively final removal of a firm's eligibility under this section, the firm may appeal the removal to the Department under § 26.89.

§ 26.89 What is the process for certification appeals to the Department of Transportation?

(a)(1) If you are a firm which is denied certification or whose eligibility is removed by a recipient, you may make an administrative appeal to the Department.

(2) If you are a complainant in an ineligibility complaint to a recipient (including the concerned operating administration in the circumstances provided in § 26.87(c)), you may appeal to the Department if the recipient does not find reasonable cause to propose removing the firm's eligibility or, following a removal of eligibility proceeding, determines that the firm is eligible.

(3) Send appeals to the following address: Department of Transportation, Office of Civil Rights, 400 7th Street, SW, Room 2401, Washington, DC 20590.

(b) Pending the Department's decision in the matter, the recipient's decision remains in effect. The Department does not stay the effect of the recipient's decision while it is considering an appeal.

(c) If you want to file an appeal, you must send a letter to the Department within 90 days of the date of the recipient's final decision, including information and arguments concerning why the recipient's decision should be reversed. The Department may accept an appeal filed later than 90 days after the date of the decision if the Department determines that there was good cause for the late filing of the appeal.

(1) If you are an appellant who is a firm which has been denied certification, whose certification has been removed, whose owner is determined not to be a member of a designated disadvantaged group, or concerning whose owner the presumption of disadvantage has been rebutted, your letter must state the name and address of any other recipient which currently certifies the firm, which has rejected an application for certification from the firm or removed the firm's eligibility within one year prior to the date of the appeal, or before

which an application for certification or a removal of eligibility is pending. Failure to provide this information may be deemed a failure to cooperate under § 26.109(c).

(2) If you are an appellant other than one described in paragraph (c)(1) of this section, the Department will request, and the firm whose certification has been questioned shall promptly provide, the information called for in paragraph (c)(1) of this section. Failure to provide this information may be deemed a failure to cooperate under § 26.109(c).

(d) When it receives an appeal, the Department requests a copy of the recipient's complete administrative record in the matter. If you are the recipient, you must provide the administrative record, including a hearing transcript, within 20 days of the Department's request. The Department may extend this time period on the basis of a recipient's showing of good cause. To facilitate the Department's review of a recipient's decision, you must ensure that such administrative records are well organized, indexed, and paginated. Records that do not comport with these requirements are not acceptable and will be returned to you to be corrected immediately. If an appeal is brought concerning one recipient's certification decision concerning a firm, and that recipient relied on the decision and/or administrative record of another recipient, this requirement applies to both recipients involved.

(e) The Department makes its decision based solely on the entire administrative record. The Department does not make a de novo review of the matter and does not conduct a hearing. The Department may supplement the administrative record by adding relevant information made available by the DOT Office of Inspector General; Federal, state, or local law enforcement authorities; officials of a DOT operating administration or other appropriate DOT office; a recipient; or a firm or other private party.

(f) As a recipient, when you provide supplementary information to the Department, you shall also make this information available to the firm and any third-party complainant involved, consistent with Federal or applicable state laws concerning freedom of information and privacy. The Department makes available, on request by the firm and any third-party complainant involved, any supplementary information it receives from any source.

(1) The Department affirms your decision unless it determines, based on the entire administrative record, that your decision is unsupported by

substantial evidence or inconsistent with the substantive or procedural provisions of this part concerning certification.

(2) If the Department determines, after reviewing the entire administrative record, that your decision was unsupported by substantial evidence or inconsistent with the substantive or procedural provisions of this part concerning certification, the Department reverses your decision and directs you to certify the firm or remove its eligibility, as appropriate. You must take the action directed by the Department's decision immediately upon receiving written notice of it.

(3) The Department is not required to reverse your decision if the Department determines that a procedural error did not result in fundamental unfairness to the appellant or substantially prejudice the opportunity of the appellant to present its case.

(4) If it appears that the record is incomplete or unclear with respect to matters likely to have a significant impact on the outcome of the case, the Department may remand the record to you with instructions seeking clarification or augmentation of the record before making a finding. The Department may also remand a case to you for further proceedings consistent with Department instructions concerning the proper application of the provisions of this part.

(5) The Department does not uphold your decision based on grounds not specified in your decision.

(6) The Department's decision is based on the status and circumstances of the firm as of the date of the decision being appealed.

(7) The Department provides written notice of its decision to you, the firm, and the complainant in an ineligibility complaint. A copy of the notice is also sent to any other recipient whose administrative record or decision has been involved in the proceeding (see paragraph (d) of this section). The notice includes the reasons for the Department's decision, including specific references to the evidence in the record that supports each reason for the decision.

(8) The Department's policy is to make its decision within 180 days of receiving the complete administrative record. If the Department does not make its decision within this period, the Department provides written notice to concerned parties, including a statement of the reason for the delay and a date by which the appeal decision will be made.

(g) All decisions under this section are administratively final, and are not subject to petitions for reconsideration.

§ 26.91 What actions do recipients take following DOT certification appeal decisions?

(a) If you are the recipient from whose action an appeal under § 26.89 is taken, the decision is binding. It is not binding on other recipients.

(b) If you are a recipient to which a DOT determination under § 26.89 is applicable, you must take the following action:

(1) If the Department determines that you erroneously certified a firm, you must remove the firm's eligibility on receipt of the determination, without further proceedings on your part. Effective on the date of your receipt of the Department's determination, the consequences of a removal of eligibility set forth in § 26.87(i) take effect.

(2) If the Department determines that you erroneously failed to find reasonable cause to remove the firm's eligibility, you must expeditiously commence a proceeding to determine whether the firm's eligibility should be removed, as provided in § 26.87.

(3) If the Department determines that you erroneously declined to certify or removed the eligibility of the firm, you must certify the firm, effective on the date of your receipt of the written notice of Department's determination.

(4) If the Department determines that you erroneously determined that the presumption of social and economic disadvantage either should or should not be deemed rebutted, you must take appropriate corrective action as determined by the Department.

(5) If the Department affirms your determination, no further action is necessary.

(c) Where DOT has upheld your denial of certification to or removal of eligibility from a firm, or directed the removal of a firm's eligibility, other recipients with whom the firm is certified may commence a proceeding to remove the firm's eligibility under § 26.87. Such recipients must not remove the firm's eligibility absent such a proceeding. Where DOT has reversed your denial of certification to or removal of eligibility from a firm, other recipients must take the DOT action into account in any certification action involving the firm. However, other recipients are not required to certify the firm based on the DOT decision.

Subpart F—Compliance and Enforcement

§ 26.101 What compliance procedures apply to recipients?

(a) If you fail to comply with any requirement of this part, you may be subject to formal enforcement action

under § 26.103 or § 26.105 or appropriate program sanctions by the concerned operating administration, such as the suspension or termination of Federal funds, or refusal to approve projects, grants or contracts until deficiencies are remedied. Program sanctions may include, in the case of the FHWA program, actions provided for under 23 CFR 1.36; in the case of the FAA program, actions consistent with 49 U.S.C. 47106(d), 47111(d), and 47122; and in the case of the FTA program, any actions permitted under 49 U.S.C. chapter 53 or applicable FTA program requirements.

(b) As provided in statute, you will not be subject to compliance actions or sanctions for failing to carry out any requirement of this part because you have been prevented from complying because a Federal court has issued a final order in which the court found that the requirement is unconstitutional.

§ 26.103 What enforcement actions apply in FHWA and FTA programs?

The provisions of this section apply to enforcement actions under FHWA and FTA programs:

(a) *Noncompliance complaints.* Any person who believes that a recipient has failed to comply with its obligations under this part may file a written complaint with the concerned operating administration's Office of Civil Rights. If you want to file a complaint, you must do so no later than 180 days after the date of the alleged violation or the date on which you learned of a continuing course of conduct in violation of this part. In response to your written request, the Office of Civil Rights may extend the time for filing in the interest of justice, specifying in writing the reason for so doing. The Office of Civil Rights may protect the confidentiality of your identity as provided in § 26.109(b). Complaints under this part are limited to allegations of violation of the provisions of this part.

(b) *Compliance reviews.* The concerned operating administration may review the recipient's compliance with this part at any time, including reviews of paperwork and on-site reviews, as appropriate. The Office of Civil Rights may direct the operating administration to initiate a compliance review based on complaints received.

(c) *Reasonable cause notice.* If it appears, from the investigation of a complaint or the results of a compliance review, that you, as a recipient, are in noncompliance with this part, the appropriate DOT office promptly sends you, return receipt requested, a written notice advising you that there is reasonable cause to find you in

noncompliance. The notice states the reasons for this finding and directs you to reply within 30 days concerning whether you wish to begin conciliation.

(d) *Conciliation.* (1) If you request conciliation, the appropriate DOT office shall pursue conciliation for at least 30, but not more than 120, days from the date of your request. The appropriate DOT office may extend the conciliation period for up to 30 days for good cause, consistent with applicable statutes.

(2) If you and the appropriate DOT office sign a conciliation agreement, then the matter is regarded as closed and you are regarded as being in compliance. The conciliation agreement sets forth the measures you have taken or will take to ensure compliance. While a conciliation agreement is in effect, you remain eligible for FHWA or FTA financial assistance.

(3) The concerned operating administration shall monitor your implementation of the conciliation agreement and ensure that its terms are complied with. If you fail to carry out the terms of a conciliation agreement, you are in noncompliance.

(4) If you do not request conciliation, or a conciliation agreement is not signed within the time provided in paragraph (d)(1) of this section, then enforcement proceedings begin.

(e) *Enforcement actions.* (1) Enforcement actions are taken as provided in this subpart.

(2) Applicable findings in enforcement proceedings are binding on all DOT offices.

§ 26.105 What enforcement actions apply in FAA Programs?

(a) Compliance with all requirements of this part by airport sponsors and other recipients of FAA financial assistance is enforced through the procedures of Title 49 of the United States Code, including 49 U.S.C. 47106(d), 47111(d), and 47122, and regulations implementing them.

(b) The provisions of § 26.103(b) and this section apply to enforcement actions in FAA programs.

(c) Any person who knows of a violation of this part by a recipient of FAA funds may file a complaint under 14 CFR part 16 with the Federal Aviation Administration Office of Chief Counsel.

§ 26.107 What enforcement actions apply to firms participating in the DBE program?

(a) If you are a firm that does not meet the eligibility criteria of subpart D of this part and that attempts to participate in a DOT-assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations

or under circumstances indicating a serious lack of business integrity or honesty, the Department may initiate suspension or debarment proceedings against you under 49 CFR part 29.

(b) If you are a firm that, in order to meet DBE contract goals or other DBE program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D of this part, the Department may initiate suspension or debarment proceedings against you under 49 CFR part 29.

(c) In a suspension or debarment proceeding brought under paragraph (a) or (b) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude the Department from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE goals, should be suspended or debarred.

(d) The Department may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE program whose conduct is subject to such action under 49 CFR part 31.

(e) The Department may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.

§ 26.109 What are the rules governing information, confidentiality, cooperation, and intimidation or retaliation?

(a) *Availability of records.* (1) In responding to requests for information concerning any aspect of the DBE program, the Department complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). The Department may make available to the public any information concerning the DBE program release of which is not prohibited by Federal law.

(2) If you are a recipient, you shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal, state, and local law.

(b) *Confidentiality of information on complainants.* Notwithstanding the provisions of paragraph (a) of this

section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing. FAA follows the procedures of 14 CFR part 16 with respect to confidentiality of information in complaints.

(c) *Cooperation.* All participants in the Department's DBE program (including, but not limited to, recipients, DBE firms and applicants for DBE certification, complainants and appellants, and contractors using DBE firms to meet contract goals) are required to cooperate fully and promptly with DOT and recipient compliance reviews, certification reviews, investigations, and other requests for information. Failure to do so shall be a ground for appropriate action against the party involved (e.g., with respect to recipients, a finding of noncompliance; with respect to DBE firms, denial of certification or removal of eligibility and/or suspension and debarment; with respect to a complainant or appellant, dismissal of the complaint or appeal; with respect to a contractor which uses DBE firms to meet goals, findings of non-responsibility for future contracts and/or suspension and debarment).

(d) *Intimidation and retaliation.* If you are a recipient, contractor, or any other participant in the program, you must not intimidate, threaten, coerce, or discriminate against any individual or firm for the purpose of interfering with any right or privilege secured by this part or because the individual or firm has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this part. If you violate this prohibition, you are in noncompliance with this part.

Appendix A to Part 26—Guidance Concerning Good Faith Efforts

1. When, as a recipient, you establish a contract goal on a DOT-assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by DBE firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took

all necessary and reasonable steps to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal. Mere *pro forma* efforts are not good faith efforts to meet the DBE contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of DBE participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring *bona fide* good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain DBE participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the

available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts.

Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

Appendix B to Part 26—Forms [Reserved]

Appendix C to Part 26—DBE Business Development Program Guidelines

The purpose of this program element is to further the development of DBEs, including but not limited to assisting them to move into non-traditional areas of work and/or compete in the marketplace outside the DBE program, via the provision of training and assistance from the recipient.

(A) Each firm that participates in a recipient's business development program (BDP) program is subject to a program term determined by the recipient. The term should consist of two stages: a developmental stage and a transitional stage.

(B) In order for a firm to remain eligible for program participation, it must continue to meet all eligibility criteria contained in part 26.

(C) By no later than 6 months of program entry, the participant should develop and submit to the recipient a comprehensive business plan setting forth the participant's business targets, objectives and goals. The participant will not be eligible for program benefits until such business plan is submitted and approved by the recipient. The approved business plan will constitute the participant's short and long term goals and the strategy for developmental growth to the point of economic viability in non-traditional areas of work and/or work outside the DBE program.

(D) The business plan should contain at least the following:

(1) An analysis of market potential, competitive environment and other business analyses estimating the program participant's prospects for profitable operation during the term of program participation and after graduation from the program.

(2) An analysis of the firm's strengths and weaknesses, with particular attention paid to the means of correcting any financial, managerial, technical, or labor conditions which could impede the participant from receiving contracts other than those in traditional areas of DBE participation.

(3) Specific targets, objectives, and goals for the business development of the participant during the next two years, utilizing the results of the analysis conducted pursuant to paragraphs (C) and (D)(1) of this appendix:

(4) Estimates of contract awards from the DBE program and from other sources which are needed to meet the objectives and goals for the years covered by the business plan; and

(5) Such other information as the recipient may require.

(E) Each participant should annually review its currently approved business plan with the recipient and modify the plan as may be appropriate to account for any changes in the firm's structure and redefined needs. The currently approved plan should be considered the applicable plan for all program purposes until the recipient approves in writing a modified plan. The recipient should establish an anniversary date for review of the participant's business plan and contract forecasts.

(F) Each participant should annually forecast in writing its need for contract awards for the next program year and the succeeding program year during the review of its business plan conducted under paragraph (E) of this appendix. Such forecast should be included in the participant's business plan. The forecast should include:

(1) The aggregate dollar value of contracts to be sought under the DBE program, reflecting compliance with the business plan;

(2) The aggregate dollar value of contracts to be sought in areas other than traditional areas of DBE participation;

(3) The types of contract opportunities being sought, based on the firm's primary line of business; and

(4) Such other information as may be requested by the recipient to aid in providing effective business development assistance to the participant.

(G) Program participation is divided into two stages: (1) a developmental stage and (2) a transitional stage. The developmental stage is designed to assist participants to overcome their social and economic disadvantage by providing such assistance as may be necessary and appropriate to enable them to access relevant markets and strengthen their financial and managerial skills. The transitional stage of program participation follows the developmental stage and is designed to assist participants to overcome, insofar as practical, their social and economic disadvantage and to prepare the participant for leaving the program.

(H) The length of service in the program term should not be a pre-set time frame for either the developmental or transitional stages but should be figured on the number of years considered necessary in normal progression of achieving the firm's established goals and objectives. The setting of such time could be factored on such items as, but not limited to, the number of contracts, aggregate amount of the contract received, years in business, growth potential, etc.

(I) Beginning in the first year of the transitional stage of program participation, each participant should annually submit for inclusion in its business plan a transition management plan outlining specific steps to promote profitable business operations in areas other than traditional areas of DBE participation after graduation from the program. The transition management plan should be submitted to the recipient at the same time other modifications are submitted pursuant to the annual review under paragraph (E) of this section. The plan should set forth the same information as required under paragraph (F) of steps the participant will take to continue its business development after the expiration of its program term.

(J) When a participant is recognized as successfully completing the program by substantially achieving the targets, objectives and goals set forth in its program term, and has demonstrated the ability to compete in the marketplace, its further participation within the program may be determined by the recipient.

(K) In determining whether a concern has substantially achieved the goals and

objectives of its business plan, the following factors, among others, should be considered by the recipient:

(1) Profitability;

(2) Sales, including improved ratio of non-traditional contracts to traditional-type contracts;

(3) Net worth, financial ratios, working capital, capitalization, access to credit and capital;

(4) Ability to obtain bonding;

(5) A positive comparison of the DBE's business and financial profile with profiles of non-DBE businesses in the same area or similar business category; and

(6) Good management capacity and capability.

(L) Upon determination by the recipient that the participant should be graduated from the developmental program, the recipient should notify the participant in writing of its intent to graduate the firm in a letter of notification. The letter of notification should set forth findings, based on the facts, for every material issue relating to the basis of the program graduation with specific reasons for each finding. The letter of notification should also provide the participant 45 days from the date of service of the letter to submit in writing information that would explain why the proposed basis of graduation is not warranted.

(M) Participation of a DBE firm in the program may be discontinued by the recipient prior to expiration of the firm's program term for good cause due to the failure of the firm to engage in business practices that will promote its competitiveness within a reasonable period of time as evidenced by, among other indicators, a pattern of inadequate performance or unjustified delinquent performance. Also, the recipient can discontinue the participation of a firm that does not actively pursue and bid on contracts, and a firm that, without justification, regularly fails to respond to solicitations in the type of work it is qualified for and in the geographical areas where it has indicated availability under its approved business plan. The recipient should take such action if over a 2-year period a DBE firm exhibits such a pattern.

Appendix D to Part 26—Mentor-Protégé Program Guidelines

(A) The purpose of this program element is to further the development of DBEs, including but not limited to assisting them to move into non-traditional areas of work and/or compete in the marketplace outside the DBE program, via the provision of training and assistance from other firms. To operate a mentor-protégé program, a recipient must obtain the approval of the concerned operating administration.

(B)(1) Any mentor-protégé relationship shall be based on a written development plan, approved by the recipient, which clearly sets forth the objectives of the parties and their respective roles, the duration of the arrangement and the services and resources to be provided by the mentor to the protégé. The formal mentor-protégé agreement may set a fee schedule to cover the direct and indirect cost for such services rendered by

the mentor for specific training and assistance to the protégé through the life of the agreement. Services provided by the mentor may be reimbursable under the FTA, FHWA, and FAA programs.

(2) To be eligible for reimbursement, the mentor's services provided and associated costs must be directly attributable and properly allowable to specific individual contracts. The recipient may establish a line item for the mentor to quote the portion of the fee schedule expected to be provided during the life of the contract. The amount claimed shall be verified by the recipient and paid on an incremental basis representing the time the protégé is working on the contract. The total individual contract figures accumulated over the life of the agreement shall not exceed the amount stipulated in the original mentor/protégé agreement.

(C) DBEs involved in a mentor-protégé agreement must be independent business entities which meet the requirements for certification as defined in subpart D of this part. A protégé firm must be certified before it begins participation in a mentor-protégé arrangement. If the recipient chooses to recognize mentor/protégé agreements, it should establish formal general program guidelines. These guidelines must be submitted to the operating administration for approval prior to the recipient executing an individual contractor/ subcontractor mentor-protégé agreement.

Appendix E to Part 26—Individual Determinations of Social and Economic Disadvantage

The following guidance is adapted, with minor modifications, from SBA regulations concerning social and economic disadvantage determinations (see 13 CFR 124.103(c) and 124.104).

Social Disadvantage

1. Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias within American society because of their identities as members of groups and without regard to their individual qualities. Social disadvantage must stem from circumstances beyond their control. Evidence of individual social disadvantage must include the following elements:

(A) At least one objective distinguishing feature that has contributed to social disadvantage, such as race, ethnic origin, gender, disability, long-term residence in an environment isolated from the mainstream of American society, or other similar causes not common to individuals who are not socially disadvantaged;

(B) Personal experiences of substantial and chronic social disadvantage in American society, not in other countries; and

(C) Negative impact on entry into or advancement in the business world because of the disadvantage. Recipients will consider any relevant evidence in assessing this element. In every case, however, recipients will consider education, employment and business history, where applicable, to see if the totality of circumstances shows disadvantage in entering into or advancing in the business world.

(1) *Education.* Recipients will consider such factors as denial of equal access to institutions of higher education and vocational training, exclusion from social and professional association with students or teachers, denial of educational honors rightfully earned, and social patterns or pressures which discouraged the individual from pursuing a professional or business education.

(2) *Employment.* Recipients will consider such factors as unequal treatment in hiring, promotions and other aspects of professional advancement, pay and fringe benefits, and other terms and conditions of employment; retaliatory or discriminatory behavior by an employer or labor union; and social patterns or pressures which have channeled the individual into non-professional or non-business fields.

(3) *Business history.* The recipient will consider such factors as unequal access to credit or capital, acquisition of credit or capital under commercially unfavorable circumstances, unequal treatment in opportunities for government contracts or other work, unequal treatment by potential customers and business associates, and exclusion from business or professional organizations.

II. With respect to paragraph I.(A) of this appendix, the Department notes that people with disabilities have disproportionately low incomes and high rates of unemployment. Many physical and attitudinal barriers remain to their full participation in education, employment, and business opportunities available to the general public. The Americans with Disabilities Act (ADA) was passed in recognition of the discrimination faced by people with disabilities. It is plausible that many individuals with disabilities—especially persons with severe disabilities (e.g., significant mobility, vision, or hearing impairments)—may be socially and economically disadvantaged.

III. Under the laws concerning social and economic disadvantage, people with disabilities are not a group presumed to be disadvantaged. Nevertheless, recipients should look carefully at individual showings of disadvantage by individuals with disabilities, making a case-by-case judgment about whether such an individual meets the criteria of this appendix. As public entities subject to Title II of the ADA, recipients must also ensure their DBE programs are accessible to individuals with disabilities. For example, physical barriers or the lack of application and information materials in accessible formats cannot be permitted to thwart the access of potential applicants to the certification process or other services made available to DBEs and applicants.

Economic Disadvantage

(A) *General.* Economically disadvantaged individuals are socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same or similar line of business who are not socially disadvantaged.

(B) *Submission of narrative and financial information.*

(1) Each individual claiming economic disadvantage must describe the conditions which are the basis for the claim in a narrative statement, and must submit personal financial information.

(2) When married, an individual claiming economic disadvantage also must submit separate financial information for his or her spouse, unless the individual and the spouse are legally separated.

(C) *Factors to be considered.* In considering diminished capital and credit opportunities, recipients will examine factors relating to the personal financial condition of any individual claiming disadvantaged status, including personal income for the past two years (including bonuses and the value of company stock given in lieu of cash),

personal net worth, and the fair market value of all assets, whether encumbered or not. Recipients will also consider the financial condition of the applicant compared to the financial profiles of small businesses in the same primary industry classification, or, if not available, in similar lines of business, which are not owned and controlled by socially and economically disadvantaged individuals in evaluating the individual's access to credit and capital. The financial profiles that recipients will compare include total assets, net sales, pre-tax profit, sales/working capital ratio, and net worth.

(D) *Transfers within two years.*

(1) Except as set forth in paragraph (D)(2) of this appendix, recipients will attribute to an individual claiming disadvantaged status any assets which that individual has transferred to an immediate family member, or to a trust, a beneficiary of which is an immediate family member, for less than fair market value, within two years prior to a concern's application for participation in the DBE program, unless the individual claiming disadvantaged status can demonstrate that the transfer is to or on behalf of an immediate family member for that individual's education, medical expenses, or some other form of essential support.

(2) Recipients will not attribute to an individual claiming disadvantaged status any assets transferred by that individual to an immediate family member that are consistent with the customary recognition of special occasions, such as birthdays, graduations, anniversaries, and retirements.

(3) In determining an individual's access to capital and credit, recipients may consider any assets that the individual transferred within such two-year period described by paragraph (D)(1) of this appendix that are not considered in evaluating the individual's assets and net worth (e.g., transfers to charities).

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BILLING CODE 4910-02-P

procedure for processing "9-1-1" calls. Such procedure must recognize when a "9-1-1" call is made and, at such time, must override any programming in the mobile unit that determines the handling of a non-911 call and permit the call to be handled by other analog carriers. This special procedure must incorporate any one or more of the 9-1-1 call system selection processes endorsed or approved by the Commission.

[FR Doc. 99-16484 Filed 6-25-99; 8:45 am]
BILLING CODE 4712-01-P

DEPARTMENT OF TRANSPORTATION

Office of the Secretary

49 CFR Parts 23 and 26

[Docket OST-97-2550]

RIN 2105-AB92

Participation by Disadvantaged Business Enterprises in Department of Transportation Programs

AGENCY: Office of the Secretary, DOT.

ACTION: Final rule; correction.

SUMMARY: In its final disadvantaged business enterprise (DBE) rule, the Department intended to ensure the confidentiality of personal financial information submitted to recipients by owners of DBE firms. The Department inadvertently omitted the regulatory text language on this point. This correction document remedies this omission. In addition, this document corrects minor omissions concerning the threshold for Federal Transit Administration recipients to establish DBE programs and a requirement for transit vehicle manufacturers to have DBE programs, removes a potentially confusing word from the rule's provisions concerning DOT review of recipients' overall goals, clarifies language concerning the certification and personal net worth of airport concessionaires and others, and clarifies that a lease is viewed as a contract for purposes of the rule.

DATES: This rule is effective June 28, 1999.

FOR FURTHER INFORMATION CONTACT: Robert C. Ashby, Deputy Assistant General Counsel for Regulation and Enforcement, Department of Transportation, 400 7th Street, SW., Room 10424, Washington, DC 20590, phone numbers (202) 366-9306 (voice), (202) 366-9313 (fax), (202) 755-7687 (TDD), bob.ashby@ost.dot.gov (email).

SUPPLEMENTARY INFORMATION:

Privacy

In discussing the requirement of the DBE final rule that owners of DBE firms submit a statement of personal net worth, with supporting documentation, the Department addressed commenters' concerns about the confidentiality of the information. The preamble to the rule said the following:

One of the primary concerns of DBE firms commenting about submitting personal financial information is ensuring that the information remains confidential. In response to this concern, the rule explicitly requires that this material be kept confidential. It may be provided to a third party only with the written consent of the individual to whom the information pertains. This provision is specifically intended to preempt any contrary application of state or local law (e.g., a state freedom of information act that might be interpreted to require a state transportation agency to provide to a requesting party the personal income tax return of a DBE applicant who had provided the return as supporting documentation for his PNW statement). There is one exception to this confidentiality requirement. If there is a certification appeal in which the economic disadvantage of an individual is at issue (e.g., the recipient has determined that he or she is not economically disadvantaged and the individual seeks DOT review of the decision), the personal financial information would have to be provided to DOT as part of the administrative record. The Department would treat the information as confidential. (64 FR 5117; February 2, 1999).

Unfortunately, through editorial error on the Department's part, the regulatory text provision referred to was omitted from the final rule. We regret any confusion that this omission may have caused, and we are correcting the error by inserting the language in a new paragraph (a)(2)(iii) of § 26.67 of the rule.

FTA Requirements for DBE Programs

In § 26.21(a)(2) of the rule, the Department states that FTA recipients who receive more than \$250,000 in various forms of FTA assistance must have a DBE program. The phrase "exclusive of transit vehicle purchases" was inadvertently omitted from this paragraph. This omission has raised questions from some recipients, and we are reinserting the omitted language to avoid confusion. In addition, this provision did not make explicit that transit vehicle manufacturers must have DBE programs, so we are adding language to make this clear.

Review of Overall Goals

While operating administrations review recipients' overall goal submissions, recipients are not required to obtain prior concurrence by operating administrations with their overall goals (see § 26.45(f)(4)).

However, as the result of an editorial oversight, § 26.21(b)(1) of the rule makes a reference to overall goals being "approved" by operating administrations. Because prior concurrence is not required, this reference is incorrect and could be misleading. Therefore, we are removing it.

Concessionaires

In the February 2, 1999, final DBE rule, the Department removed all of former part 23 except the portion concerning airport concessionaires. The airport concession provisions were modified for consistency with the new 49 CFR part 26. In one respect, however, the amendment of the airport concessions provision failed to delete language concerning certification procedures that referred to the (now deleted) certification provisions of former part 23. While we have provided guidance to airports that they should follow part 26 procedures, we believe it would be useful to delete the language referring to former part 23's procedures. Therefore, this rule eliminates two paragraphs in § 23.95. Recipients should follow part 26 certification procedures for concessionaires as well as for other contractors.

Airports have expressed concern that the rule is unclear concerning the application to concessionaires of the \$750,000 personal net worth (PNW) cap and PNW statement requirements of § 26.67. The Department is currently working to complete a final rule concerning airport concessions. The PNW cap applicable to concessionaires is one of the matters being considered in this rulemaking. The PNW cap amount that the Department applies to concessionaires may or may not be \$750,000. Pending completion of the final rule on airport concessions, the Department believes it best to resolve the current uncertainty by making the \$750,000 cap amount and PNW statement requirement of § 26.67 inapplicable to airport concessionaires.

We are amending § 26.67(a)(2)(i) to specify that disadvantaged owners of airport concessionaires are not required to submit PNW statements. Consequently, the rebuttal of the presumption of economic disadvantage based on a PNW statement an individual is required to submit (see § 26.67(b)(1)) also does not apply to airport concessionaires.

Definition of "Contract"

The 49 CFR part 23 definition of "contract" specified that a lease was

viewed as a contract. The part 26 definition inadvertently omitted this sentence. To avoid any potential confusion on this point, this correction document adds a sentence on leases.

Clarification Concerning Personal Net Worth Documentation

The Department has received a number of questions and expressions of concern about the documentation it is appropriate for recipients to require in ascertaining the personal net worth of owners of DBE firms. The Department believes that it is important to clarify the rule to state that this documentation, and the PNW statement itself, should not be unduly lengthy, burdensome or intrusive.

The Department uses the Small Business Administration's implementation of its PNW requirements as a model for recipients' practices. SBA requires a two-page form, supported by two years' of personal and business tax returns. With respect to the information routinely collected from applicants or owners of currently certified DBEs for purposes of ascertaining PNW, the Department believes that recipients should not exceed the information sought by SBA in its programs. Consequently, while recipients are not required to use the SBA form verbatim, they should use a form of similar length and content. Recipients may appropriately collect and retain copies of two years' of the individuals personal and business tax returns.

On the other hand, the Department regards as unduly lengthy, burdensome, or intrusive such practices as using a form significantly longer or more complex than the SBA form (e.g., a multipage PNW form), requiring inventories of personal property or appraisals of real property. Such practices are contrary to part 26.

Regulatory Analyses and Notices

This set of amendments correcting part 26 is not a significant rule under Executive Order 12866 or the Department's Regulatory Policies and Procedures. The Department certifies that the amendments will not have significant economic impacts on a substantial number of small entities. This is because the amendments are technical corrections that will not impose costs on entities, regardless of their size. They do not have Federalism impacts sufficient to warrant the preparation of a Federalism impact statement. They do not impose information collection requirements.

These amendments relate to regulatory provisions that have already

been the subject of notice and comment (as part of the Department's May 1997 supplemental notice of proposed rulemaking concerning the DBE program).

Because the amendments merely correct accidental omissions from the regulatory text or remove a potentially confusing reference, we do not believe that additional notice and comment would be productive. Therefore, the Department has determined that further notice and comment would be impracticable, unnecessary, and contrary to the public interest. The Department has good cause to make the corrections effective immediately in order to avoid confusion and any adverse effects on DBEs or recipients from the absence of the omitted language.

List of Subjects

49 CFR Part 23

Administrative practice and procedure, Airports, Civil rights, Concessions, Government contracts, Grant programs—transportation, Minority businesses, Reporting and recordkeeping requirements.

49 CFR Part 26

Administrative practice and procedure, Airports, Civil rights, Government contracts, Grant programs—transportation, Highways and roads, Mass transportation, Minority businesses, Reporting and recordkeeping requirements.

Issued this 11th day of June, 1999, at Washington, D.C.

Rodney E. Slater,
Secretary of Transportation.

For the reasons set forth in the preamble, the Department amends 49 CFR parts 23 and 26 as follows:

PART 23—[AMENDED]

1. The authority citation for part 23 continues to read as follows:

Authority: 42 U.S.C. 200d et seq.; 49 U.S.C. 47107 and 47123; Executive Order 12138, 3 CFR, 1979 Comp., p. 383.

§ 23.95 [Amended]

2. In § 23.95, remove and reserve paragraphs (f)(2) and (f)(3).

PART 26—[AMENDED]

3. The authority citation for part 26 is revised to read as follows:

Authority: 23 U.S.C. 324; 42 U.S.C. 2000d, et seq.; 49 U.S.C. 1615, 47107, 47113, 47123; Sec. 1101(b), Pub. L. 105-178, 112 Stat. 107, 113.

4. In the definition of the term "Contract" in § 26.5, add a sentence at

the end of the definition, to read as follows:

§ 26.5 What do the terms used in this part mean?

* * * * *
Contract * * * For purposes of this part, a lease is considered to be a contract.
* * * * *

5. In § 26.21, revise paragraph (a)(2) to read as follows:

§ 26.21 Who must have a DBE program?
(a) * * *
(2) FTA recipients that receive \$250,000 in FTA planning, capital, and/or operating assistance in a Federal fiscal year, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under § 26.49;
* * * * *

§ 26.21 [Amended]

5. In § 26.21(b)(1), in the parenthetical phrase, remove the words "and approved" following the word "reviewed".

§ 26.45 [Amended]

6. In § 26.45(c)(5), remove the words "Subject to the approval of the DOT operating administration, you" and add "You" in its place.

7. Amend § 26.67 as follows:
a. Revise paragraph (a)(2)(i); and
b. Redesignate paragraph (a)(2)(ii) as paragraph (a)(2)(iii), and add a new paragraph (a)(2)(ii), to read as follows:

§ 26.67 What rules determine social and economic disadvantage?

(a) * * *
(2)(i) You must require each individual owner of a firm applying to participate as a DBE (except a firm applying to participate as a DBE airport concessionaire) whose ownership and control are relied upon for DBE certification to submit a signed, notarized statement of personal net worth, with appropriate supporting documentation. This statement and documentation must not be unduly lengthy, burdensome, or intrusive.

(ii) Notwithstanding any provision of state law, you must not release an individual's personal net worth statement nor any documentation supporting it to any third party without the written consent of the submitter. Provided, that you must transmit this information to DOT in any certification appeal proceeding under § 26.89 in which the disadvantaged status of the individual is in question.

* * * * *
[FR Doc. 99-15866 Filed 6-24-99; 8:45 am]
BILLING CODE 4910-02-P

**CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
PREVAILING WAGE SCHEDULE**

**ASBESTOS REMOVAL IN CONNECTION WITH THE
SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005**

**John Ciardullo Associates
221 West 57th Street
New York, NY 10019**

**Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017**

**ATC Associates, INC.
104 East 25th Street
New York, NY 10010**

**Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer**



Bureau of Labor Law

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

December 15, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 2, TO THE 220
PREVAILING WAGE SCHEDULE, WHICH COVERS THE
TITLES OF BOILERMAKER, SHEET METAL WORKER AND
BOILERMAKER APPRENTICE FOR THE PERIOD
DECEMBER 15, 2004 THROUGH JUNE 30, 2005. PLEASE
NOTIFY ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN,
DIRECTOR, CLASSIFICATION
AND DETERMINATIONS

OFFICE OF THE COMPTROLLER CITY OF NEW YORK PREVAILING WAGE SCHEDULE

CLASSIFICATION: SHEET METAL WORKER

WAGE RATE PER HOUR: \$39.49
Effective August 1, 2004 \$39.99+

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.48
Effective August 1, 2004 \$29.23+

OVERTIME SUPPLEMENTAL BENEFIT RATE PER HOUR: \$45.16
Effective August 1, 2004 \$48.04

+Effective February 1, 2005 - \$2.00 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work that can only be performed outside regular working hours (seven hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second Shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

(Local #28)

OFFICE OF THE COMPTROLLER CITY OF NEW YORK PREVAILING WAGE SCHEDULE

Boilermaker Apprentice

Wage Rate Per Hour:

First Year:	65% of Journeyperson's rate
Second Year:	
1 st Six Months:	70% of Journeyperson's rate
2 nd Six Months:	75% of Journeyperson's rate
Third Year:	
1 st Six Months:	80% of Journeyperson's rate
2 nd Six Months:	85% of Journeyperson's rate
Fourth Year:	
1 st Six Months:	90% of Journeyperson's rate
2 nd Six Months:	95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:	<u>New Construction</u>	<u>Repair and Maintenance</u>
First Year:	\$20.38	\$18.38
Second Year:		
1 st Six Months	\$21.35	\$19.35
2 nd Six Months:	\$22.32	\$20.32
Third Year:		
1 st Six Months:	\$23.29	\$21.39
2 nd Six Months:	\$24.25	\$22.25
Fourth Year:		
1 st Six Months:	\$25.22	\$23.22
2 nd Six Months:	\$26.19	\$24.19

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4



Bureau of Labor Law

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

July 2, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 1, TO THE 220
PREVAILING WAGE SCHEDULE, WHICH COVERS THE
TITLES OF CEMENT MASON AND ELECTRICIAN
APPRENTICE (FIFTH YEAR) FOR THE PERIOD
JULY 2, 2004 THROUGH JUNE 30, 2005. PLEASE
NOTIFY ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN, DIRECTOR
CLASSIFICATION AND
DETERMINATIONS

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
220 SCHEDULE OF PREVAILING WAGES AND SUPPLEMENTAL BENEFITS

ADDENDUM NO. 1, CEMENT MASON
AND ELECTRICIAN APPRENTICE (FIFTH YEAR)

EFFECTIVE PERIOD JULY 2, 2004 THROUGH JUNE 30, 2005

CLASSIFICATION: CEMENT MASON

WAGE RATE PER HOUR: \$34.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.21

Supplemental benefits are paid at double the regular hourly rate when overtime hours are worked.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

SHIFT RATES: For an off shift day, (work at times other than the regular 8:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential.

(Local #780)

EFFECTIVE PERIOD: JULY 2, 2004 THROUGH JUNE 30, 2005

LABOR LAW §220 PREVAILING WAGE SCHEDULE

Pursuant to Labor Law §220 (3) the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work contracts. Contracting agencies anticipating doing work which requires the employment of a trade or classification not included in this schedule must request the Comptroller to establish a proper classification for the work pursuant to Labor Law §220 (3-a) (a). The prevailing rate schedule as promulgated by the Comptroller, must, in compliance with law, be annexed to and form part of the contract.

The appropriate schedule of prevailing wages and benefits must be posted at all public work sites pursuant to Labor Law §220 (3-a) (a).

This schedule is applicable for work performed from July 1, 2004 through June 30, 2005, unless otherwise noted. You will be notified of any changes to this schedule by addenda published on our web site www.comptroller.nyc.gov. The rate of wages and supplemental benefits to be paid or provided are those that prevail at the time the work is being performed. Preliminary schedules for future one-year periods are published annually in the City Record on or about June 1st of each succeeding year. Final schedules are published on or about July 1st in the City Record and on our web site www.comptroller.nyc.gov.

The Comptroller's Office has attempted to include all overtime, shift and night differential, Holiday, Saturday, Sunday or other premium time work. However, this schedule does not set forth every prevailing practice with respect to such rates with which employers must comply. All such rates and practices are nevertheless part of the employer's prevailing wage obligation and contained in the collective bargaining agreements of the prevailing wage unions. These collective bargaining agreements are available for inspection by appointment. Requests for appointments may be made by calling (212) 669-4437, Monday through Friday between the hours of 9 a.m. and 5 p.m.

Answers to questions concerning the application of premium rates and or prevailing trade practices may be found in the collective bargaining agreements of the prevailing union or by requesting such information from the Bureau of Labor Law's Classification and Determination unit by calling William Helfman at (212) 669-4440.

All other inquiries concerning compliance with the Prevailing Wage Law, should be directed to; Bureau of Labor Law, ATT: William Helfman, Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 815-8672.

Office of the Comptroller, City of New York

Prevailing rates and ratios for apprentices are attached to this schedule as Appendix #1. Pursuant to Labor Law §220 (3-e), only apprentices who are individually registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be employed on a public work project. Trainees, Assistants and Helpers who are not journey persons or not registered apprentices pursuant to Labor Law §220 (3-e) may not be substituted for apprentices and must be paid as journey persons.

Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Contractors are solely responsible for maintaining original payroll records which delineate, among other things, the hours each employee worked within a given classification. Contractors using rates and/or classifications not promulgated by the Comptroller do so at their own risk. Additionally, prior to bid, Agency Chief Contracting Officers must contact the Bureau of Labor Law when the need arises for a work classification not published in this schedule.

Prevailing Rate Schedule Information: The information below is intended to assist you in meeting your prevailing wage rate obligation.

Covered Workers: Any and all individuals who are engaged, employed or otherwise occupied as Workers, Laborers or Mechanics on the public work site.

Supplemental Benefits: Employers may meet supplemental benefits obligation by paying the hourly supplemental benefits rate to their employees in cash. Such cash payments are considered income to the employee. Employers who elect to provide bona fide supplemental benefits to their employees will be given hourly cash credit for such benefits up to the hourly benefits rate set forth in the applicable schedule for the relevant trade or occupation at issue.

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is for each hour worked, some classifications require the payment or provision of supplemental benefits for each hour paid. Consequently, some prevailing practices require benefits to be purchased at the overtime, shift differential, Holiday, Saturday, Sunday or other premium time rate.

Office of the Comptroller, City of New York

Contractors are advised to review the applicable Collective Bargaining Agreements and the Comptroller's Prevailing Wage Schedule before bidding on Public Work. If there are any questions concerning prevailing wages, benefits, overtime, Holiday pay, shift differentials or any prevailing practice, please contact this office.

Any error as to compensation under the prevailing wage law or other information as to trade classification made by the contracting agency in the contract documents or in any other communication will not preclude a finding against the contractor of prevailing wage violation.

**William Helfman, Director
Classifications and Determinations
Bureau of Labor Law**

Office of the Comptroller, City of New York

HOLIDAY LEGEND

The Holidays listed below are to be paid at the prevailing rate the worker is classified.

- (1) None
- (2) New Years Day
- (3) Martin Luther King Jr. Day
- (4) Lincoln's Birthday
- (5) Washington's Birthday
- (6) President's Day
- (7) Good Friday
- (8) Memorial Day
- (9) Independence Day
- (10) Labor Day
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 day on Presidential Election Day
- (15) Veteran's Day
- (16) Thanksgiving Day
- (17) Day after Thanksgiving
- (18) Day before Christmas
- (19) 1/2 day before Christmas Day
- (20) Christmas Day
- (21) Day before New Year's Day
- (22) 1/2 day before New Year's Day
- (23) Personal day
- (24) Easter

OVERTIME LEGEND

Additional requirements may also be listed in the OVERTIME section

- (1) Time and one half the regular rate after a 7 hour day.
- (2) Time and one half the regular rate after an 8 hour day.
- (3) Double time the regular rate after a 7 hour day.
- (4) Double time the regular rate after an 8 hour day.
- (5) Time and one half the regular rate for Saturday.
- (6) Double time the regular time rate for Saturday.
- (7) Time and one half the regular rate for Sunday.
- (8) Double time the regular rate for Sunday.
- (9) Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
- (10) Saturday and Sunday may be used as a make-up day at straight time when a day is lost that week due to inclement weather.
- (11) Regular straight time rate for work on a holiday.
- (12) Time and one half the regular rate for work on a holiday.
- (13) Double time the regular rate for work on a holiday.
- (14) Triple time the regular rate for work on a holiday.

NOTE: Benefits are paid for EACH HOUR WORKED unless otherwise noted.

Office of the Comptroller, City of New York

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JULY 1, 2004 – JUNE 30, 2005**

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Office of the Comptroller, City of New York

CLASSIFICATION: ASBESTOS HANDLER

(Disturbs, removes, encapsulates, repairs, or encloses friable asbestos material)

WAGE RATE PER HOUR: \$25.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$6.95

Effective December 1, 2004 - \$1.50 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: Overtime is paid for all hours worked in excess of eight hours per day or forty (40) hours per week at time and one half the wage rate per hour and straight time for supplemental benefits. (12 when any of the following holidays are worked - 2, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: None

(Mason Tenders District Council - Local 78)

CLASSIFICATION: BLASTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Blaster	\$33.41*	\$21.59*
Blaster (Hydraulic)	\$33.96*	\$21.59*
Trac Drill Hydraulic	\$30.26*	\$21.59*
Wagon: Air Trac: Quarry Bar Drillrunners	\$29.71*	\$21.59*
Operators of Jack Hammers: Chippers: Spaders: Concrete Breakers: and all other pneumatic tools of like usage: Walk Behind Self Propelled Hydraulic Asphalt and Concrete Breakers: Hydro (Water) Demolition	\$29.02*	\$21.59*

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Powder Carriers	\$26.38*	\$21.59*
Hydraulic Trac Drill Chuck Tender	\$25.49*	\$21.59*
Chuck Tender & Nipper	\$25.00*	\$21.59*
Magazine Keepers: (Watch Person)	\$15.63*	\$21.59*

*Plus \$2.42 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (4, 5, 8, 13 when any of the following holidays are worked – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend

SHIFT RATES: A single shift shall be a continuous nine (9) hours, starting at 8:00 A.M. When two (2) shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three (3) shifts are employed, each shift will work seven and one-half (7 ½) hours, but will be paid for eight (8) hours, since only one-half (½) hour is allowed for mealtime. When two (2) or more shifts are employed, single time will be paid for each shift. The first eight (8) hours of any and all work performed Monday through Friday inclusive of any off-shift shall be at the single time rate.

(Local #29)

CLASSIFICATION: **BOILERMAKER**

WAGE RATE PER HOUR: \$39.50
Effective 9/1/04 \$41.90

SUPPLEMENTAL BENEFIT RATE PER HOUR:
\$7.44 per hour worked plus 48% of gross pay for new construction.
\$5.44 per hour worked plus 48% of gross pay for repair or maintenance work.

OVERTIME: (2, 5, 8, 13 for repair or maintenance work, 4, 6, 8 for all new work, 13 when any of the following holidays are worked – 2, 6, 8, 9, 11, 12, 15, 16, 20). See Overtime and Holiday Legends.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

SHIFT RATES:

For New Construction Work requiring two (2) shifts, the first shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. The second shift shall be paid straight time for the first six (6) hours worked and double time for additional hours worked. All hours worked on the second shift shall receive a 10% wage rate differential.

SHIFT RATES:

For Repair and Maintenance Work, when shifts are required the first shift shall work eight (8) hours at the regular straight-time rate. The second shift shall work seven and one-half (7 1/2) hours and receive eight (8) times the regular straight time hourly rate plus twenty-five (\$.25) cents. The third shift shall work seven (7) hours and receive eight (8) times the regular straight time hourly rate plus fifty (\$.50) cents. A thirty (30) minute lunch period shall not be considered as time worked.

(Local #5)

CLASSIFICATION: BRICKLAYER

WAGE RATE PER HOUR: \$38.32

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.31

OVERTIME: (1, 5, 8, 9, 13, when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Overtime rates to be paid outside the regular 8:00 A.M. to 4:00 P.M. work day.

(Bricklayer District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: CARPENTER - Heavy Construction

(Construction of Engineering Structures and Building Foundations.)

WAGE RATE PER HOUR: \$38.77

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: an off shift may commence between the hours of 5:00 P.M. and 10:00 P.M. The rate of pay shall be nine (9) hours pay including benefits at the straight time rate for eight (8) hours work.

(Carpenters District Council)

CLASSIFICATION: CARPENTER - Building Commercial

WAGE RATE PER HOUR: \$39.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked– 2, 6, 8, 9, 10, 11, 13, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift.

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: CEMENT AND CONCRETE WORKER

WAGE RATE PER HOUR: \$31.90

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.90

SUPPLEMENTAL OVERTIME RATE FOR SATURDAYS: \$19.15

SUPPLEMENTAL OVERTIME RATE FOR SUNDAYS & HOLIDAYS: \$21.40

OVERTIME: (1, 2 for working with Dockbuilders on pile cap forms and for work below street level to the top of the foundation wall, not to exceed 2 feet or 3 feet above the sidewalk (brick shelf), when working on the foundation and structure. 5, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22) See Holiday Legend.

SHIFT RATES: On shift work extending over a twenty-four-hour period all shifts are paid at straight time.

(Cement Concrete Workers District Council)

CLASSIFICATION: CEMENT MASON

WAGE RATE PER HOUR: \$34.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.21

***Plus \$2.50 to be allocated between hourly wage and supplemental benefit.**

Supplemental benefits are paid at double the regular hourly rate when overtime hours are worked.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

SHIFT RATES: For an off shift day, (work at times other than the regular 8:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential.

(Local #780)

CLASSIFICATION: CORE DRILLER

WAGE RATE PER HOUR \$26.85*

CORE DRILLER HELPER: \$22.13+

First year in the industry - \$15.49

Second year in the industry - \$17.70

Third year in the industry - \$19.92

*Effective 10/17/04 - \$1.96 to be allocated between the hourly wage and supplemental benefit

+Effective 10/17/04 - \$1.71 to be allocated between the hourly wage and supplemental benefit.

SUPPLEMENTAL BENEFIT RATE PER HOUR:

\$ 11.11 (for both drillers and helpers)

OVERTIME: (2, 8,12). See Overtime Legend.

PAID HOLIDAYS: (2, 8, 9, 10, 16, 20). See Holiday Legend.

SHIFT RATES: The shift day shall be the continuous eight and one-half (8 1/2) hours from 6:00 A.M. to 2:30 P.M. and from 2:30 P.M. to 11:00 P.M., including one-half (1/2) hour of employees regular rate of pay for lunch. When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive seventy-five (\$.75) cents per hour differential for each hour worked. When three (3) shifts are needed, each shift shall work seven and one-half (7 1/2) hours paid for eight (8) hours of labor and be permitted one-half (1/2) hour for mealtime.

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **DERRICKPERSON AND RIGGER - STONE**

WAGE RATE PER HOUR: \$36.31+

SUPPLEMENTAL BENEFIT RATE PER HOUR:

\$31.64*+ For work performed in Manhattan, Bronx, Brooklyn and Queens.

\$33.07*+ For work performed in Staten Island.

+Effective January 1, 2005 - \$1.67 to be allocated between the hourly wage and supplemental benefits.

NOTE!- The first two hours of overtime on weekdays and the first seven hours of work on Saturdays are paid at time and one half for wages and supplemental benefits. All additional overtimes is paid at double time for wages and supplemental benefits. Deduct \$1.43 from the Staten Island hourly benefits rate before computing overtime.

OVERTIME: (8, 13 when any of the following holidays are worked – 2, 5, 7, 8, 9, 10, 16, 20. See Overtime and Holiday Legends.

PAID HOLIDAYS: (19 if work is performed in the A.M.) See Holiday Legend.

(Local #197)

(Contract expires June 30, 2005)

CLASSIFICATION: **DIVER**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Diver (Marine)	\$47.85	\$28.44
Diver Tender (Marine)	\$35.15	\$28.44

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: When three shifts are utilized each shift shall work seven and one half-hours and paid for 8 hours, allowing for one half hour for lunch.

(Carpenters District Council)

CLASSIFICATION: DOCKBUILDER - PILE DRIVER

WAGE RATE PER HOUR: \$38.77

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 9, and 13 when any of the following holidays are worked 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours but will be paid for 9 hours, allowing for one half hour for lunch.

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ELECTRICIAN

(Including all low voltage cabling carrying voice, data, video or any combination thereof.)

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Electrician "A" (Regular Day)	\$42.00	\$31.93
Effective December 30, 2004	\$42.00	\$32.35
Effective May 12, 2005	\$43.00	\$33.93
Electrician "A" (Regular Day Overtime)	\$63.00	\$34.56
Effective December 30, 2004	\$63.00	\$34.98
Effective May 12, 2005	\$64.50	\$36.62
*Electrician "A" (First Shift – 8:00 a.m. to 4:30 p.m.)	\$42.00	\$31.93
Effective December 30, 2004	\$42.00	\$32.35
Effective May 12, 2005	\$43.00	\$33.93
*Electrician "A" (First Shift Overtime After 8 hours)	\$63.00	\$34.56
Effective December 30, 2004	\$63.00	\$34.98
Effective May 12, 2005	\$64.50	\$36.62
*Electrician "A" (Swing Shift – 4:30 p.m. to 12:30 a.m.)	\$49.28	\$33.37
Effective December 30, 2004	\$49.28	\$33.79
Effective May 12, 2005	\$50.45	\$35.46
*Electrician "A" (Swing Shift Overtime After 7.5 hours)	\$73.92	\$35.93
Effective December 30, 2004	\$73.92	\$36.35
Effective May 12, 2005	\$75.68	\$38.02

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

*Electrician "A" (Graveyard Shift – 12:30 a.m. to 8:00 a.m.)	\$55.20	\$34.72
Effective December 30, 2004	\$55.20	\$35.14
Effective May 12, 2005	\$56.51	\$36.91

*Electrician "A" (Graveyard Shift – Overtime After 7 hours)	\$82.80	\$37.04
Effective December 30, 2004	\$82.80	\$37.46
Effective May 12, 2005	\$84.77	\$39.16

***WHEN THE STARTING TIME OF A SHIFT BEGINS AT OTHER THAN 8:00 A.M. (DAY SHIFT), 4:30 P.M. (SWING SHIFT) OR 12:30 A.M. (GRAVEYARD SHIFT) THE ENTIRE SHIFT SHALL BE PAID AT THE HIGHER SHIFT RATE.**

**Electrician "M" (First 8 hours)	\$24.30	\$12.86
Effective May 12, 2005	\$24.80	\$14.12

**Electrician "M" Overtime - (After first 8 hours)	\$36.45	\$14.38
Effective May 12, 2005	\$37.20	\$15.68

****"M" rated work shall be defined as jobbing.**

****Jobbing** is defined as, "Electrical work of limited duration and scope, performed by an electrician who travels to various locations during the course of the workday, (may include 2 electricians for a maximum of 2 days) consisting of repairs and/or replacement of electrical equipment." Benefits include supplemental workers compensation and supplemental disability, which are paid to a worker in excess of statutory workers compensation and disability benefits. How these benefits are calculated and eligibility for these benefits is on file in the Bureau of Labor Law Determinations and Classifications Unit and will be made available to you for review upon request.

OVERTIME:

Electrician "A" - (1, 5, 7, 12). See Overtime Legend.

Electrician "M" - (2, 5, 7, 12). See Overtime Legend.

PAID HOLIDAYS: (NONE)

(Local #3)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: STREET LIGHTING WORKER

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Electro Pole Maintainer	\$27.28	\$23.20
Effective January 1, 2005	\$27.28	\$23.47
Effective May 19, 2005	\$27.93	\$24.53
Electro Pole Foundation Installer	\$31.85	\$26.07
Effective January 1, 2005	\$31.85	\$26.39
Effective May 19, 2005	\$32.61	\$27.61

OVERTIME: (1, time and one half the regular hourly for work performed after the fifth consecutive day worked, 9, 12 when any of the following holidays are worked – 2, 3, 5, 8, 9, 10, 11, 12, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #3)

CLASSIFICATION: ELEVATOR CONSTRUCTOR

<u>Construction</u>	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Elevator Constructor	\$40.89	\$19.92**

OVERTIME: For New Construction: (3, 6, 8, 13) all work performed between the hours of 3:30 P.M. and 8:00 A.M. shall be paid at the double time rate. See Overtime Legend.

OVERTIME: For work In Existing Buildings: (2, 6, 8, 13). All work performed after the regular workday and/or between the hours of 4:30 P.M. and 8:00 A.M. shall be paid at double time. See Overtime Legend.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Holiday Legend.

****VACATION:** Six months or more, but less than five years - 4% of gross wages earned each hour. Five years but less than 15 years - 6% of gross wages earned each hour. 15 years or more - 8% of gross wages earned each hour.

(Local #1)

(Contract expires March 16, 2005)

CLASSIFICATION: **ELEVATOR REPAIR - MAINTENANCE**

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
"A" Elev. Repair Mechanic	\$30.87	\$20.46
Effective February 28, 2005	\$31.80	\$20.92
Elev. Machinist Mechanic	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"A" Elev. Winder	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"B" Elev. Repair Mechanic	\$27.92	\$18.98
Effective February 28, 2005	\$28.76	\$19.40
"A" Elev. Main. Mechanic	\$29.52	\$19.78
Effective February 28, 2005	\$30.41	\$20.22
"A" Elev. Machinist	\$27.92	\$16.48
Effective February 28, 2005	\$28.76	\$16.90
"B" Elev. Main. Mechanic	\$27.21	\$18.62
Effective February 28, 2005	\$28.03	\$19.03

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

"B" Elev. Machinist	\$24.24	\$14.64
Effective February 28, 2005	\$24.97	\$15.00
"A" Elevator Helper	\$22.88	\$13.96
Effective February 28, 2005	\$23.57	\$14.30

OVERTIME: (2, 5, 7, 12 If holiday is worked) Repair Jobs (8, 12). See Overtime Legend.

HOLIDAYS: (2, 3, 5, 8, 9, 10, 11, 12, 15, 16, 17, 20). See Holiday Legend.

For Modernization Work - regular hourly rate plus a fifteen (15%) per cent differential.

(Local #3 Elevator Division)

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Operating Engineers

Cherrypickers 20 tons and over and Loaders (rubber tired and/or tractor type with a manufacturer's minimum rated capacity of six cubic yards and over).

WAGE RATE PER HOUR: \$43.22

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, and 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$69.15

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Operating Engineers

Backhoes, Basin Machines, Groover, Mechanical Sweepers, Bobcat, Boom Truck, Barrier Transport (Barrier Mover) & machines of similar nature. Operation of Churn Drills and machines of a similar nature, Stetco Silent Hoist and machines of similar nature, Vac-Alls, Meyers Machines, John Beam and machines of a similar nature, Ross Carriers and Travel Lifts and machines of a similar nature, Bulldozers, Scrapers and Turn-a-Pulls; Tugger Hoists (Used exclusively for handling excavated material); Tractors with attachments, Hyster and Roustabout Cranes, Cherrypickers. Austin Western, Grove and machines of a similar nature, Scoopmobiles, Monorails, Conveyors, Trenchers: Loaders-Rubber Tired and Tractor: Barber Greene and Eimco Loaders and Eimco Backhoes; Mighty Midget and similar breakers and Tampers, Curb and Gutter Pavers and Motor Patrol, Motor Graders and all machines of a similar nature. Locomotives 10 Tons or under. Mini-Max, Break-Tech and machines of a similar nature; Milling machines, robotic and demolition machines and machines of a similar nature, shot blaster, skid steer machines and machines of a similar nature including bobcat, pile rig rubber-tired excavator (37,000 lbs. and under), 2 man auger.

WAGE RATE PER HOUR: \$41.99

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, and 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$67.18

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Maintenance Engineers

Installing, Repairing, Maintaining, Dismantling and Manning of all equipment including Steel Cutting, Bending and Heat Sealing Machines, Mechanical Heaters, Grout Pumps, Bentonite Pumps & Plants, Screening Machines, Fusion Coupling Machines, Tunnel Boring Machines Moles and Machines of a similar nature, Power Packs, Mechanical Hydraulic Jacks; all drill rigs including but not limited to Churn, Rotary Caisson, Raised Bore & Drills of a similar nature; Personnel, Inspection & Safety Boats or any boats used to perform functions of same, Mine Hoists, Whirlies, all Climbing Cranes, all Tower Cranes, including but not limited to Truck Mounted and Crawler Type and machines of similar nature; Maintaining Hydraulic Drills and machines of a similar nature; Well Point System-Installation and dismantling (Foreman plus crew of four men). After system has been installed operation on day shift only; Where ejector or recharge system is used with separate piece of equipment in conjunction with Well Point System, an additional Maintenance Engineer shall be employed on all shifts; Burning, Welding, all Pumps regardless of size and/or motor power, except River Cofferdam Pumps and Wells Point Pumps; When two or more Air Pumps are used, a Maintenance Engineer shall be employed; Operation of Accumulator for Shield-Driven Tunnels, Handling Installation, Jointing; Coupling of all permanent cast iron, steel and plastic piping; and all temporary Pipe Fitting and such other work as by custom has been performed by the Maintenance Engineer; Motorized Buggies (three or more); equipment used in the cleaning and televising of sewers, but not limited to jet-rodder/vacuum truck, vacall/vactor, closed circuit television inspection equipment; high powered water pumps, jet pumps; screed machines and concrete finishing machines of a similar nature; vermeers. A Maintenance Engineer shall also be assigned to work on Overtime, Saturdays, Sundays and Holidays when necessary. A Maintenance Engineer shall be employed on Autogrades (C.M.I.), On-site Crushing Plants, On-Site Concrete Plants, Vermeers and machines of a similar nature. A Working Maintenance Foreman shall be employed on all jobs when required and any job where a Master Mechanic is employed. He shall also be employed and act as Assistant Master Mechanic on the second and third shifts.

WAGE RATE PER HOUR: \$41.81

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) see overtime legend

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See holiday legend.

SHIFT WAGE RATE: \$66.90

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title
Maintenance Engineer On
Base Mounted Tower Cranes

WAGE RATE PER HOUR: \$54.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) see overtime legend

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See holiday legend.

SHIFT WAGE RATE: \$86.80

CLASSIFICATION: **ENGINEER - HEAVY CONSTRUCTION**

Title
Maintenance Engineers
On Generators, Power Pack Light Towers

WAGE RATE PER HOUR: \$28.32

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$45.31

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title

Maintenance Engineer

On Pumps and Mixers including mudsucking

WAGE RATE PER HOUR: \$28.98

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$46.37

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Operating Engineer

Minor Equipment such as Tractors, Post Hole Diggers, Ditch Witch (Walk Behind), Road Finishing Machines, Rollers five tons and under, Tugger Hoists, Dual Purpose Trucks, Fork Lifts, and Dempster Dumpers.

WAGE RATE PER HOUR: \$39.95

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime

OVERTIME: (4, 6, 8, and 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$63.92

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Title

Fireperson

Steam operated Water Rigs, Steam Shovels and Cranes; Power Boilers; Pile Drivers; Derrick Boats; Plus one hour at Overtime Rate for Steam equipment. When one generator and console for Vibratory Hammer are mounted on Pile Driving Rig, one additional hour shall be paid to crew at the premium time rate. If Generator or Console for Vibratory Hammer is off machine and placed on the ground an additional crew of Local 14 and 15 shall be employed. If one compressor is used along with auxiliary equipment, Jet Pipe and Auger, the crew shall receive one additional hour at the premium time rate for mounting of such equipment. When two or more compressors are used along with auxiliary equipment, an additional two hours at the premium time rate will be paid.

WAGE RATE PER HOUR: \$39.95

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) see Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$63.92

Title

Oilers

Gradalls, Cold Planer Grader, Concrete Pumps, and their duties shall be to assist the Engineers in Oiling, Greasing and Repairing of all machines, giving signals when necessary, Chaining Buckets and Scale Boxes, Driving Truck Cranes, Driving and Operating Fuel and Grease Trucks. Plus one-half hour at Overtime rate when ordered by Employer at starting time. When three to seven Compressors are utilized in Battery it requires an Oiler. When eight to 12 Compressors are utilized in Battery it requires two Oilers.

WAGE RATE PER HOUR: \$37.89

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$60.62

CLASSIFICATION: ENGINEER - HEAVY CONSTRUCTION

Title

Oilers

All gasoline, electric, diesel or air operated Shovels, Draglines, Backhoes, Keystones, Pavers, Guniting Machines, Battery of Compressors, Crawler Cranes, two-person Trenching Machines.

WAGE RATE PER HOUR: \$26.86

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13). See Overtime Legend

PAID HOLIDAYS: Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). See Holiday Legend.

SHIFT WAGE RATE: \$42.98

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - STEEL ERECTION

Title

Maintenance Engineers

Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes

WAGE RATE PER HOUR: \$42.87

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$68.59

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
<u>Oiler</u> On a Truck Crane	\$40.32	\$19.95 \$34.75 on overtime

OVERTIME: (4, 6, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: \$64.51

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
<u>Oiler</u> On a Crawler Crane	\$31.86	\$19.95 \$35.75 on overtime

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATES: \$50.98

CLASSIFICATION: **ENGINEER - BUILDING WORK**

Title

Maintenance Engineers

Installing, repairing, maintaining, dismantling (of all equipment including: Steel Cutting and Bending Machines, Mechanical Heaters, Mine Hoists, Climbing Cranes, Tower Cranes, Linden Peine, Lorain, Liebherr, Mannes, or machines of a similar nature, Well Point Systems, Deep Well Pumps, Concrete Mixers with loading Device, Concrete Plants, Motor Generators when used for temporary power and lights)-driving maintenance trucks and truck-mounted welding machines-all pumps (regardless of size and motor power except River Cofferdam Pumps and Well Point Pumps)-when three or more motorized concrete buggies (ride type) are utilized on the Job sites they shall be serviced, maintained and repaired by the Maintenance Engineer, skid steer machines of a similar nature including bobcat.

WAGE RATE PER HOUR: \$42.64

**SUPPLEMENTAL BÉNEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - BUILDING WORK

Title

Maintenance Engineers

Maintenance Engineers on Pumps, Generators, Mixers and Heaters

WAGE RATE PER HOUR: \$33.77

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate.

Title

Oilers

All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.

WAGE RATE PER HOUR: \$39.15

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: ENGINEER - BUILDING WORK

Title

Oilers

Oilers on Crawler Cranes, Backhoes, Trenching Machines, Guniting Machines, Compressors (three or more in Battery).

WAGE RATE PER HOUR: \$29.87

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$19.95
\$35.75 on overtime**

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT WAGE RATE: Off Shift: double time the regular hourly rate.

(LOCAL #15)

**CLASSIFICATION: FIELD ENGINEER – BUILDING
CONSTRUCTION**

(Construction of Building Projects, Concrete Superstructures, etc.)

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$43.28	\$19.00
Instrument Person	\$34.23	\$19.00
Rodperson	\$23.08	\$19.00

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Overtime Benefit Rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (1, 5 for the first seven hours worked, 6 for work performed in excess of seven hours, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 6, 7, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

(LOCAL #15-D)

CLASSIFICATION: **CITY SURVEYOR AND CONSULTANT
ENGINEER**

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$28.75	\$11.65
Instrument Person	\$24.11	\$11.65
Rodperson	\$21.16	\$11.65

Overtime Benefit Rate - \$15.90 per hour (time and one-half) \$20.15 per hour (double time).

OVERTIME: (1, 5 for the first seven hours worked, 6 for work performed in excess of seven hours, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

LOCAL #15-D)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: FIELD ENGINEER - HEAVY CONSTRUCTION

(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)

	<u>Wage Rate</u>	<u>Supplemental Benefit Rate</u>
Party Chief	\$44.28	\$19.00
Instrument Person	\$32.34	\$19.00
Rodperson	\$28.00	\$19.00

*Overtime benefit rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (2, 5 for the first eight hours worked, 6 for work performed in excess of eight hours, 8, 13). See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17 and 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday legend.

(Local #15-D)

CLASSIFICATION: FIELD ENGINEER - STEEL ERECTION

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Party Chief	\$43.91	\$19.00
Instrument Person	\$34.72	\$19.00
Rodperson	\$24.09	\$19.00

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

*Overtime benefit rate - \$26.43 per hour (time & one half) \$33.85 per hour (double time).

OVERTIME: (2, 5 for the first eight hours worked, 6 for work performed in excess of eight hours, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20) Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

(Local #15-D)

CLASSIFICATION:

**OPERATING ENGINEER - ROAD AND
HEAVY CONSTRUCTION**

Title

Mucking Machines, Back Filling Machines, Cranes (Including but not limited to those utilizing scale boxes and mucking buckets), Paver Dual Drum.

WAGE RATE PER HOUR: \$44.99 OFF SHIFT WAGE RATE: \$71.98

Backhoes, Power Shovels, Hydraulic Clam Shells, Steel Erection, Moles and machines of a similar nature.

WAGE RATE PER HOUR: \$46.63 OFF SHIFT WAGE RATE: \$74.61

Mine Hoists, Cranes, etc. (Used as Mine Hoists)

WAGE RATE PER HOUR: \$48.12 OFF SHIFT WAGE RATE: \$76.99

Gradealls, Keystones, Cranes on land or water (with digging buckets), Bridge Cranes, Vermeer Cutter and machines of a similar nature, Trenching Machines.

WAGE RATE PER HOUR: \$46.98 OFF SHIFT WAGE RATE: \$75.17

Pile Drivers & Rigs (employing Dock Builder foreperson): Derrick Boats, Tunnel Shovels.

WAGE RATE PER HOUR: \$46.03 OFF SHIFT WAGE RATE: \$73.65

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Mixers (Concrete with loading attachment), Concrete Pavers, Cableways,
Land Derricks, Power Houses (Low Air Pressure Units).

WAGE RATE PER HOUR: \$43.67 OFF SHIFT WAGE RATE: \$69.87

Barrier Movers , Barrier Transport and Machines of a Similar Nature.

WAGE RATE PER HOUR: \$35.06 OFF SHIFT WAGE RATE: \$56.10

Utility Compressors

WAGE RATE PER HOUR: \$26.99

Off Shift Compressors

WAGE RATE PER HOUR: \$34.29

Horizontal Boring Rig

WAGE RATE PER HOUR: \$41.47 OFF SHIFT WAGE RATE: \$66.35

Elevators (manually operated as personnel hoist).

WAGE RATE PER HOUR: \$38.05 OFF SHIFT WAGE RATE: \$60.88

Compressors (Portable 3 or more in battery), Driving of Truck Mounted
Compressors, Well-point Pumps, Tugger Machines Well Point Pumps, Churn Drill.

WAGE RATE PER HOUR: \$29.33 OFF SHIFT WAGE RATE: \$46.93

All Drills, and Machines of a similar nature.

WAGE RATE PER HOUR: \$44.14 OFF SHIFT WAGE RATE: \$70.62

Concrete Pumps, Concrete Plant, Well Drilling Machines, Stone Crushers,
Double Drum Hoist, Power Houses (other than above).

WAGE RATE PER HOUR: \$42.70 OFF SHIFT WAGE RATE: \$68.32

Concrete Mixer

WAGE RATE PER HOUR: \$40.82 OFF SHIFT WAGE RATE: \$65.31

Boilers (High Pressure), Compressors (Portable Single or two in Battery, not
over 100 feet apart, Pumps (River Cofferdam) and Welding Machines (except
where Arc is operated by Members of Local #15), Push Button Machines, All
Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment,
Air, Hydraulic, etc.

WAGE RATE PER HOUR: \$27.16 OFF SHIFT WAGE RATE: \$43.46

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Concrete Breaking Machines, Single Drum Hoists, Locomotives (over ten tons) and Dinkies over ten tons, Hydraulic Crane-Second Engineer.

WAGE RATE PER HOUR: \$38.89 OFF SHIFT WAGE RATE: \$62.22

On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.

WAGE RATE PER HOUR: \$39.22 OFF SHIFT WAGE RATE: \$62.75

Tower Crane

WAGE RATE PER HOUR: \$56.75 OFF SHIFT WAGE RATE: \$90.80

CLASSIFICATION: OPERATING ENGINEER - PAVING

Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil

WAGE RATE PER HOUR: \$43.67 OFF SHIFT WAGE RATE: \$69.87

Asphalt Roller

WAGE RATE PER HOUR: \$42.49 OFF SHIFT WAGE RATE: \$67.98

Asphalt Plants

WAGE RATE PER HOUR: \$35.79 OFF SHIFT WAGE RATE: \$57.26

CLASSIFICATION: OPERATING ENGINEER - CONCRETE

Cranes

WAGE RATE PER HOUR: \$47.13

Compressors

WAGE RATE PER HOUR: \$27.65

Micro-traps (Negative Air Machines), Vac-All Remediation System.

WAGE RATE PER HOUR: \$38.86

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: OPERATING ENGINEER - STEEL ERECTION

Three Drum Derricks

WAGE RATE PER HOUR: \$51.64 OFF SHIFT WAGE RATE: \$82.62

Cranes, 2 Drum Derricks, Hydraulic Cranes and Fork Lifts.

WAGE RATE PER HOUR: \$49.58 OFF SHIFT WAGE RATE: \$79.33

Compressors, Welding Machines.

WAGE RATE PER HOUR: \$30.41 OFF SHIFT WAGE RATE: \$48.66

Compressors - Public Works Only (Not Combined with Welding Machine).

WAGE RATE PER HOUR: \$28.99 OFF SHIFT WAGE RATE: \$46.38

CLASSIFICATION: OPERATING ENGINEER - BUILDING WORK

Forklifts, House Cars, Rack a Pinion, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.

WAGE RATE PER HOUR: \$41.41

Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), House Car (settlement basis only), All Engines irrespective of Power (Power-Pac) used to drive Auxiliary Equipment, Air, Hydraulic, etc. Boilers.

WAGE RATE PER HOUR: \$31.43

Double Drum

WAGE RATE PER HOUR: \$46.56

Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.

WAGE RATE PER HOUR: \$49.36

Dismantling and Erection of Cranes, Relief Engineer.

WAGE RATE PER HOUR: \$45.74

4 Pole Hoist, Single Drum Hoists.

WAGE RATE PER HOUR: \$45.01

**SUPPLEMENTAL BENEFITS PER HOUR: \$21.65 straight time hours
\$39.65 overtime hours**

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 4, 6, 8, 9, 10, 11, 15, 16, 17, 20). Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday. See Holiday Legend.

SHIFT RATES: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.

(Local #14)

CLASSIFICATION: FLOOR COVERER

(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)

WAGE RATE PER HOUR: \$39.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 17, 20) See Overtime and Holiday legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

SHIFT RATES: Two shifts may be utilized with the first shift working 8:00 A.M. to the end of the shift at the straight time of pay. The second shift will receive one hour at double time rate for the last hour of the shift. (eight for seven, nine for eight).

(Carpenters District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: GLAZIER

(New Construction, Remodeling, and Alteration)

WAGE RATE PER HOUR: \$33.60

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.92

Supplemental Benefit Overtime Rate: \$28.42

OVERTIME: (3, 6, 8, An optional 8th hour can be worked at straight time rate. 13 when any of the following are holidays are worked – 2, 6, 8, 9, 10, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAY: (1). See Holiday Legend.

SHIFT RATES: Shifts shall be any 7 hours beyond 4:00 P.M. for which the glazier shall receive 8 hours pay for 7 hours worked.

(Local #1281)

(Contract expires April 30, 2005)

CLASSIFICATION: GLAZIER - Repair & Maintenance

For the Installation of Glass - All repair and maintenance work on a particular building, whenever performed, where the total cumulative contract value is under \$100,000. Except where enumerated (i.e. plate glass windows) does not apply to non-residential buildings.

Craft Jurisdiction for repair, maintenance and fabrication:

Plate glass replacement, Residential glass replacement, Residential mirrors and shower doors, Storm windows and storm doors, Residential replacement windows, Herculite door repairs, Door closer repairs, Retrofit apartment house (non commercial buildings), Glass tinting.

WAGE RATE PER HOUR: \$20.55

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$13.04

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8, and 12 in addition to a day's pay at the regular straight time rate) See Overtime Legend.

PAID HOLIDAY: (2, 6, 8, 9, 10, 16, 17, and 20). See Holiday Legend.

(Local #1281)

(Contract expires April 30, 2005)

CLASSIFICATION: HEAT AND FROST INSULATOR

WAGE RATE PER HOUR: \$40.36+

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.86+

+Effective January 3, 2005 - \$2.20 to be allocated between the hourly wage and supplemental benefit.

Note: double time shall be paid for supplemental benefits during overtime work.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, and 20 - triple time the regular hourly rate if Labor Day is worked). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The First shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours and receive seven times the regular straight time hourly rate plus fourteen percent wage and benefit premium.

Off hour work in occupied or retail buildings may be worked on weekdays with an increment of \$1.00 per hour and eight hours pay for seven (7) hours worked. Double time will apply for over seven (7) hours on weekdays and on weekends or holidays.

(Local #12)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: HOUSE WRECKER

WAGE RATE PER HOUR:

Tier A# - \$28.00*

Tier B# - \$17.70*

SUPPLEMENTAL BENEFIT RATE PER HOUR:

Tier A# - \$14.84*

Tier B# - \$ 8.65*

*Effective January 1, 2005 - \$.60 to be allocated between the hourly wage and supplemental benefits.

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

#On all work sites the first, second, eleventh and every third House Wrecker thereafter shall be Tier A House Wreckers (i.e. 1st, 2nd, 11th, 14th, 17th etc). Other House Wreckers shall be Tier B House Wreckers.

(Mason Tender District Council)

CLASSIFICATION: IRON WORKER - ORNAMENTAL

WAGE RATE PER HOUR: \$37.24#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$31.06#

#Effective January 1, 2005 - \$2.35 to be allocated between the hourly wage and supplemental benefit.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

OVERTIME: (1 – for a maximum of two hours on any regular work day (the 8th and 9th hour) and double time shall be paid for all work on a regular work day thereafter, 5 – for the first seven hours of work and double time shall be paid for all work on a Saturday thereafter, 8, 13 when work is performed on any of the following holidays – 2, 7, 8, 9, 10, 16, 20). See Overtime and Holiday legends.

HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: for off shift work - 8 hours pay for 7 hours of work. When two or three shifts are employed on a job, Monday through Friday, the workday for each shift shall be seven hours and paid for ten and one-half hours at the single time rate. When two or three shifts are worked on Saturday, Sunday or holidays, each shift shall be seven hours and paid fifteen and three-quarters hours.

(Local #580)

CLASSIFICATION: IRON WORKER - STRUCTURAL

WAGE RATE PER HOUR: \$37.15#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$40.13#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$40.51# (Staten Island)

#Effective January 1, 2005 - \$2.25 to be allocated between the hourly wage and supplemental benefit.

Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8, 13 when work is performed on any of the following holidays – 2, 7, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on these days). See Holiday Legend.

SHIFT RATES: Monday through Friday – First Shift: First eight hours are paid at straight time, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter

(Local #40 & #361)

CLASSIFICATION: LABORER

(BUILDING, CONCRETE, EXCAVATING AND COMMON)

Excavation and foundation work for buildings, landscaping in connection with building projects (original installation and re-construction), heavy construction and engineering work, landscaping in connection with heavy construction and engineering work (work performed on projects OTHER than building foundations including but not limited to pollution plants, sewers, parks, subways, bridges, highways, etc. (original installation and re-construction))

WAGE RATE PER HOUR: \$32.44

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$17.56

PAID HOLIDAYS: (10, 16) See Holiday Legend.

OVERTIME: (2, 5, 8, 13 when work is performed on any of the following holidays – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

SHIFT RATES: When two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half-hours, but shall be paid for eight hours of labor, and be permitted one half hour for lunch.

(Local #731)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: LANDSCAPING

(Gardening in connection with the planting of street trees and the planting of trees in Parks but not as part of or in connection with other construction or reconstruction projects.)

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Gardener	\$ 13.95	\$ 1.42

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit rate.

CLASSIFICATION: MARBLE MECHANIC

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Marble Setter	\$39.00	\$22.00
Effective January 1, 2005	\$40.15	\$22.40
Marble Finisher	\$33.18	\$21.72
Effective January 1, 2005	\$33.68	\$22.27
Marble Polisher	\$28.98	\$16.58

NOTE: Supplemental Benefit contributions are to be made at the applicable overtime rates.

OVERTIME: (1 or 2, 5, 8, 13 when work is performed on any of the following holidays-2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #7)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: MASON TENDER

WAGE RATE PER HOUR: \$28.00#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$15.99#

#Effective January 1, 2005, \$.75 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: The Employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for Seven (7) hours work at the straight time wage rate or nine (9) hours paid for eight (8) hours' work, at the straight time wage rate. In addition, members of the second shift shall be allowed one-half (1/2) hour to eat, with this time being included in the seven (7) or eight (8) hours of work. In order to work the second shift, there must be a first shift, and shift work must be for a minimum of three (3) contiguous weekdays duration.

(Mason Tenders District Council – Local #79)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: MASON TENDER

(INTERIOR DEMOLITION WORKER)

Interior demolition work, shall include but not be limited to: The erection, building, moving, servicing and dismantling of all enclosures, scaffolding, barricades, protection and site safety structures etc. , on Interior Demolition jobs; the operation and servicing of all tools and equipment normally used in Interior Demolition work, including, without limitation, hand tools electric and pneumatic guns and drills; the demolition of walls, partitions, ceilings, suspension systems, floorings, concrete slabs with steel framing (where such slabs are removed in their entirety), storefronts, facades, roofing, parapets, sidewalks, curbs, and vaults (except for full depth saw cutting and core drilling of slabs); the dropping of duct work, electrical piping, plumbing piping, sprinkler piping, toilet fixtures, light fixtures, radiators and air conditioning equipment, where removals are in their entirety (i.e., a complete gut) and after (but not including) proper disconnection's and capping are performed by others; the carting of all such demolished and/or dropped walls, partitions, ceilings, suspension systems, flooring, concrete slabs with steel framing, storefronts, facades, roofing, parapets, sidewalks, curbs, vaults, duct work, electrical piping, plumbing piping, sprinkler piping, toilet fixtures, light fixtures, radiators and air conditioning equipment; the removal of non-hazardous fire proofing (such as required for beam pockets), window treatment (such as blinds, drapes and hardware), including related work performed by licensed burners and related fire watch duties; the removal of stairs, escalators, elevators, dumbwaiters, and conveyors; the sorting, salvaging, labeling, packaging and movement of such materials for disposal; the clean up of the work site and all other work and stand-by time incidental to the demolition, dropping, carting and removal of such materials; and the performance of hand excavation work and duties by flagmen on job sites where work is performed under this job specification.

WAGE RATE PER HOUR:

Tier A# - \$27.80

Tier B# - \$17.50

SUPPLEMENTAL BENEFIT RATE PER HOUR:

Tier A# - \$14.44

Tier B# - \$ 8.25

OVERTIME: (2, 7, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: None

On Interior Demolition job sites 33 1/3 % of the employees shall be classified as Tier A Interior Demolition Workers and 66 2/3 % shall be classified as Tier B Interior Demolition Workers; provided that the employer may employ more than 33 1/3 % Tier A Interior Demolition Workers on the job site. Where the number of employees on a job site is not divisible by 3, the first additional employee (above the number of employees divisible by three) shall be a Tier B Interior Demolition Worker, and the second additional employee shall be a Tier A Interior Demolition Worker.

(Mason Tenders District Council)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: METALLIC LATHER

WAGE RATE PER HOUR: \$34.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$33.03

Supplemental benefits for overtime are paid at the appropriate overtime rate.

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 5, 7, 8, 9, 10, 11, 13, 16, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (19, 22 if a half is worked on these days). See Holiday Legend.

SHIFT RATES: There shall be either two (2) or three (3) shifts, each shift shall be eight (8) hours with nine (9) hours pay, including one half (1/2) hour for lunch. Off-Hour Start shall commence after 3:30 P.M. and shall conclude by 6:00 A.M. The first consecutive seven (7) hours shall be at straight time with a differential of twelve (\$12.00) dollars per hour. Fringes shall be paid at the straight time rate.

(Local #46)

CLASSIFICATION: MILLWRIGHT

WAGE RATE PER HOUR: \$37.55

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$32.94

OVERTIME: (2, 5, 8, 9, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

PAID HOLIDAYS: (19, 22 if a half day is worked on these days). See Holiday Legend.

SHIFT RATES: The first shift shall receive the straight time rate of pay. The second shift receives the straight time rate of pay plus fifteen (15%) per cent. Members of the second shift shall be allowed one-half (1/2) hour to eat, with this time being included in the hours of the workday established. There must be a first shift to work a second shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) per cent for weekday hours.

(Local #740)

CLASSIFICATION: MOSAIC MECHANIC

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Mosaic & Terrazzo Mechanic	\$33.98	\$21.25
Mosaic & Terrazzo Finisher	\$32.67	\$21.25
Machine Operator Grinder	\$32.67	\$21.25

Supplemental benefits for overtime to be paid at the rate of \$26.89 per hour.

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked - 2, 5, 7, 9, 10, 11, 15, 16, 17, 20) See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Contract expired June 30, 2003)

(Local #7)

Office of the Comptroller, City of New York

CLASSIFICATION: PAINTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Brush & Roller	\$32.25	\$16.67
Spray & Scaffold	\$35.25	\$16.67
Decorative	\$35.25	\$16.67
Sandblast	\$35.25	\$16.67

Supplemental benefits are to be paid at the appropriate straight time and overtime (either time and one half or double time) rate.

OVERTIME: (1, 5, 7, 12 when any of the following holidays are worked – 2, 6, 8, 9, 10, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Evening shift - 4:30 P.M. to 12 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one-half the regular base rate of pay.

(District Council of Painters)

(Contract expires April 30, 2005)

CLASSIFICATION: PAPERHANGER

WAGE RATE PER HOUR: \$34.45

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.78

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

*Linerperson (thermoplastic): \$19.45
Effective June 1, 2005 \$19.94

*These titles pending apprentice application to the New York State Department of Labor.

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$6.38
Effective June 1, 2005 \$7.14

PAID HOLIDAYS: (8, 9, 10, 11, 15, 16). See Holiday Legend.

OVERTIME: (2, 12 as well as one day of holiday pay). See Overtime Legend. Work performed on an employee's 6th consecutive day of work day shall be paid at the rate of time and one-half. All work performed on an employee's 7th consecutive day shall be paid at a rate of double time. The first eight hours of work performed on a Saturday and/or Sunday as the result of a consistent and regular five-day work schedule shall not be compensated at the overtime rate. In the case of work on a Friday which does not constitute an employee's 6th or 7th consecutive day of work, such Friday shall be paid at an employee's regular rate of pay provided that a majority of the hours worked that day are worked on Friday and not on the following Saturday.

SHIFT RATES: 10% night shift premium differential for all work performed after 9:00 P.M. and before 5:00 A.M.

VACATIONS:

- A. ALL EMPLOYEES EMPLOYED FOR A PERIOD OF TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR SHALL RECEIVE TWO WEEKS VACATION WITH FULL PAY.
- B. EACH EMPLOYEE EMPLOYED FOR A PERIOD OF LESS THAN TWENTY SIX WEEKS IN A CALENDAR YEAR SHALL RECEIVE VACATION PAY BASED ON SEVEN PERCENT OF HIS TOTAL BASE PAY.
- C. EMPLOYEES WITH AT LEAST TEN YEARS OF SERVICE WITH THE EMPLOYER SHALL RECEIVE THREE WEEKS VACATION WITH FULL PAY IF EMPLOYED FOR TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR.
- D. ALL EMPLOYEES WITH AT LEAST TWENTY YEARS OF SERVICE WITH THE EMPLOYER SHALL RECEIVE FOUR WEEKS OF VACATION WITH PAY IF EMPLOYED TWENTY SIX WEEKS OR MORE IN A CALENDAR YEAR.

(Local #8A-28A)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PAINTER - STRUCTURAL STEEL

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Painters on Structural Steel	\$40.25	\$23.45
Effective October 1, 2004	\$42.00	\$24.77
Power Tool	\$46.25	\$23.45
Effective October 1, 2004	\$48.00	\$24.77

OVERTIME: (1, 5, 7, 13 when any of the following holidays are worked - 2, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Regular hourly rates plus a ten per cent (10%) differential.

(Local #806)

CLASSIFICATION: SIGN PAINTER

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Designer	\$32.00	\$ 9.66
Journeyman	\$29.75	\$ 9.66

OVERTIME: (2, 5, 7, 13) See Overtime Legend.

PAID HOLIDAYS: (2, 6, 8, 9, 10, 11, 12, 16, 17, 20). See Holiday Legend.

SHIFT RATES: all work performed outside the regular 8 hour work day (either 7:00 A.M to 3:30 P.M or 8:00 A.M. to 4:30 P.M) shall be paid at time and one half the regular hourly rate.

(Local 8A-28A)

(Contract expires March 31, 2005)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PAVER AND ROADBUILDER – ASPHALT

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Asphalt Raker	\$35.36	\$20.45
Tamper	\$32.92	\$20.45
Screedperson, Micro Paver	\$35.73	\$20.45

PAID HOLIDAYS: (8, 9, 10, 11, 12, 15, and 16). See holiday legend.

OVERTIME: (2, 5, 8) if employees work on holiday #2, #6, and #20 they receive the single time the regular applicable hourly rate plus one days pay and no pay if the day is not worked. See Overtime and Holiday Legend.

SHIFT RATES: Night Work - the regular applicable hourly rate plus a 25% differential.

(Local #1018)

CLASSIFICATION: PAVER AND ROADBUILDER - CONCRETE

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Form Setter	\$34.14	\$20.45
Laborer (Paving & Roadbuilding)	\$31.04	\$20.45

PAID HOLIDAYS: (8, 9, 10, 11, 12, 16) See Holiday Legend.

OVERTIME: (2, 5, 8) if employees work on holiday #2, and #20 they receive the single time the regular applicable hourly rate plus one days pay and no pay if the day is not worked. See Overtime and Holiday Legend.

SHIFTS: A single shift shall be a continuous nine (9) hours, starting at 8:00 A.M. The mealtime shall be one (1) hour, but it may be curtailed by one-half (1/2) hour. When two (2) shifts are employed the work period for each shift shall be a continuous eight (8) hours. When three (3) shifts are employed, each shift will work seven and one-half (7 ½) hours but will be paid for eight (8) hours, since only one-half (1/2) is allowed for mealtime. When two (2) or more shifts are employed single time will be paid for each shift.

SHIFT RATES: Night Work - the regular applicable hourly rate plus a 15% differential.

(Local #1010)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

#Effective January 1, 2005 \$.80 to be allocated between hourly wage and supplemental benefits.

OVERTIME: (2, 5, 8, 9, and 13 when any of the following holidays are worked 2, 5, 8, 9, 10, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: When work commences outside regular work hours, workers receive an hour additional (differential) wage and supplement payment. Eight hours pay for seven hours work or nine hours pay for eight hours work.

(Mason Tender District Council)

CLASSIFICATION: PLASTERER – SKIMCOATER

WAGE RATE PER HOUR: \$31.00
Effective February 2, 2005 \$32.00

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$15.55
Effective February 2, 2005 \$16.30

OVERTIME: (4, 6, 8, 9, 13 when any of the following holidays are worked – 2, 3, 5, 7, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday legends.

PAID HOLIDAYS: (19, 22 if a half day is worked on either day). See Holiday Legend.

When performing alteration, repair or rehabilitation work in an occupied building and when it is not possible to perform work during regular work hours, (work shall proceed during off hours) but starting no later than 8:30 P.M. see shift rate below for rate of pay.

SHIFT RATE: Eight hours pay for seven hours of work at the straight time wage and supplemental benefit rate or nine hours pay for eight hours of work at the straight time wage and supplemental benefit rate. The lunch period shall be paid.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

THE WORK OF SKIMCOATING OR APPLYING ANY OTHER SIMILAR PREPARATION ON NEW PARTITIONS, WALLS OR CEILINGS IN NEWLY CONSTRUCTED OR RENOVATED STRUCTURES IS ASSIGNED TO THE PLASTERER.

THE WORK OF SKIMCOATING OR APPLYING ANY OTHER SIMILAR PREPARATION ON PREVIOUSLY PAINTED OR OTHERWISE FINISHED PARTITION WALLS OR CEILINGS IS ASSIGNED TO THE PAINTER.

WHEN SUCH SKIMCOATING IS REQUIRED TO CORRECT SURFACE IMPERFECTIONS IN PREPARATION FOR PAINTING AND/OR WALL COVERING IT IS THE WORK OF THE PAINTER.

(Local #530)

**CLASSIFICATION: POINTER - WATERPROOFER, CAULKER
MECHANIC (EXTERIOR BUILDING RENOVATION)**

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

*Residential Mechanic

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

*RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLUMBER

WAGE RATE PER HOUR: \$41.91

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$26.45

(Note: double time shall be paid for supplemental benefits during overtime work).

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Double time shall be paid for all hours worked outside the regular workday (seven hours of work between the hours of 7:00 A.M. and 3:30 P.M.), except when directly specified in New York City Transit Authority and/or New York City Department of Transportation contracts. Contact the office for rates.

(Plumbers Local #1)

(Contract expired June 30, 2004)

CLASSIFICATION: PLUMBER

(RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)

WAGE RATE PER HOUR: \$ 29.96

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$18.04

OVERTIME: (4, 6, 8, and 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Double time shall be paid for all hours worked outside the regular workday (seven hours of work between the hours of 7 A.M. and 3:30 P.M.)

(Plumbers Local #1)

(Contract expired June 30, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLUMBER

*MECHANICAL EQUIPMENT AND SERVICE

*(Mechanical Equipment and Service work shall include any repair and/or replacement of the present plumbing system.)

WAGE RATE PER HOUR: \$24.38

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 9.36

OVERTIME: (2, 5, 7, 12 if any of the following holidays are worked: 2, 6, 8, 9, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Time and one half the regular hourly rate to be paid for all work outside the regular 8:00 A.M. to 4:30 P.M. workday.

(Plumbers Local # 1)

(Contract expired September 30, 2001)

CLASSIFICATION: PLUMBER: PUMP & TANK

(INSTALLATION and MAINTENANCE)

WAGE RATE PER HOUR: \$39.87

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$24.54

OVERTIME: (2, 5, 7, and 12 when any of the following holidays are worked - 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular workday (8:00 A.M. to 3:30 P.M.) is to be paid at time and one half the regular hourly rate.

(Plumbers Local #1)

(Contract expires August 9, 2004)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: PLUMBER LABORER - PIPE LAYER

(CAST IRON, STEEL SEWER)

WAGE RATE PER HOUR: \$32.44

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$17.56

PAID HOLIDAYS: (10, 16) See Holiday Legend.

OVERTIME: (2, 5, 8, and 13 when work is performed on any of the following holidays – 2, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

SHIFT RATES: when two shifts are employed, single time rate shall be paid for each shift. When three shifts are found necessary, each shift shall work seven and one half hours (7 ½), but shall be paid for eight (8) hours of labor, and be permitted one half hour for lunch.

(Local #731)

CLASSIFICATION: ROOFER

WAGE RATE PER HOUR: \$32.08

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$21.32

OVERTIME: (1, 5, 7, an eighth hour can be worked at straight time, 12 when any of the following holidays are worked – 2, 6, 8, 9, 10, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

**SHIFT RATES: Second shift - Regular hourly rate plus a 10% differential.
Third shift - Regular hourly rate plus a 15% differential.**

(Local #8)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: **SANDBLASTER**

(EXTERIOR BUILDING RENOVATION)

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

***Residential Mechanic**

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

***RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.**

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

CLASSIFICATION: **STEAMBLASTER**

(EXTERIOR BUILDING RENOVATION)

WAGE RATE PER HOUR: \$33.46

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$16.14

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

***Residential Mechanic**

WAGE RATE PER HOUR: \$24.31

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$5.69

***RESIDENTIAL MECHANIC MAY BE UTILIZED ON APARTMENT HOUSES, INCLUDING COMMERCIAL SPACE ON THE GROUND FLOOR OR MEZZANINE.**

OVERTIME: (2, 5, 7, 9, 12 when any of the following holidays are worked - 2, 3, 6, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: all work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:30 P.M.) is to be paid at time and one half the regular rate.

(Bricklayer District Council)

(Contract expired June 30, 2004)

CLASSIFICATION: SHEET METAL WORKER

WAGE RATE PER HOUR: \$39.49*+

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$27.48*+ for straight time hours worked.
\$54.96 for overtime hours worked.**

***Effective August 1, 2004 – Plus \$2.00 to be allocated between the hourly wage and supplemental benefit.**

+Effective February 1, 2005 - \$2.00 to be allocated between the hourly wage and supplemental benefit.

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EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 3, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work that can only be performed outside regular working hours (seven hours of work between 7:30 A.M. and 3:30 P.M.) - First shift (work between 3:30 P.M. and 11:30 P.M.) - 10% differential above the established hourly rate. Second Shift (work between 11:30 P.M. and 7:30 A.M.) - 15% differential above the established hourly rate.

(Local #28)

CLASSIFICATION: Sheet Metal Specialty Worker*

(Decking & Siding)

***The first three workers to perform this work must be paid at the rate of the Sheet Metal Worker. The fourth worker shall be paid at this Specialty Worker Rate. One Specialty Worker for each Sheet Metal Worker can be utilized thereafter.**

WAGE RATE PER HOUR: \$34.93

**SUPPLEMENTAL BENEFIT RATE PER HOUR: \$13.35 for straight time
hours worked.
\$16.98 for overtime
hours worked.**

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 3, 6, 8, 9, 10, 11, 15, 16, 20). See Overtime and Holiday legends.

PAID HOLIDAYS: (1) See Holiday Legend.

(Local #28)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: SIGN ERECTOR

(Sheet Metal, Plastic, Electric, and Neon)

WAGE RATE PER HOUR: \$36.25

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$22.49

OVERTIME: (1, 5, 7) (12 when any of the following holidays are worked 2, 5, 8, 9, 10, 11, 12, 16, 17, and 20). See Overtime and Holiday Legend.

SHIFT RATE: time and one half the regular hourly rate is to be paid for all hours worked outside the regular workday either (7:00 A.M. through 2:30 P.M.) or (8:00 A.M. through 3:30 P.M.).

(Local #137)

(Contract expired June 30, 2004)

CLASSIFICATION: STEAMFITTER

WAGE RATE PER HOUR: \$40.82#

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.57#

Overtime supplemental benefit rate: \$59.00

#Effective December 29, 2004 – \$2.25 to be allocated between the hourly wage and supplemental benefit.

OVERTIME: (3, 6, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: Work performed between 3:30P.M. and 7:00A.M. and on Saturdays, Sundays and Holidays shall be at double time the regular hourly rate and paid at the overtime supplemental benefit rate above.

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

FOR HEATING, VENTILATING, AIR CONDITIONER AND MECHANICAL PUBLIC WORKS CONTRACTS WITH A DOLLAR VALUE NOT TO EXCEED \$7,500,000 AND FOR FIRE PROTECTION/SPRINKLER PUBLIC WORKS CONTRACTS NOT TO EXCEED \$750,000.

OVERTIME: (4, 6, 8, and 13).

SHIFT RATES: May be performed outside of the regular workday except Saturday, Sunday and Holidays. A shift shall consist of eight working hours. All work performed in excess of eight hours shall be paid at double time. No shift shall commence after 7:00 P.M. on Friday or 7:00 P.M. the day before holidays. All work performed after 12:01 A.M. Saturday or 12:01 A.M. the day before a Holiday will be paid at double time. When shift work is performed the wage rate for regular time worked is a thirty percent premium together with fringe benefits.

ON TRANSIT AUTHORITY PROJECTS, WHERE WORK IS PERFORMED IN THE VICINITY OF TRACKS ALL SHIFT WORK ON WEEKENDS AND HOLIDAYS MAY BE PERFORMED AT THE REGULAR SHIFT RATES.

(Local #638)

CLASSIFICATION: STONE MASON - SETTER

WAGE RATE PER HOUR: \$39.98

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.68

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 5, 7, 8, 9, 10, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (19 if a half day is worked). See Holiday Legend.

SHIFT RATES: for all work outside the regular workday (8:00 A.M. to 3:30 P.M. Monday through Friday), the pay shall be straight time plus a ten percent (10%) differential.

(Bricklayers District Council)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: TAPER

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Drywall Taper	\$34.32	\$16.09
Overtime Rate	\$51.48	\$23.89
Effective July 7, 2004	\$34.82	\$16.83
Overtime Rate	\$52.23	\$24.75

OVERTIME: (1, 5, 7) See Overtime Legend.

PAID HOLIDAYS: (19, 22). See Holiday Legend. Also time and one half the regular rate is due when the following holidays are worked - (2, 5, 7, 8, 9, 11, 16, 20). See Holiday Legend.

SHIFT RATES: time and one half the regular rate outside the regular work hours (8:00 A.M. through 3:30 P.M.).

(Local #1974)

CLASSIFICATION: TEAMSTER

<u>Title</u>	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Automobile Chauffeur (Dump Truck Chauffeur)	\$30.69	\$23.60
Heavy Equipment Trailer Driver	\$32.19	\$23.60
Euclid & Turnapull Operator	\$31.25	\$23.60
Six Wheeler (3 Axle) Tractors & Trailers	\$31.69	\$23.60
Boom Truck Driver	\$31.94	\$23.60

PAID HOLIDAYS: (2, 6, 8, 9,10, 11, 12, 15, 16, 20). Employees working two (2) days in the calendar week in which the holiday falls are to be paid for these holidays, provided they shape each remaining workday during that calendar week). See Holiday Legend.

Continued on following page

Office of the Comptroller, City of New York

OVERTIME: (2, 5, 8,) (13 for holidays #6, #11, #12, #15), (14 for holidays #2, #8, #9, #10, #13, #16, #20). See Overtime and Holiday Legends.

FOR WAGE RATES AND BENEFITS FOR HOURS GREATER THAN FORTY MONDAY – FRIDAY AND/OR WEEKEND RATES AND BENEFITS CONTACT THIS OFFICE.

(Local #282)

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Redi-Mix Driver (Sand & Gravel)	\$29.01	\$24.55

PAID HOLIDAYS: (2, 6, 8, 9, 10, 11, 12, 15, 16, 20) (Employees working two (2) days in the calendar week in which the holiday falls are to paid for these holidays, provided they shape each remaining workday during that calendar week). See Holiday Legend.

OVERTIME: (2, 5, 8, (13 for holidays #6, #11, #15), (14 for holidays #2, #8, #9, #10, #16, #20). See Overtime and Holiday Legend.

(Local #282)

Office of the Comptroller, City of New York

CLASSIFICATION: TELECOMMUNICATION WORKER

Telephone Installation Only

Telecommunication Worker: \$30.45
Effective August 1, 2004 \$31.06

**SUPPLEMENTAL BENEFIT RATE PER HOUR :(Manhattan, Bronx, Brooklyn,
Queens)**

\$ 11.69
Effective January 1, 2005 \$ 12.13

(Staten Island Only)
\$ 11.14
Effective January 1, 2005 \$ 11.58

VACATION:

After 6 months, one week.
After 12 months, two weeks;
After two or more but less than seven years, two weeks.
After seven or more but less than 15 years, three weeks.
After 15 years or more but less than 25 years, four weeks.

PAID HOLIDAYS: (2, 4*, 5, 8, 9, 10, 11, 12, 15, 16, 20)*employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday. See holiday legend.

SHIFT RATES: for any workday that starts before 8 A.M. or ends after 6:00 P.M. there are a 10% differential for the applicable telecommunication worker's hourly rate.

INCIDENTAL ABSENCE DUE TO PERSONAL ILLNESS:

An employee with two or more years of net credited service at the beginning of his absence shall be paid for all incidental absence due to personal illness. Incidental absence shall be understood to be an absence on scheduled working days occurring within a period of seven consecutive calendar days or less beginning with the first day of absence.

OVERTIME: (1, 5, 7, 12 plus a days pay for the holiday). See Overtime Legend.

(C.W.A.)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: TILE LAYER – SETTER

WAGE RATE PER HOUR: \$36.42
Effective December 1, 2004 \$37.42
Effective June 1, 2005 \$38.88

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$20.55
Effective December 1, 2004 \$21.21

OVERTIME: (1, 5, 8, 13 when any of the following holidays are worked – 2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Local #7)

CLASSIFICATION: TILE FINISHER

WAGE RATE PER HOUR: \$25.74

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$18.48

OVERTIME: (1, 6, 8, 13 when any of the following holidays are worked - 2, 5, 7, 8, 9, 10, 11, 15, 16, 17, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work day (work performed outside the regular 8:00 A.M. to 3:30 P.M. workday): shift differential of one and one quarter (1¼) times the regular straight time rate of pay for the seven hours of actual off-shift work.

(Contract expired June 1, 2003)

(Local #7)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: TIMBERPERSON

WAGE RATE PER HOUR: \$35.38

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$28.44

OVERTIME: (2, 5, 8, 13 when any of the following holidays are worked – 2, 6, 8, 9, 10, 11, 13, 16, 20). See Overtime and Holiday Legends.

PAID HOLIDAYS: (1) See Holiday Legend.

SHIFT RATES: off shift work, commencing between 5:00 P.M. and 10:00 P.M., shall work eight and one half hours but will be paid for 9 hours, allowing for one half hour for lunch.

(Local #1536)

CLASSIFICATION: TUNNEL WORKER

Compressed Air Rates

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefits Per Hour</u>
Blasters, Mucking Machine Operators	\$34.10	\$35.45
Tunnel Workers	\$32.89	\$34.33
Top Nipper	\$32.28	\$33.71

Continued on following page

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

Outside Lock Tender, Outside Gauge Tender, Muck Lock Tender	\$31.70	\$33.11
Bottom Bell & Top Bell Signal Person: Shaft Person	\$31.70	\$33.11
Changehouse Attendant: Powder Watchperson	\$27.12	\$31.67

PAID HOLIDAYS : (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, and 20). See Holiday Legend.

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

CLASSIFICATION: **TUNNEL WORKERS**

Free Air Rates

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefits Per Hour</u>
Blasters	\$32.53	\$33.92
Tunnel Workers	\$31.11	\$32.47
All Others	\$28.74	\$30.05

PAID HOLIDAYS : (2, 4, 6, 8, 9, 10, 11, 12, 15, 16, and 20). See Holiday Legend.

OVERTIME: (4, 6, 8, 13) See Overtime Legend.

For Repair-Maintenance Work on Existing Equipment and Facilities - (2, 5, 7, 13). See Overtime Legend.

(Local #147)

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

Office of the Comptroller, City of New York

CLASSIFICATION: WELDER

**TO BE PAID AT THE RATE OF THE JOURNEYPERSON IN THE TRADE
PERFORMING THE WORK.**

EFFECTIVE PERIOD: JULY 1, 2004 THROUGH JUNE 30, 2005

OFFICE OF THE COMPTROLLER

CITY OF NEW YORK

**§220 PREVAILING APPRENTICESHIP RATES &
RATIOS**

APPENDIX # 1

JULY 1, 2004 – JUNE 30, 2005

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK
\$220 PREVAILING APPRENTICESHIP RATES & RATIOS
APPENDIX # 1

Asbestos Handler (Local 78)

Wage Rate Per Hour:
First 1000 Hours: 78% of Journeyperson rate
Second 1000 Hours: 80% of Journeyperson rate
Third 1000 Hours: 83% of Journeyperson rate
Fourth 1000 Hours: 89% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$6.95

Ratio of Apprentice Journeyperson: 1 to 1, 1 to 3

Boilermaker

Wage Rate Per Hour:
First Year: 65% of Journeyperson's rate
Second Year:
 1st Six Months: 70% of Journeyperson's rate
 2nd Six Months: 75% of Journeyperson's rate
Third Year:
 1st Six Months: 80% of Journeyperson's rate
 2nd Six Months: 85% of Journeyperson's rate
Fourth Year:
 1st Six Months: 90% of Journeyperson's rate
 2nd Six Months: 95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:
First Year: \$18.65 (Effective September 1, 2005 - \$19.41)
Second Year:
 1st Six Months \$19.67 (Effective September 1, 2005 - \$20.48)
 2nd Six Months: \$20.68 (Effective September 1, 2005 - \$21.55)
Third Year:
 1st Six Months: \$21.70 (Effective September 1, 2005 - \$22.63)
 2nd Six Months: \$22.71 (Effective September 1, 2005 - \$23.70)
Fourth Year:
 1st Six Months: \$23.72 (Effective September 1, 2005 - \$24.78)
 2nd Six Months: \$24.75 (Effective September 1, 2005 - \$25.85)

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Appendix #1 cont'd.

Bricklayer

Wage Rate Per Hour:

First 750 Hours:	50% of Journeyperson's rate
Second 750 Hours:	60% of Journeyperson's rate
Third 750 Hours:	70% of Journeyperson's rate
Fourth 750 Hours:	80% of Journeyperson's rate
Fifth 750 Hours:	90% of Journeyperson's rate
Six 750 Hours:	95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$12.38

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Carpenter

Wage Rate Per Hour:

First Year:	40% of Journeyperson's rate
Second Year:	50% of Journeyperson's rate
Third Year:	65% of Journeyperson's rate
Fourth Year:	80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Cement and Concrete Worker

First Year:	1000 hours	50% of Journeyperson's rate
Second Year:	1000 hours	65% of Journeyperson's rate
Third Year:	1000 hours	75% of Journeyperson's rate
Fourth Year:	1000 hours	85% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:	\$ 8.92
Second Year:	\$15.36
Third Year:	\$15.81
Fourth Year:	\$16.26

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Cement Mason

Wage and Supplemental Benefit Rate Per Hour:

First Year: 50% of Journeyperson's rate

Second Year: 60% of Journeyperson's rate

Third Year: 70% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Derrickperson & Rigger (stone)

First Year: 50% of Journeyperson's rate

Second Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 80% of Journeyperson's rate

Third Year: 90% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: 50% of Journeyperson's rate

Second Year: 75% of Journeyperson's rate

Third Year: 75% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Dockbuilder/Pile Driver

Wage Rate Per Hour:

First Year: 40% of Journeyperson's rate

Second Year: 50% of Journeyperson's rate

Third Year: 65% of Journeyperson's rate

Fourth Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Appendix #1 cont'd

Electrician

Wage Rate Per Hour:

First Year:	\$12.75
Effective May 12, 2005	\$13.25
Second Year:	\$15.55
Effective May 12, 2005	\$16.05
Third Year:	\$17.65
Effective May 12, 2005	\$18.15
Fourth Year:	\$19.60
Effective May 12, 2005	\$20.10

Overtime Wage Rate Per Hour

For "A" rated Apprentices (work in excess of 7 hours per day) and
For "M" rated Apprentices (work in excess of 8 hours per day):

First Year:	\$19.13
Effective May 12, 2005	\$19.88
Second Year:	\$23.33
Effective May 12, 2005	\$24.08
Third Year:	\$26.48
Effective May 12, 2005	\$27.23
Fourth Year:	\$29.40
Effective May 12, 2005	\$30.15

Supplemental Benefit Rate Per Hour:

First Year:	\$ 9.87
Effective May 12, 2005	\$10.47
Second Year:	\$11.53
Effective May 12, 2005	\$12.19
Third Year:	\$12.78
Effective May 12, 2005	\$13.48
Fourth Year:	\$13.93
Effective May 12, 2005	\$14.69

Overtime Supplemental Benefit Rate Per Hour

For "A" rated Apprentices (work in excess of 7 hours per day) and
For "M" rated Apprentices (work in excess of 8 hours per day):

First Year:	\$10.68
Effective May 12, 2005	\$11.30
Second Year:	\$12.50
Effective May 12, 2005	\$13.20
Third Year:	\$13.88
Effective May 12, 2005	\$14.62
Fourth Year:	\$15.16
Effective May 12, 2005	\$15.95

Ratio of Apprentice to Journeyman: 1 to 1, 1 to 3

Appendix #1 cont'd

Elevator (Constructor)

Wage Rate Per Hour:

First Year: 45% of Journeyperson rate
Second Year: 55% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 75% of Journeyperson rate
Fifth Year: 75% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$14.26
Second Year: \$15.44
Third Year: \$16.43
Fourth Year: \$17.42
Fifth Year: \$17.42

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 2

Floor Coverer

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1

Glazier

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 60% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$ 6.95
Second Year: \$14.04
Third Year: \$15.81
Fourth Year: \$19.37

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Heat & Frost Insulator

Wage and Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson's rate
Second Year: 60% of Journeyperson's rate
Third Year: 70% of Journeyperson's rate
Fourth Year: 80% of Journeyperson's rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Iron Worker (Structural)

Wage Rate Per Hour:

1 st Six Months	\$19.40
7- 18 months	\$20.00
19 - 36 months	\$20.60

Supplemental Benefit Rate Per Hour: \$27.18

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6

Iron Worker (Ornamental)

Wage Rate Per Hour:

First Year:
1st Six Months 60% of Journeyperson's rate
2nd Six Months 65% of Journeyperson's rate
Second Year:
1st Six Months 70% of Journeyperson's rate
2nd Six Months 80% of Journeyperson's rate
Third Year
1st Six Months 85% of Journeyperson's rate
2nd Six Months 95% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First six months:	\$23.74
Second six months	\$24.48
Third six months	\$25.24
Fourth six months	\$26.72
Fifth six months	\$27.47
Sixth six months	\$28.97

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Appendix #1 cont'd

Laborer (Building, Concrete, Excavating & Common)

Wage Rate Per Hour:
First 1000 Hours: 50% of Journeyperson's rate
Second 1000 Hours: 60% of Journeyperson's rate
Third 1000 Hours: 75% of Journeyperson's rate
Fourth 1000 Hours: 90% of Journeyperson's rate

Supplemental Benefit Rate Per Hour: \$17.56

Ratio Apprentices to Journeyperson's: 1 to 1, 1 to 3

Laborer (Paver and Roadbuilder)

Wage Rate Per Hour:
First Year: \$23.27
(Minimum 1000 Hours)
Second Year: \$26.37
(Minimum 1000 Hours)
Third Year: \$29.47
(Minimum 1000 Hours)

Supplemental Benefit Rate Per Hour: \$9.90

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Marble Mechanics (Polisher, Finisher)

Wage and Supplemental Benefit Rate Per Hour:
First 750 Hours: 50% of Journeyperson's rate
Second 750 Hours: 60% of Journeyperson's rate
Third 750 Hours: 75% of Journeyperson's rate
Fourth 750 Hours: 90% of Journeyperson's rate

NO BENEFITS PAID DURING THE FIRST 750 HOURS (PROBATIONARY PERIOD)

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Appendix #1 cont'd.

Marble Mechanics (Cutters & Setters)

Wage and Supplemental Benefit Rate Per Hour:

First 750 Hours:	50% of Journeyperson rate
Second 750 Hours:	55% of Journeyperson rate
Third 750 Hours:	65% of Journeyperson rate
Fourth 750 Hours:	75% of Journeyperson rate
Fifth 750 Hours:	85% of Journeyperson rate
Sixth 750 Hours:	95% of Journeyperson rate

**NO BENEFITS PAID DURING THE FIRST TWO MONTHS (2) OF FIRST 750 HOURS
(PROBATIONARY PERIOD)**

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Mason Tender (Local 79) House Wrecking

Wage Rate Per Hour:

First 500 Hours:	
1 st Year:	\$17.00
2 nd Year First 1000 Hours:	\$18.00
3 rd Year First 2000 Hours:	\$19.50
4 th Year First 3000 Hours:	\$22.00

Supplemental Benefit Rate Per Hour: \$9.10 \$8.65

Ratio of Apprentices to Journeypersons: 1 to 1, 1 to 3

Metallic Lather

Wage Rate Per Hour:

First Year:	\$24.00
Second Year:	\$27.50
Third Year:	\$31.50
Fourth Year:	\$35.50

Supplemental Benefit Rate Per Hour:

First Year:	\$18.53
Second Year:	\$20.03
Third Year:	\$21.03
Fourth Year:	\$22.03

Ratio of Apprentices to Journeypersons: 1 to 1, 1 to 5

Appendix #1 cont'd.

Millwright

Wage Rate Per Hour:

First Year: 55% of Journeyperson rate
Second Year: 65% of Journeyperson rate
Third Year: 75% of Journeyperson rate
Fourth Year: 95% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year: \$21.39
Second Year: \$23.57
Third Year: \$26.56
Fourth Year: \$30.08

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 4

Operating Engineer (Local 15 I.U.O.E.)

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 55% of Journeyperson rate
Fourth Year: 60% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$11.45

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 5

Operating Engineer (Local 14 I.U.O.E.)

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 60% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$12.90

Ratio of Apprentices to Journeyperson: 1 to 1, 1 to 5

Appendix #1 cont'd.

Painters (brush & roller)

Wage Rate Per Hour:

First Year: \$11.30
Second Year: 50% of Journeyperson's rate
Third Year: 60% of Journeyperson's rate
Fourth Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: \$ 5.90
Second Year: \$ 8.51
Third Year: \$10.98
Fourth Year: \$15.45

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Painters/Structural Steel

Wage Rate Per Hour:

First Year: 40% of Journeyperson's rate
Second Year: 60% of Journeyperson's rate
Third Year: 80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)
Second Year: 60% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)
Third Year: 80% of Journeyperson's rate plus \$4.50 (Effective 10-1-04: \$5.00)

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Appendix #1 cont'd

Plasterer (Manhattan, Bronx, S.I.)

Wage Rate Per Hour:

First Year:

1st Six Months: 40% of Journeyperson's rate

2nd Six Months: 45% of Journeyperson's rate

Second Year:

1st Six Months: 55% of Journeyperson's rate

2nd Six Months: 60% of Journeyperson's rate

Third Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$ 9.23

2nd Six Months: \$10.22

Second Year:

1st Six Months: \$12.15

2nd Six Months: \$13.12

Third Year:

1st Six Months: \$15.06

2nd Six Months: \$16.05

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Plasterer (Brooklyn & Queens)

Wage Rate Per Hour:

First Year:

1st Six Months: 40% of Journeyperson's rate

2nd Six Months: 45% of Journeyperson's rate

Second Year:

1st Six Months: 55% of Journeyperson's rate

2nd Six Months: 60% of Journeyperson's rate

Third Year:

1st Six Months: 70% of Journeyperson's rate

2nd Six Months: 75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$8.03

2nd Six Months: \$8.86

Second Year:

1st Six Months: \$10.49

2nd Six Months: \$11.32

Third Year:

1st Six Months: \$12.96

2nd Six Months: \$13.79

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 3

Appendix #1 cont'd

Plasterer – Skimcoater

Wage and Supplemental Benefit Rate Per Hour:

First Year:	
1 st Six Months:	40% of Journeyperson's rate
2 nd Six Months:	45% of Journeyperson's rate
Second Year:	
1 st Six Months:	55% of Journeyperson's rate
2 nd Six Months:	60% of Journeyperson's rate
Third Year:	
1 st Six Months:	70% of Journeyperson's rate
2 nd Six Months:	75% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:	
1 st Six Months:	\$6.27 (Effective February 1, 2005 - \$6.57)
2 nd Six Months:	\$7.05 (Effective February 1, 2005 - \$7.39)
Second Year:	
1 st Six Months:	\$8.62 (Effective February 1, 2005 - \$9.03)
2 nd Six Months:	\$9.40 (Effective February 1, 2005 - \$9.85)
Third Year:	
1 st Six Months:	\$10.97 (Effective February 1, 2005 - \$11.49)
2 nd Six Months:	\$11.75 (Effective February 1, 2005 - \$12.32)

Ratio of Apprentices to Journey's: 1 to 1, 1 to 3

Pointer/Cleaner/Caulker (mason)

Wage Rate Per Hour:

First Year:	\$16.80
Second Year:	\$19.89
Third Year:	\$25.75
Fourth Year:	\$31.30

Supplemental Benefit Rate Per Hour:

First Year:	\$2.50
Second Year:	\$5.91
Third Year:	\$6.50
Fourth Year:	\$6.50

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 4

Appendix #1 cont'd.

Plumber

Wage Rate Per Hour:

First Year:	\$ 8.21
Second Year:	\$13.04
Third Year:	\$15.14
Fourth Year:	\$17.99
Fifth Year:	
1st Six Months:	\$19.39
2nd Six Months:	\$31.46

Supplemental Benefit Rate Per Hour:

First Year:	
1st Six Months:	\$.94
2nd Six Months:	\$ 2.94
Second Year:	\$10.85
Third Year:	\$10.85
Fourth Year:	\$10.85
Fifth Year:	\$10.85

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 3

Roofer

Wage and Supplemental Benefit Rate Per Hour:

First Year:	40% of Journeyperson's rate
Second Year:	50% of Journeyperson's rate
Third Year:	75% of Journeyperson's rate

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 2

Appendix #1 cont'd.

Sheet Metal Worker

Wage Rate Per Hour:

First Year:

1st Six Months: 30% of Journeyperson's rate
2nd Six Months: 35% of Journeyperson's rate

Second Year:

1st Six Months: 40% of Journeyperson's rate
2nd Six Months: 45% of Journeyperson's rate

Third Year:

1st Six Months: 50% of Journeyperson's rate
2nd Six Months: 55% of Journeyperson's rate

Fourth Year:

1st Six Months: 60% of Journeyperson's rate
2nd Six Months: 70% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$10.69
2nd Six Months: \$12.01

Second Year:

1st Six Months: \$13.24
2nd Six Months: \$14.52

Third Year:

1st Six Months: \$15.74
2nd Six Months: \$16.87

Fourth Year:

1st Six Months: \$18.48
2nd Six Months: \$21.57

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Sign Erector

Wage Rate Per Hour:

First Year:

1st Six Months: 35% of Journeyperson's rate
2nd Six Months: 40% of Journeyperson's rate

Second Year:

1st Six Months: 45% of Journeyperson's rate
2nd Six Months: 50% of Journeyperson's rate

Third Year:

1st Six Months: 55% of Journeyperson's rate
2nd Six Months: 60% of Journeyperson's rate

Fourth Year:

1st Six Months: 65% of Journeyperson's rate
2nd Six Months: 70% of Journeyperson's rate

Fifth Year:

75% of Journeyperson's rate

Sixth Year:

80% of Journeyperson's rate

Supplemental Benefit Rate Per Hour:

First Year:

1st Six Months: \$4.95
2nd Six Months: \$5.49

Second Year:

1st Six Months: \$6.03
2nd Six Months: \$6.57

Third Year:

1st Six Months: \$7.41
2nd Six Months: \$7.94

Fourth Year:

1st Six Months: \$8.78
2nd Six Months: \$9.32

Fifth Year:

1st Six Months: \$10.16
2nd Six Months: \$10.70

Ratio of Apprentices to Journeyperson's: 1 to 1, 1 to 3

Appendix #1 cont'd

Steamfitter

Wage Rate Per Hour:

First Year:	40% of Journeyperson rate
Second Year:	50% of Journeyperson rate
Third Year:	65% of Journeyperson rate
Fourth Year:	80% of Journeyperson rate
Fifth Year:	85% of Journeyperson rate

Supplemental Benefit Rate Per Hour:

First Year:	\$12.12
Second Year:	\$15.09
Third Year:	\$19.50
Fourth Year:	\$23.92
Fifth Year:	\$25.40

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Stone Mason/ Setter

Wage Rate Per Hour:

First 750 Hours:	50% of Journeyperson rate
Second 750 Hours:	60% of Journeyperson rate
Third 750 Hours:	70% of Journeyperson rate
Fourth 750 Hours:	80% of Journeyperson rate
Fifth 750 Hours:	90% of Journeyperson rate
Sixth 750 Hours:	100% of Journeyperson rate

Supplemental Benefit Rate Per Hour: 50% of Journeyperson rate

Ratio Apprentices of Journeyperson: 1 to 1, 1 to 2

Appendix #1 cont'd

Taper (Drywall)

Wage and Supplemental Benefit Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 60% of Journeyperson rate
Third Year: 80% of Journeyperson rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3

Tile Layer (Setter)

Wage and Supplemental Benefit Rate Per Hour:

First 750 Hours: 50% of Journeyperson rate
Second 750 Hours: 55% of Journeyperson rate
Third 750 Hours: 65% of Journeyperson rate
Fourth 750 Hours: 75% of Journeyperson rate
Fifth 750 Hours: 85% of Journeyperson rate
Sixth 750 Hours: 95% of Journeyperson rate

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4

Timberperson

Wage Rate Per Hour:

First Year: 40% of Journeyperson rate
Second Year: 50% of Journeyperson rate
Third Year: 65% of Journeyperson rate
Fourth Year: 80% of Journeyperson rate

Supplemental Benefit Rate Per Hour: \$19.53

Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6



Bureau of Labor Law

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1122
NEW YORK, N.Y. 10007-2341

TELEPHONE: (212) 669-4437
FAX NUMBER: (212) 669-8499

WILLIAM C. THOMPSON, JR.
COMPTROLLER

December 15, 2004

TO ALL CITY AGENCIES

ATTACHED IS ADDENDUM NO. 1, TO THE 230 PREVAILING WAGE SCHEDULE, WHICH COVERS THE TITLES OF EXTERMINATOR AND AIR CONDITIONING AND REFRIGERATION FOR THE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005. PLEASE NOTIFY ALL CONTRACTORS OF THESE CHANGES.

VERY TRULY YOURS,

WILLIAM HELFMAN
DIRECTOR, CLASSIFICATION
AND DETERMINATIONS

OFFICE OF THE COMPTROLLER, CITY OF NEW YORK

230 SCHEDULE OF PREVAILING WAGES AND SUPPLEMENTAL BENEFITS

ADDENDUM NO. 1, EXTERMINATOR AND AIR CONDITIONING AND REFRIGERATION

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

CLASSIFICATION: EXTERMINATOR

WAGE RATE PER HOUR:	\$17.74
Effective February 1, 2005	\$18.57
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 4.83

OVERTIME: (2, 8) If an employee works six (6) consecutive days the 6th day is paid at time and on half. All work performed before regular starting time, or after eight (8) hours on any day, or on the sixth (6th) day of the regular work week, shall be paid for at time one-half the regular rate of pay. If required to work before the regular starting time, the employee shall never the less be paid for the eight (8) hour day beginning the regular starting time, in addition to the overtime pay for the work before the regular starting time. All work performed on Sunday shall be paid for at double the rate of pay except that employees hired on or after September 15, 1993 can be assigned any five (5) consecutive day work week without the requirement of double-time for Sunday. (See Overtime Legend).

Paid Holidays: (2, 5, 8, 9, 10, 11, 16, 20) Plus employee's birthday and two (2) additional holidays as floating holidays and one (1) additional day either for Martin Luther King's Birthday or Yom Kippur. All employees hired on or after February 1, 2001 shall not be entitled to floating holidays or a day off for their Birthday. See Holiday Legend.

Regular Work Day shall be any Eight consecutive hours from 6:00 A.M. - 8:00 P.M. with one hour off for lunch. A second shift can be worked and paid at an additional twelve dollars (\$12.00) per week.

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

The Regular Work Week of day workers shall consist of forty (40) hours in any five (5) consecutive days Monday through Saturday, with two (2) consecutive days off. If a day worker works a split week by working one (1) or more days and one (1) or more nights, time and one half shall be paid for each night's work. If a day worker splits a week by working one (1) day and one or more nights, time and one-half shall be paid for each nights work.

The Regular Work Week of Night Workers shall consist of five (5) consecutive nights totaling forty (40) hours. Any employee required to work between 5:00 P.M. and 7:00 A.M. for any given eight (8) hours consecutively shall receive an additional forty (\$.40) cents per hour above the employees' regular straight time hourly rate. If a Night Worker works a split week by working one (1) or more nights and one (1) or more days, time and one-half the night rate shall be paid for each day worked. A night worker required to work on Saturday night shall be paid at time one half regardless of the number of nights the employee has worked during his regular work week.

Vacation: All employees hired before February 1, 2001 shall be be entitled to paid vacations as follows:

During the employees first 52 weeks of employment.....1 week 5 days
During the employees second 52 weeks of employment..2 weeks 10 days
After (5) years employment.....3 weeks 15 days
After (15) years employment.....4 weeks 20 days
After (21) years employment.....21 working days
After (22) years employment.....22 working days
After (23) years employment.....23 working days
After (24) years employment.....24 working days
After (25) years employment.....5 weeks 25 days

Employees hired on or after February 1, 2001 shall receive the following vacation benefits:

During the first (52) weeks of employment.....1 week 5 days
During the second (52) weeks of employment and thereafter..2 weeks 10 days
After ten (10) years of employment.....3 weeks 15 days

Continued on following page

Sick Leave:

Ten (10) paid sick days in each calendar year after one year of service. Employees who have continued employment to the end of the calendar year and have not used all sickness benefits shall be paid in the succeeding January for all unused sick leave. Unused sick leave paid in cash in January of each calendar year.

(Local 32 B/J)

**CLASSIFICATION: REFRIGERATION AND AIR CONDITIONER
 MAINTENANCE AND INSTALLATION
 SERVICE PERSON**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Journeyman	\$28.20	\$7.46
Effective January 1, 2005	\$28.70	\$7.71
Fourth Year of Employment	\$23.16	\$6.93
Effective January 1, 2005	\$23.57	\$7.15
Third Year of Employment	\$19.20	\$6.46
Effective January 1, 2005	\$19.54	\$6.66
Second Year of Employment	\$16.49	\$6.12
Effective January 1, 2005	\$16.78	\$6.30

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

First Year (2nd six months of Employment)	\$13.70	\$5.83
Effective January 1, 2005	\$13.94	\$5.99
First Year (1st six months of Employment)	\$8.51	\$5.49
Effective January 1, 2005	\$8.66	\$5.65

1. **No First or Second year serviceperson employed on service or repair work shall be allowed to do any work in the field unless the worker is accompanied and supervised by one or more service mechanics except in the event of emergency arising when the Employer must use his own discretion as to sending First or Second year men out to answer calls.**

2. **For every three (3) servicemen or maintenance mechanics steadily employed, the Employer may employ one (1) First year or Second year person, and if acceptable to the Employer, shall be continuously employed for one (1) year.**

3. **First and Second year persons shall be allowed to perform the following work:**
 - 1) **Filter changing and maintenance thereof.**
 - 2) **Oil and greasing.**
 - 3) **Tower and coil cleaning, scraping and painting.**
 - 4) **General housekeeping.**
 - 5) **Delivery and truck driving of parts and/or equipment trucks.**
 - 6) **Taking of water samples.**

Continued on following page

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

VACATION:

Employees who have worked for Six (6) monthsone week.

Employees who have worked for One (1) year.....one week.

**Employees who have worked for Sixty (60) months.....three weeks.
It is agreed however, that the third week of this vacation shall not be
taken consecutively with the first two (2) weeks vacation.**

**Employees who have been employed six (6) months and who leave or
are discharged prior to the period when they would have been entitled to
their next vacation shall be paid accrued vacation money of one-twelfth
(1/12) of the vacation pay he is entitled to for each month worked before
his next vacation time. An employee will not be considered absent from
work insofar as continuity of employment is concerned in the following
instances: proven illness, jury duty, temporary military or navel training
service, an agreed leave of absence.**

SICK LEAVE:

Employees who have worked for one (1) year.....three days.

Employees who have worked for two (2) years.....five sick days.

**In the event any employee has any unused sick leave, the full amount of
unused sick leave shall be payable to the said employee on the
Anniversary date of his employment.**

**PAID HOLIDAYS: (2, 3#, 4, 5#, 8#, 9, 10, 11#, 15, 16, 20) See Holiday
Legend. # Double time and one half the regular hourly
rate for work performed on these holidays.**

OVERTIME: (2, 5, 8, 13,) See Overtime Legend.

(Local #638B)

EFFECTIVE PERIOD DECEMBER 15, 2004 THROUGH JUNE 30, 2005

This schedule of prevailing wages and supplemental fringe benefits must be posted at the public work site as required by New York State Labor Law § 231 (6).

LABOR LAW § 230 BUILDING SERVICE EMPLOYEES

In accordance with Labor Law §230 et seq. the Comptroller of the City of New York has promulgated this schedule of prevailing wages and supplemental benefits for building service employees engaged on building service contracts in excess of \$1,500.00. Prevailing rates are required to be annexed to and form part of the contract pursuant to §231 (4); however, only rates for trades anticipated by the contracting agency to be required on the work need be annexed to the contract.

Pursuant to §231 (4) contracting agencies that anticipate doing work that may require building service trades or classifications not included in this schedule, must request the Comptroller to establish a proper classification and wage determination for the work. Contractors using trades and/or classifications for which the Comptroller has not promulgated wages and benefits do so at their own risk.

Labor Law § 231 (6) requires contractors to post on the site of the work a current copy of this schedule of wages and supplements.

This schedule is applicable to work performed from July 1, 2004 through June 30, 2005, unless otherwise noted. Changes to this schedule are published on our web site www.comptroller.nyc.gov . Contractors must pay the wages and supplements in effect when the building service employee performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on the our web site www.comptroller.nyc.gov .

Building service employees on public contracts must receive not less than the prevailing rate of wage and supplements for the classification of work performed. Contractors are solely responsible for maintaining original payroll records delineating, among other things, the hours worked by each employee within a given classification.

Employers may pay cash supplements; however, cash payments made in lieu of providing bona fide benefits is considered income to the employee. Employers providing bona fide benefits are credited for the cost of such benefits up to the hourly rate for benefits in the schedule for the trade or occupation at issue. Employers may combine cash supplements with in-kind supplements to meet the prevailing rate minimum.

Office of the Comptroller, City of New York

Particular attention should be given to the supplemental benefits requirement. Although in most instances the payment or provision for supplemental benefits is tied to hours worked, some classifications require the payment or provision of supplemental benefits at overtime or premium time rates. Contractors are advised to review the applicable collective bargaining agreements and the Comptroller's Prevailing Wage Schedule before bidding on public work. Any Prevailing Wage Rate error made by the Contracting Agency, whether in a contract document or other communication, will not preclude a finding against the contractor of prevailing-wage violation.

Because this schedule may not list each prevailing wage practice, contractors should familiarize themselves with the prevailing collective bargaining agreements. Please make appointments to inspect such agreements by calling (212) 669-4437, Monday through Friday between the hours of 9:00 A.M. and 5:00 P.M.

Answers to questions concerning premium rates and or prevailing trade practices may also be obtained from the Classification and Determination Unit by calling William Helfman, Director, at (212) 669-4440. Please direct all other compliance issues to; Bureau of Labor Law, Attn: William Helfman, Office of the Comptroller, 1 Centre Street, Room 1122, New York, N.Y. 10007; Fax (212) 815- 8672.

**William Helfman, Director
Classifications and Determinations
Bureau of Labor Law**

Office of the Comptroller, City of New York

HOLIDAY LEGEND

The Holidays listed below are to be paid at the prevailing rate the worker is classified.

- (1) None
- (2) New Years Day
- (3) Martin Luther King Jr. Day
- (4) Lincoln's Birthday
- (5) Washington's Birthday
- (6) President's Day
- (7) Good Friday
- (8) Memorial Day
- (9) Independence Day
- (10) Labor Day
- (11) Columbus Day
- (12) Election Day
- (13) Presidential Election Day
- (14) 1/2 day on Presidential Election Day
- (15) Veteran's Day
- (16) Thanksgiving Day
- (17) Day after Thanksgiving
- (18) Day Before Christmas
- (19) 1/2 day before Christmas Day
- (20) Christmas Day
- (21) Day before New Year's Day
- (22) 1/2 day before New Year's Day
- (23) Employees' Birthday

OVERTIME LEGEND

The following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in this prevailing rate schedule. Additional requirements may also be listed in the OVERTIME section.

- (1) Time and one half the regular rate after a 7 hour day.
- (2) Time and one half the regular rate after an 8 hour day.
- (3) Double time the regular rate after a 7 hour day.
- (4) Double time the regular rate after an 8 hour day.
- (5) Time and one half the regular rate for Saturday.
- (6) Double time the regular time rate for Saturday.
- (7) Time and one half the regular rate for Sunday.
- (8) Double time the regular rate for Sunday.
- (9) Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.
- (10) Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather.
- (11) Regular straight time rate for work on a holiday.
- (12) Time and one half the regular rate for work on a holiday.
- (13) Double time the regular rate for work on a holiday.
- (14) Triple time the regular rate for work on a holiday.

NOTE: Benefits are paid for EACH HOUR WORKED unless otherwise noted.

Office of the Comptroller, City of New York

SECTION 230 PREVAILING WAGE INDEX
JULY 1, 2004 – JUNE 30, 2005

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Office of the Comptroller, City of New York

CLASSIFICATION: ALARM TECHNICIAN (REPAIR AND MAINTENANCE)

(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)

WAGE RATE PER HOUR: \$24.37
Effective July 10, 2004 \$25.07

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$9.28
Effective July 10, 2004 \$9.50

OVERTIME: (2, 5, 8, 14) See Overtime Legend.

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 17, 20, plus one personal day per year). See Holiday Legend.

NIGHT DIFFERENTIAL is based upon a 10% differential between the hours of 4:00 P.M. and 12:00 P.M. and a 15% differential for the hours 12:00 P.M. to 8:00 A.M.

VACATION:

At least one year of employment - 2 weeks vacation
Five years or more of employment - 3 weeks vacation
Ten Years of employment - 4 weeks vacation

SICK DAYS: One day per year.

(Local #3)

CLASSIFICATION: BOILER SERVICEPERSON/TANK CLEANER MECHANIC

(LOW PRESSURE)

WAGE RATE PER HOUR: \$18.30

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.49

PAID HOLIDAYS: (2, 3, 5, 8, 9, 10, 11, 12, 15, 16, 20, plus employees birthday)
See Holiday Legend.

Continued on following page -

Office of the Comptroller, City of New York

VACATION:

Six months of service - three days.

Eight months of service - four days

Ten months of service - five days

Two years of service - two weeks.

Seven years of service with the same employer - three weeks.

SICK LEAVE:

6 sick days in each calendar year for employees who have been employed for at least one year, but less than two years; 8 sick days in each calendar year for employees who have been employed between two and three years; 10 sick days in each calendar year for employees who have been employed for more than three years.

OVERTIME: (2, 5, 8, and 13). See Overtime Legend.

(Contract Expired February 29, 2004)

(Local #32 B/J)

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "A": (Over 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.35
Foreperson	\$20.25
Starter	\$20.25
Cleaner/Porter, Elevator Operator	\$18.54

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

Continued on following page

Office of the Comptroller, City of New York

- * May be exchanged for Yom Kippur or a personal day
- # May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.
Six months of work but less than one year of work - three days.
One year of work but less than five years of work - two weeks.
15 years of work but less than 25 years of work - four weeks.
Five years of work but less than 15 years of work - three weeks.
25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE New York CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

Office of the Comptroller, City of New York

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "B": (Over 120,000 and less than 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.28
Foreperson	\$20.21
Starter	\$20.21
Cleaner/Porter, Elevator Operator	\$18.49
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$4.83
PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day) See Holiday Legend.	

* May be exchanged for Yom Kippur or a personal day.

May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay). See Overtime Legend.

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Office of the Comptroller, City of New York

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

CLASSIFICATION: LOFT CLEANING

LOFT BUILDING CLASS "C": (Less than 120,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.15
Foreperson	\$20.06
Starter	\$20.06
Cleaner/Porter, Elevator Operator	\$18.45

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

Continued on following page

Office of the Comptroller, City of New York

- * May be exchanged for Yom Kippur or a personal day
- # May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW EMPLOYEE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

(Local #32 B/J)

(Contract expires December 31, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "A": (Over 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.40
Foreperson	\$20.29
Starter	\$20.29
Cleaner/Porter, Elevator Operator	\$18.57

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

* May be exchanged for Yom Kippur or a personal day.

May be exchanged for Lincoln's birthday, Veteran's Day, and/or day after Thanksgiving.

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full day pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay) See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

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Office of the Comptroller, City of New York

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "B": (Over 120,000 and less than 280,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.37
Foreperson	\$20.25
Starter	\$20.25
Cleaner/Porter, Elevator Operator	\$18.54

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

*** May be exchanged for Yom Kippur or a personal day.**

May be exchanged for Lincoln's birthday, Veteran's Day and/or day after Thanksgiving.

Continued on following page

Office of the Comptroller, City of New York

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

Ten sick days per year. Unused sick leave paid in the succeeding January, one full days pay for each unused sick day.

OVERTIME: (2, 5, 7, and 12 in addition to the day's pay). See Overtime Legend.

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

Office of the Comptroller, City of New York

CLASSIFICATION: OFFICE CLEANING

OFFICE BUILDING CLASS "C": (Less than 120,000 square feet gross area)

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$20.32
Foreperson	\$20.11
Starter	\$20.11
Cleaner/Porter, Elevator Operator	\$18.50

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 4.83

**PAID HOLIDAYS: (2, 3*, 5, 7#, 8, 9, 10, 11, 16, 17#, 20, plus one personal day).
See Holiday Legend.**

*** May be exchanged for Yom Kippur or a personal day.**

**# May be exchanged for Lincoln's birthday, Veteran's Day and/or day
after Thanksgiving.**

VACATION:

Less than six months of work - no vacation.

Six months of work but less than one year of work - three days.

One year of work but less than five years of work - two weeks.

Five years of work but less than 15 years of work - three weeks.

15 years of work but less than 25 years of work - four weeks.

25 years or more of work - five weeks.

SICK LEAVE:

**Ten sick days per year. Unused sick leave paid in the succeeding January,
one full days pay for each unused sick day.**

OVERTIME: (2, 5, 7, 12 in addition to the day's pay). See Overtime Legend.

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Office of the Comptroller, City of New York

NEW EMPLOYEES: EFFECTIVE FEBRUARY 4, 1996, A NEW HIRE EMPLOYED IN THE PORTER/CLEANER TITLE, MAY BE PAID A STARTING RATE OF EIGHTY (80%) OF THE HOURLY RATE PUBLISHED ABOVE. UPON COMPLETION OF THIRTY (30) MONTHS OF EMPLOYMENT, THE NEW HIRE SHALL BE PAID THE FULL WAGE RATE.

NEW HIRE SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 3.42

UPON COMPLETION OF TWO YEARS OF EMPLOYMENT THE NEW HIRE RECEIVES THE FULL SUPPLEMENTAL BENEFIT RATE.

THIS PROVISION SHALL NOT APPLY TO ANY EXPERIENCED EMPLOYEE ("EXPERIENCED EMPLOYEE") WHO WAS EMPLOYED IN THE NEW YORK CITY BUILDING INDUSTRY ("INDUSTRY") AS OF FEBRUARY 3, 1996. "EXPERIENCED EMPLOYEE" SHALL BE DEFINED AS A PERSON WHO HAS WORKED FOR THIRTY (30) DAYS IN THE "INDUSTRY" WITHIN THE 24 MONTHS IMMEDIATELY PRECEDING HIRING (EXCLUDING EMPLOYMENT AS A VACATION RELIEF).

(Local #32 B/J)

(Contract expires December 31, 2004)

CLASSIFICATION: RESIDENTIAL CLEANING

RESIDENTIAL BUILDINGS CLASS "A": Residential Buildings Class "A": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$4000.00 a room.

<u>Title</u>	<u>Wage Rate Per Hour</u>
Handyperson	\$19.22
Effective April 20, 2005	\$19.77
Cleaner/Porter	\$17.44
Effective April 20, 2005	\$17.94
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 4.76

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Office of the Comptroller, City of New York

VACATION:

6 Months	3 working days
1 Year.....	2 weeks
5 Years.....	3 weeks
15 Years	4 weeks
21 Years.....	21 working days
22 Years.....	22 working days
23 Years.....	23 working days
24 years.....	24 working days
25 years.....	5 weeks

SICK LEAVE: After one year of service - 10 days per year.

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday,
Good Friday, Yom Kippur or a Muslim Holiday.

OVERTIME: (2, time and one half for the 6th day, 8, 13). See Overtime Legend.

(Local 32B/J)

CLASSIFICATION: RESIDENTIAL CLEANING

RESIDENTIAL BUILDINGS CLASS "B": Residential Buildings Class "B": buildings where the assessed value of the land and building, based upon the 1935 assessment, divided by the number of rooms in the building, gives an assessed value of over \$2000.00 a room and not over \$4000.00 a room.

<u>Title</u>	<u>Wage Rate Per Hour</u>
Handyperson	\$19.16
Effective April 20, 2005	\$19.71
Cleaner/Porter	\$17.38
Effective April 20, 2005	\$17.88
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$4.76

Continued on following page

Office of the Comptroller, City of New York

**PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday,
Good Friday, Yom Kippur or a Muslim Holiday.**

VACATION:

**6 Months3 working days
1 Year.....2 weeks
5 Years.....3 weeks
15 Years4 weeks
21 Years.....21 working days
22 Years.....22 working days
23 Years.....23 working days
24 years.....24 working days
25 years.....5 weeks**

SICK LEAVE: After one year of service - 10 days per year.

OVERTIME: (2, time and one half for the 6th day, 8, 13) See Overtime Legend.

CLASSIFICATION: RESIDENTIAL CLEANING

**RESIDENTIAL BUILDINGS (CLASS "C") Residential Buildings Class "C":
buildings where the assessed value of the land and building, based upon the 1935
assessment, divided by the number of rooms in the building, gives An assessed
value of \$2000.00 or less a room.**

<u>Title</u>	<u>Wage Rate per Hour</u>
Handyperson	\$19.10
Effective April 20, 2005	\$19.65
Cleaner/Porter	\$17.33
Effective April 20, 2005	\$17.83

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$ 4.76

Continued on following page

Office of the Comptroller, City of New York

PAID HOLIDAYS: (2, 3, 6, 8, 9, 10, 11, 12, 16, 20, plus one personal day).
See Holiday Legend. Plus one of the following holidays: Lincoln's Birthday, Good Friday, Yom Kippur or a Muslim Holiday.*

VACATION:

6 Months3 working days
1 Year.....2 weeks
5 Years.....3 weeks
15 Years4 weeks
21 Years.....21 working days
22 Years.....22 working days
23 Years.....23 working days
24 years.....24 working days
25 years.....5 weeks

SICK LEAVE:

After one year of service - 10 days per year.

OVERTIME: (2, time and one half for the 6th day, 8, 13) **See Overtime Legend**

(Local #32 B/J)

CLASSIFICATION: PARKING LOT CLEANER - FLOOR PERSON

Wage Rate Per Hour

"A" Level Worker	\$13.81
"B" Level Workers	
-Hired prior to 2/6/92	\$ 8.81
-Hired on or after 2/6/92	\$ 7.50
-Hired on or after 3/4/96	\$ 7.30
-Hired on or after 3/3/97	\$ 7.10
-Hired on or after 3/2/98	\$ 6.90
-Hired on or after 3/6/99	\$ 6.80

SUPPLEMENTAL BENEFIT RATE PER HOUR: \$1.28 (after six months of employment.)
\$2.07 (after three years of employment.)

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Office of the Comptroller, City of New York

The Regular Work Week of day workers shall consist of forty (40) hours in any five (5) consecutive days Monday through Saturday, with two (2) consecutive days off. If a day worker works a split week by working one (1) or more days and one (1) or more nights, time and one half shall be paid for each night's work.

Shift Rate: The regular workweek of night workers shall consist of five (5) consecutive nights totaling forty (40) hours. Any employee required to work between 5:00 P.M. and 7:00 A.M. for any given eight (8) hours consecutively shall receive an additional forty (\$.40) cents per hour above the employees' regular straight time hourly rate. A night worker required to work on Saturday night shall be paid at time one half regardless of the number of nights the employee has worked during his regular workweek.

Vacation: All employees hired before February 1, 2001 shall be entitled to paid vacations as follows:

During the employees first 52 weeks of employment.....1 week 5 days
During the employees second 52 weeks of employment.....2 weeks 10 days
After (5) years employment.....3 weeks 15 days
After (15) years employment.....4 weeks 20 days
After (21) years employment.....21 working days
After (22) years employment.....22 working days
After (23) years employment.....23 working days
After (24) years employment.....24 working days
After (25) years employment.....5 weeks 25 days

Employees hired on or after February 1, 2001 shall receive the following vacation benefits:

During the first (52) weeks of employment..... 1 week 5 days
During the second (52) weeks of employment and thereafter.....2 weeks 10 days
After ten (10) years of employment..... 3 weeks 15 days

Sick Leave:

Ten (10) paid sick days in each calendar year after one year of service. Unused sick leave paid in cash in January of each calendar year.

(Contract Expired January 31, 2004)

(Local 32 B/J)

Office of the Comptroller, City of New York

CLASSIFICATION: FUEL OIL

<u>Title</u>	<u>Wage Rate per Hour</u>
Fuel Oil, Coal, Fuel Gas, Petroleum Product Chauffeur	\$25.01
Oil Burner Installer	\$25.261
Oil Burner Installer Helper (employed less than 12 months in the industry)	\$16.63
Oil Burner Installer Helper (employed at least 12 months in the industry)	\$18.61
Serviceperson "Class A" (employed in the industry for three years or longer)	\$25.26
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$ 11.14

VACATION:

Less than 75 days worked - no vacation.

75 days worked in a calendar year but less than 110 days worked in a calendar year - five days the following year.

110 days or more worked in a calendar year - 10 days the following year.

SICK LEAVE: One day sick leave earned for each 40 days worked in the preceding calendar year for a maximum of five days per calendar year.

OVERTIME: (2, 5, 8, 13, 14). See Overtime Legend.

PAID HOLIDAYS: (2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 20). See Holiday Legend.

(Local #553)

(Contract expires December 15, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: LANDSCAPING

(Gardening, tree pruning and/or tree removing, spraying and park maintenance not included in a construction or reconstruction project.)

	<u>Wage Rate</u> <u>Per Hour</u>	<u>Supplemental</u> <u>Benefit Rate</u> <u>Per Hour</u>
Gardener	\$ 13.95	\$ 1.42
Groundsperson	\$ 13.41	\$ 2.61
Tree Remover \ Pruner	\$ 23.34	\$ 4.73
Landscape Sprayer (Pesticide Applicator)	\$ 18.36	\$.57

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit.

CLASSIFICATION: MEDICAL WASTE REMOVAL

<u>Title</u>	<u>Wage Rate per Hour</u>
Driver (Chauffeur)	\$18.86
Helper	\$12.90
Tractor Trailer Driver	\$22.19
Roll off Driver	\$22.19
Line Haul Driver	\$18.59
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$5.90

Continued on following page

Office of the Comptroller, City of New York

OVERTIME: (2, the sixth day of work in a workweek is paid at time and one half the regular hourly rate, the seventh day of work in a workweek is paid at double time the regular hourly rate, 12 plus days pay). See Overtime Legend.

PAID HOLIDAYS: (2, 6, 8, 9, 10, 16, 20, plus four personal days).
See Holiday Legend.

VACATION:

One year of service but less than five years	- 10 days
Five years of service but less than 10 years	- 15 days
Ten years of service	- 16 days
Eleven years	- 17 days
Twelve years	- 18 days
Thirteen years	- 19 days
Fourteen years	- 20 days
Twenty years	- 21 days
Twenty one years	- 22 days
Twenty two years	- 23 days
Twenty three years	- 24 days
Twenty four years	- 25 days

(Local #813)

(Contract expires November 30, 2004)

CLASSIFICATION: MOVER

MOVING: All services involved in the packing and moving of office furniture and equipment.

<u>TITLE</u>	<u>WAGE RATE PER HOUR</u>	<u>SUPPLEMENTAL BENEFIT RATE PER HOUR</u>
Furniture Mover, Driver	\$20.85	\$10.81
Casual Rate (A)*	\$13.00	none
Casual Rate (B)*	\$13.00	\$3.96
Casual Rate (C)*	\$13.00	\$8.36

Continued on following page

Office of the Comptroller, City of New York

Furniture Mover, Assistant	\$19.68	\$10.81
Casual Rate (A)*	\$12.00	none
Casual Rate (B)*	\$12.00	\$3.96
Casual Rate (C)*	\$12.00	\$8.36

***Casual (A) workers shall include only those workers who have been paid less than 800 hours during the calendar year. Casual (A) workers do not receive paid vacations or paid holidays.**

***Casual (B) workers shall include only those workers who have been paid more than 800 hours in the prior calendar year. Casual (B) workers do not receive paid vacations or paid holidays.**

***Casual (C) workers shall include only those workers who have been paid more than 800 hours in each of the two prior calendar years. Casual (C) workers do not receive paid vacations or paid holidays.**

OVERTIME: (2, 5, 8, 12) See Overtime Legend.

PAID HOLIDAYS: (for workers with more than 5 years or longer: 2, 8, 9, 10, 16, 20; Workers who have worked three days during the calendar week in which the Holiday occurs: 3, 5, 7, 15, 17; For workers with less than five years who have worked three days during the calendar week in which the holiday occurs: 3, 5, 7, 15, 17). See Holiday Legend.

<u>Days Worked</u>	<u>Vacation Days Earned Per Day Worked</u>
30 to 124 days	.0333
125 to 144 days	.0400
145 to 154 days	.0483
155 to 174 days	.0516
175 days	.0571

(Maximum 10 days)

(Contract Expires April 30, 2005)

(Local #814)

CLASSIFICATION ~~Office of the Refrigeration and Air-Conditioner~~
**REFRIGERATION AND AIR-CONDITIONER
 MAINTENANCE AND INSTALLATION
 SERVICE PERSON**

	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Journey person	\$27.45	\$7.46
Fourth Year of Employment	\$22.54	\$6.93
Third Year of Employment	\$18.69	\$6.46
Second Year of Employment	\$16.05	\$6.12
First Year (2nd six months of Employment)	\$13.34	\$5.83
First Year (1st six months of Employment)	\$8.28	\$5.49

1. No First or Second year serviceperson employed on service or repair work shall be allowed to do any work in the field unless the worker is accompanied and supervised by one or more service mechanics except in the event of emergency arising when the Employer must use his own discretion as to sending First or Second year men out to answer calls.
2. For every three (3) servicemen or maintenance mechanics steadily employed, the Employer may employ one (1) First year or Second year person, and if acceptable to the Employer, shall be continuously employed for one (1) year.
3. First and Second year persons shall be allowed to perform the following work:
 - 1) Filter changing and maintenance thereof.
 - 2) Oil and greasing.
 - 3) Tower and coil cleaning, scraping and painting.
 - 4) General housekeeping.
 - 5) Delivery and truck driving of parts and/or equipment trucks.
 - 6) Taking of water samples.

PAID HOLIDAYS: (2, 3#, 4, 5#, 8#, 9, 10, 11#, 15, 16, 20) See Holiday Legend.
 # Double time and one half the regular hourly rate for work performed on these holidays.

OVERTIME: (2, 5, 8, 13,) See Overtime Legend.

(Local #638B) (Contract expired June 30, 2004)

Office of the Comptroller, City of New York

CLASSIFICATION: REFUSE REMOVER

A. Rubbish and Garbage Route Trucks

1. On open-trucks, rack body, or trucks which have no self contained mechanical loading device, up to 22-yard capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$22.67
Effective December 1, 2004	\$23.41

Helper	\$22.45
Effective December 1, 2004	\$23.19

2. On 10-wheel, open trucks, container loaders, dinomaster, over-cab loaders, rack body trucks, or any trucks 22 yards to and including 25 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$22.82
Effective December 1, 2004	\$23.56

Helper	\$22.45
Effective December 1, 2004	\$23.20

3. On rubbish and garbage trucks (except as provided in section "B" Below) 24 yards to and including 31 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$23.19
Effective December 1, 2004	\$23.93

Helper	\$22.88
Effective December 1, 2004	\$23.63

B. Roll-Off Trucks

1. Single axle working non-compactor containers up to 15 yards capacity on rubbish and garbage removal only:

Continued on following page

Office of the Comptroller, City of New York

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$23.37
Effective December 1, 2004	\$24.12

2. Roll-Off Trucks other than those described in (1) above up to and including 42 yards capacity:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$24.36
Effective December 1, 2004	\$25.10

3. On any Roll-Off Truck with more than 42 yards capacity or any Tractor Trailer Trucks:

<u>Title</u>	<u>Wage Rate per Hour</u>
Chauffeur	\$25.58
Effective December 1, 2004	\$26.33

SUPPLEMENTAL BENEFIT RATE PER HOUR

FOR ALL REFUSE REMOVER TITLES:	\$ 6.09
Effective December 1, 2004	\$ 6.34
Effective June 1, 2005	\$ 6.59

PAID HOLIDAYS: (2, 3#, 6#, 8, 9, 10, 11#, 16, 20, the employee's birthday, four personal days). See Holiday Legend.

VACATION:

Annual vacations with pay in advance on the pay day before the vacation shall be given by the Employer to each employee as follows (not less than 40 hours for each week) at the Employee's regular rate of pay:

- Those employed 1 year but less than 2 years - 1 week.
- Those employed 2 years but less than 5 years - 2 weeks in each year.
- Those employed 5 years but less than 15 years - 3 weeks in each year.
- Those employed 15 years but less than 25 years - 4 weeks in each year.
- Those employed 25 years or more - 5 weeks in each year.

Continued on following page

Office of the Comptroller, City of New York

SICK LEAVE:

- (a) Employees shall be entitled to 7 paid leave days for each contract year. Unused sick leave shall be paid to employees as an attendance incentive bonus at the end of each contract year.

- (b) During the first year of employment, employees shall be paid two (2) days sick leave after completing six months of employment. Following such six months of employment, such employee shall then receive pro-rata sick leave pay on the basis of one (1) day sick leave pay for each two (2) months or major portion of two (2) months worked until the following December 1st. Once an employee has completed 6 months or more of employment by December 1st, he shall be treated like other employees as set forth in (a) above.

- (c) Once an employee has used up his sick leave, the employee must, upon request of the employer, put in writing the nature of the illness for which the employee was absent.

OVERTIME: (2, 5, triple time for Sunday, 13 for (#) designated holidays, all other holidays triple time). See Overtime Legend.

(Local #813)

CLASSIFICATION: SECURITY

<u>Title</u>	<u>Wage Rate Per Hour</u>	<u>Supplemental Benefit Rate Per Hour</u>
Security Guard (Unarmed)	\$ 9.10	\$ 1.50
Security Guard (Armed)	\$ 16.90	-----

OVERTIME: Any work in excess of eight hours within any twenty four hour period and work in excess of forty hours in a week is overtime, and must be compensated at time and one half the hourly wage and at straight time for the supplemental benefit rate.

Office of the Comptroller, City of New York

CLASSIFICATION: **WINDOW CLEANER**

<u>TITLE</u>	<u>WAGE RATE PER HOUR</u>
Window Cleaner	\$21.84
Power Operated Scaffolds, Manual Scaffolds, and Boatswain Chairs	\$23.47
SUPPLEMENTAL BENEFIT RATE PER HOUR:	\$6.02
Effective December 31, 2004	\$6.25

**PAID HOLIDAYS: (2, 3, 5, 7, 8, 9, 10, 11, 16, 17, 20, plus one personal day).
See Holiday legend.**

VACATION:

After seven months but less than one year of service - one week.
One year but less than five years of service- two weeks.
Five years of service but less than 15 years of service- three weeks.
15 years of service but less than 25 years of service- four weeks.
21 years - 21 days.
22 years - 22 days.
23 years - 23 days.
24 years - 24 days.
25 years or more of service - five weeks.
Plus one day per year for medical visit.

SICK LEAVE:

Ten days after one year worked. Unused sick days to be paid in cash. An employee who is entitled to and receive a payment of 10 days of unused sick days shall also receive a hundred-dollar bonus.

OVERTIME: (2, 5, 8, 12 plus the days pay). See Overtime legend.

(Local No. 32BJ)

(Contract expires February 28, 2005)

U.S. DEPARTMENT OF LABOR DAVIS-BACON WAGE DETERMINATIONS

ASBESTOS REMOVAL IN CONNECTION WITH THE
SOUNDPROOFING OF MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL,
EAST ELMHURST, NY
January 10, 2005

John Ciardullo Associates
221 West 57th Street
New York, NY 10019

Lakhanin & Jordan Engineers, P.C.
50 East 42nd Street, Suite 1001
New York, NY 10017

ATC Associates, INC.
104 East 25th Street
New York, NY 10010

Peter George Associates, Inc.
P.O. Box 688
Millbrook, NY 12545
Acoustic Engineer

GENERAL DECISION: **NY20030003** 12/24/2004 NY3

Date: December 24, 2004

General Decision Number: **NY20030003** 12/24/2004

Superseded General Decision Number: NY020003

State: New York

Construction Types: Building, Heavy, Highway and Residential

Counties: Bronx, Kings, New York, Queens and Richmond
Counties in New York.

BUILDING & RESIDENTIAL CONSTRUCTION PROJECTS (includes single family homes and apartments up to and including 4 stories),
HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	06/13/2003
1	05/14/2004
2	05/28/2004
3	07/16/2004
4	07/23/2004
5	07/30/2004
6	09/24/2004
7	10/01/2004
8	10/15/2004
9	12/03/2004
10	12/24/2004

ASBE0012-001 06/28/2004

	Rates	Fringes
Asbestos Workers/Insulator includes application of all insulating materials, protective coverings, coatings and finishing to all types of mechanical systems.....	\$ 40.36	22.86
Hazardous Material Handler.....	\$ 24.00	6.20

BOIL0005-001 09/01/2004

	Rates	Fringes
Boilermaker.....	\$ 41.90	25.55+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial Day, Independence Day, Labor Day and Good Friday, Friday after Thanksgiving, Christmas Eve Day and New Year's Eve

* BRNY0001-001 07/01/2004

	Rates	Fringes
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Bricklayer.....	\$ 39.32	18.46
Stonemason.....	\$ 37.36	18.03

* BRNY0001-002 07/01/2004		
	Rates	Fringes
Pointer, cleaner and caulker....	\$ 33.50	17.10

* BRNY0003-001 07/01/2004		
	Rates	Fringes
Terrazzo Finisher.....	\$ 38.17	18.55
Terrazzo Worker.....	\$ 39.48	18.55

* BRNY0004-001 07/01/2004		
	Rates	Fringes
Marble Setter.....	\$ 44.20	16.40

* BRNY0020-001 07/01/2004		
	Rates	Fringes
Marble Finisher.....	\$ 37.53	17.02

* BRNY0024-001 07/01/2004		
	Rates	Fringes
N/A		
MARBLE POLISHERS.....	\$ 34.83	13.48

* BRNY0052-001 07/01/2004		
	Rates	Fringes
Tile Layer.....	\$ 39.85	18.43

* BRNY0088-001 07/01/2004		
	Rates	Fringes
Tile Finisher.....	\$ 33.29	15.00

CARP0001-009 07/01/2003		
	Rates	Fringes
Carpenters:		
Carpenters & Soft floor		
layers.....	\$ 38.78	26.05

CARP0740-001 07/01/2003		
	Rates	Fringes

Lineman and Cable Splicer...	\$ 35.20	12.60
Material Man.....	\$ 30.62	12.60
Tree Trimmer.....	\$ 22.28	7.76

ELEV0001-002 03/17/2004

	Rates	Fringes
Elevator Mechanic		
Elevator Constructor.....	\$ 41.10	19.697+a
Modernization and Repair....	\$ 32.95	18.563+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

PAID VACATION: Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 5 years of service, and 6% for employees with less than 5 years of service.

ENGI0014-001 07/01/2004

	Rates	Fringes
Pavement equipment operator		
Asphalt Plants.....	\$ 35.79	20.75+a
Asphalt roller.....	\$ 42.49	20.75+a
Asphalt spreader.....	\$ 43.67	20.75+a
Power Equipment Operator (HEAVY & HIGHWAY)		
GROUP 1.....	\$ 56.75	20.75+a
GROUP 2.....	\$ 46.63	20.75+a
GROUP 3.....	\$ 48.12	20.75+a
GROUP 4.....	\$ 46.98	20.75+a
GROUP 5.....	\$ 46.03	20.75+a
GROUP 6.....	\$ 44.14	20.75+a
GROUP 7.....	\$ 44.99	20.75+a
GROUP 8.....	\$ 43.67	20.75+a
GROUP 9.....	\$ 42.70	20.75+a
GROUP10.....	\$ 40.82	20.75+a
GROUP11.....	\$ 38.05	20.75+a
GROUP12.....	\$ 38.89	20.75+a
GROUP13.....	\$ 39.22	20.75+a
GROUP14.....	\$ 29.33	20.75+a
GROUP15.....	\$ 27.16	20.75+a
Steel erector		
Compressors, Welding Machines.....	\$ 30.41	20.75+a
Cranes, Hydraulic Cranes, 2 drum derricks, Forklifts, Boom Trucks.....	\$ 49.58	20.75+a
Three drum derricks.....	\$ 51.64	20.75+a
Utility Laborer		
Horizontal boring rig.....	\$ 41.47	20.75+a
Off shift compressors.....	\$ 34.29	20.75+a
Utility Compressors.....	\$ 26.99	20.75+a

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Tower crane

GROUP 2: Backhoes, power shovel, Hydraulic clam shells, moles and machines of a similar type

GROUP 3: Mine hoists and crane, etc. used as mine hoists

GROUP 4: Gradalls, keystones, cranes (with digging buckets), bridge cranes, trenching machines, vermeer cutter and machines of a similar nature

GROUP 5: Piledrivers, derrick boats, tunnel shovels

GROUP 6: Raise bore drill, and machines of a similar nature

GROUP 7: Back filling machines, cranes, mucking machines, dual drum pavers

GROUP 8: Mixers (concrete w/loading attachments), concrete pavers, cableways, land derricks, power house (low pressure units), concrete pumps

GROUP 9: Concrete plants, well drilling machines, stone crushers double drum hoist, power house (other than above)

GROUP 10: Concrete mixers

GROUP 11: Elevators

GROUP 12: Concrete breaking machine, Hoists (single drum), load masters, locomotive and dinkies over 10 tons

GROUP 13: Vibratory console

GROUP 14: Compressors (portable 3 or more in battery), tugger machine (caissons), well point pumps, chum drill

GROUP 15: Boilers, (high pressure, compressors (portable, single, or 2 in battery, not over 100' apart), pumps (river cofferdam and welding machines (except where arc is operated by members of local 15) push button machines, all engines irrespective of power (power pac) used to drive auxilliary equipment, air, hydraulic etc.

PREMIUMS ON CRANES (Crawler or Truck):

100' to 149' boom - add .50
 150' to 249' boom - add .75
 250' to 349' boom - add 1.00
 350' to 450' boom - add 1.50

Premiums for Cranes on Steel Erection:

100' to 149' boom - add 1.75
 150' to 249' boom - add 2.00
 250' to 349' boom - add 2.25
 350' to 450' boom - add 2.75
 Tower crane - add 2.00

FOOTNOTE:

a. Paid Holidays: New Year's Day; Lincoln's Birthday; Washington's Birthday; Memorial Day; Independence Day; Labor Day; Veterans Day; Columbus Day; Election Day; Thanksgiving Day; and Christmas Day; provided the employee works one day the payroll week in which the holiday occurs.

ENGI0014-002 07/01/2004

	Rates	Fringes
Power Equipment Operator		
BUILDING & RESIDENTIAL		
GROUP 1.....	\$ 46.56	20.75+a
GROUP 2.....	\$ 49.36	20.75+a
GROUP 3.....	\$ 45.01	20.75+a
GROUP 4.....	\$ 41.41	20.75+a
GROUP 5.....	\$ 31.43	20.75+a

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Double drum

GROUP 2: Stone derrick, cranes, hydraulic cranes, boom trucks

GROUP 3: 4 pole Hoist, Single Drum Hoists

GROUP 4: Fork lift, house cars, plaster (platform machine), plaster bucket, concrete pump and all other equipment used for hoisting material

GROUP 5: Compressors, welding machines (cutting concrete work), paint spraying, sand blasting, pumps (with the exclusion of concrete pumps), house car (settlement basis only), all engines irrespective of power (power pac) used to drive auxiliary equipment, air, hydraulic, etc., boilers

Premiums for Cranes:

- 100'-149' boom - add 1.75
- 150'-249' boom - add 2.00
- 250'-349' boom - add 2.25
- 350'-450' boom - add 2.75
- Tower cranes add 2.00

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Columbus Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the payroll week in which the holiday occurs

IRON0040-002 07/01/2003

BRONX, NEW YORK, RICHMOND

	Rates	Fringes
Ironworker, Structural.....	\$ 36.20	36.93

IRON0046-003 07/01/2002

	Rates	Fringes
Ironworker METALLIC LATHERS.....	\$ 31.05	23.03

IRON0197-001 07/01/2003

	Rates	Fringes
Ironworker STONE DERRICKMAN.....	\$ 35.76	29.07

IRON0361-002 07/01/2003

KINGS, QUEENS

	Rates	Fringes
Ironworkers: (STRUCTURAL).....	\$ 36.20	36.93

IRON0580-001 07/01/2003

	Rates	Fringes
Ironworker, Ornamental.....	\$ 35.65	28.50

LABO0006-001 07/01/2003

	Rates	Fringes
Laborers: BUILDING CONSTRUCTION CEMENT AND CONCRETE WORKERS\$	\$ 31.50	15.27

LABO0029-001 07/01/2001

	Rates	Fringes
Laborers: Heavy Blasters (hydraulic trac drill).....	\$ 32.08	16.70
Blasters.....	\$ 31.53	16.70
Hydraulic Trac Drill.....	\$ 28.38	16.70
Jackhammers, Chippers, Spaders, Concrete Breakers, All Other Pneumatic Tools, Walk Behind Self-Propelled Hydraulic Asphalt and Concrete Breaker.....	\$ 27.14	16.70
Powder Carriers.....	\$ 24.50	16.70
Wagon; Airtrac; Quarry Bar Drill Runners.....	\$ 27.83	16.70

LABO0078-001 12/01/2003

	Rates	Fringes
Asbestos Worker		
ASBESTOS (Removal, Abatement, Encapsulation or Decontamination of asbestos); LEAD; & HAZARDOUS WASTE LABORERS (Hazardous Waste, Hazardous Materials, Biochemical and Mold Remediation, HVAC, Duct Cleaning, Re-spray Fireproofing, etc.....	\$ 25.50	6.81

LABO0079-001 01/01/2004		

	Rates	Fringes
Laborers Building Construction		
Mason Tenders.....	\$ 27.80	15.09
Demolition Laborers		
Tier A.....	\$ 27.80	14.09
Tier B.....	\$ 17.50	8.05

CLASSIFICATIONS

TIER A: Responsible for the removal of all interior partitions and structural partitions that can consist of sheet rock, block or masonry. Also, all structural slab openings for ducts, mechanical, shafts, elevators, slab openings and exterior walls where the building is not being completely demolished.

TIER B: Responsible for shoveling of debris into containers, pushing containers from the inside to the outside of the building.

	Rates	Fringes

LABO0147-001 07/01/2003		
Laborers:		
LABORERS.....	\$ 28.86	30.51
FREE AIR TUNNEL WORKERS Tunnel Workers (including Maintenance Men, Inside Muck Lock Tenders, Pump Men, Electricians, Cement Finishers, Caulkers, Hydraulic Men, Shield Men, Monorail Operators, Motor Men, Conveyor Men, Powder Carriers, Pan Men, Riggers, Chuck Tenders, Track Men Painters, Nippers, Brakemen, Cable Men, Hose Men, Grout Men, Gravel Men, Form Workers, Concrete Workers, Tunnel Laborers, Mole Nipper (one (1) Mole Sipper per Working Shaft per Shift for up to and including Two (2) Moles)		

	Rates	Fringes

LABO0731-001 07/01/2001		
Laborers:		

Building, Heavy and Residential

UNSKILLED.....	\$ 28.74	14.64
UTILITY LABORER.....	\$ 28.59	14.64

Paid Holidays: Labor Day and Thanksgiving Day

LABO1010-001 07/01/2001

	Rates	Fringes
Laborers:		
HIGHWAY CONSTRUCTION		
Fence Installer & Repairer.....	\$ 28.84	15.55+a
FORMSETTERS.....	\$ 32.04	15.55+a
LABORERS.....	\$ 28.94	15.55+a
Landscape Planting & Maintenance.....	\$ 28.84	15.55+a
Maintenance Safety Surface.....	\$ 28.44	15.55+a
Slurry/Sealcoater/Play Equipment Installer.....	\$ 28.69	15.55+a
Small Equipment Operator (Not Operating Engineer).....	\$ 28.94	15.55+a
Small Power Tools Operator.....	\$ 28.44	15.55+a

FOOTNOTES:

a. PAID HOLIDAYS: Memorial Day, Fourth of July, Labor Day, Columbus Day, Election Day and Thanksgiving Day, provided the employee has worked one (1) day in the calendar week in which the said holiday occurs.

LABO1018-001 07/01/2001

	Rates	Fringes
Laborers:		
Asphalt Rakers.....	\$ 32.36	15.55+a
Asphalt Tampers.....	\$ 29.92	15.55+a
Landscape Planting & Maintenance Fence Installer/Maintenance.....	\$ 29.81	15.55+a
Line Striping Installers.....	\$ 29.56	15.55+a
Play Equipment/Safety Surface Installer.....	\$ 29.31	15.55+a
Screedman/Micropaver.....	\$ 32.73	15.55+a
Shoveler, General Laborers/ All other incidental work.....	\$ 29.81	15.55+a
Slurry/Sealcoater.....	\$ 29.31	15.55+a
Small Equipment Operator.....	\$ 29.56	15.55+a

FOOTNOTE:

a. Paid Holidays: Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans Day, and Thanksgiving Day

PAIN0009-001 05/01/2002

Rates	Fringes
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Glazier.....	\$ 32.20	20.17
All repair and maintenance work on particular building, whenever performed, where the total cumulative contract is under \$100,000.00.		
GLAZIERS.....	\$ 19.05	11.44
Painters:		
Painters, Drywall Finishers, Lead Abatement Worker (Bridge Work).....	\$ 30.25	15.42
Spray, Scaffold and Sandblasting.....	\$ 33.25	15.42

PAIN0806-001 10/01/2004

	Rates	Fringes
Painters:		
Structural steel & Bridge...	\$ 42.00	25.37

PAIN1974-001 07/03/2002

	Rates	Fringes
Painters:		
Drywall Tapers/Pointers.....	\$ 33.82	

PLAS0260-001 07/01/1999

BRONX, NEW YORK AND RICHMOND COUNTIES:

	Rates	Fringes
Plasterer.....	\$ 27.91	15.55

PLAS0260-002 07/01/1999

KINGS AND QUEENS COUNTIES

	Rates	Fringes
Plasterer.....	\$ 27.91	15.16

PLAS0530-001 02/04/2004

	Rates	Fringes
Plasterer		
DRYWALL PLASTERERS.....	\$ 31.00	15.55

PLAS0780-001 07/01/2004

	Rates	Fringes
Cement Mason.....	\$ 40.00	21.10

PLUM0001-001 07/01/2004

	Rates	Fringes
Plumber		
JOBING AND ALTERATIONS		
Any repair and/or replacement of the present plumbing system that does not change the existing roughing.....	\$ 20.97	7.43
PLUMBERS:.....	\$ 41.91	27.30

PLUM0638-001 06/30/2004

	Rates	Fringes
Plumber		
SERVICE FITTERS.....	\$ 26.30	2.55
SPRINKLER FITTERS, STEAMFITTERS.....	\$ 40.82	29.82

Service Fitter work shall consist of all repair, service and maintenance work on domestic, commercial and industrial refrigeration, air conditioning and air cooling, stoker and oil burner apparatus and heating apparatus etc., including but not exclusively the charging, evacuation, leak testing and assembling for all machines for domestic, commercial and industrial refrigeration, air conditioning and heating apparatus. Also, work shall include adjusting, including capacity adjustments, checking and repairing or replacement of all controls and start up of all machines and repairing all defects that may develop on any system for domestic, commercial and industrial refrigeration and all air conditioning, air cooling, stoker and oil burner apparatus and heating apparatus regardless of size or type.

* ROOF0008-003 07/01/2004

	Rates	Fringes
Roofer.....	\$ 32.08	21.28

SHEE0028-002 07/29/2004

	Rates	Fringes
Sheet metal worker.....	\$ 39.99	28.28

TEAM0282-001 07/01/2004

	Rates	Fringes
Truck drivers:		
TRUCK DRIVERS:		
Asphalt.....	\$ 30.685	23.6025+a+b
Euclids & Turnapulls.....	\$ 31.25	23.6025+a+b
High Rise.....	\$ 32.31	23.6525+a+b

FOOTNOTES:

PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Election Day, Veterans' Day (Armistice Day), Thanksgiving Day and Christmas Day. Employees working two (2) days in the calendar week in which a holiday falls are to be paid for such holiday, provided that they share each remaining workday during such calendar week.

b. VACATION: For each 15 days worked within the contract year an employee will receive one day's vacation with pay with a maximum vacation of 3 weeks per year.

TEAM0813-001 12/01/1998

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 19.49	3.61+a
GROUP 2.....	\$ 19.76	3.61+a
GROUP 3.....	\$ 19.90	3.61+a
GROUP 4.....	\$ 20.23	3.61+a
GROUP 5.....	\$ 20.40	3.61+a
GROUP 6.....	\$ 21.29	3.61+a
GROUP 7.....	\$ 22.40	3.61+a
GROUP 8.....	\$ 19.90	3.61+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s Birthday, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day, Christmas Day, Employee's Birthday, Two (2) Personal Days, and any holiday or day of mourning proclaimed as such by the State or Federal Government.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Closed body trucks with self contained loading unit up to and including 22 yard capacity

GROUP 2: Open trucks, rack body or trucks with no self contained mechanical loading device, up to 22 yard capacity. One-container tractor hoist

GROUP 3: 10 wheel, open trucks, container loaders, dino-master, over-cab loaders, rack body trucks, or any trucks 22 yards to and including 25 yards capacity

GROUP 4: Rubbish and garbage trucks, 26 yards to and including 31 yards

GROUP 5: Single axle working non-compactor containers up to 15 yards capacity on rubbish and garbage removal

GROUP 6: Roll-off trucks up to and including 42 yard capacity

GROUP 7: Roll-off truck with more than 42 yard capacity or any tractor trailer trucks

GROUP 8: One-container tractor hoist on construction and alteration debris removal

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SECTION 00900
MILESTONE SCHEDULE

1.01 GENERAL

- A. These supplemental requirements only add to the General Requirements. In no case shall the supplemental requirements take precedence over the General Requirements unless specifically noted.

1.02 DEFINITIONS

- A. Percent Complete

Percent complete is used as a guide for providing equitable compensation to the Contractor for work completed and/or material purchased and stored (if approved) in accordance with Contract Documents.

The cost-load CPM should be the basis for the construction cost monitoring. By adding the values in a series, dividing the distribution of the activities in the series into one hundred groups of equal frequency, the percent complete for every activity can be estimated.

- B. Substantial Completion

The project can be used for the purpose it was intended for, and all remaining incomplete work is comprised of relatively minor items that the Contractor agrees to correct while the facility is occupied and/or all systems are operational. Training session shall be complete and all manuals turned over to the SMC Representative.

The date of substantial completion of a project is the date when all construction is sufficiently completed, in accordance with the Contract Documents, as modified by any change orders agreed to by the parties, so that the Owner can occupy all spaces in the project and operate the specified system for the use for which it was intended.

1.03 TIME FOR CLOSE-OUT ACTIVITIES

The following time durations shall be allowed for the close-out activities of this project:

<u>Activity</u>	<u>Consecutive Calendar Days Allowed</u>
Construction start to substantial completion	519
Substantial completion to punch list completion	42
Substantial completion to Administration completion (change order, etc)	56
Substantial completion to Final Acceptance by NYC Building Department	84
Substantial completion to final payment	119

1.04 PHASING SCHEDULE

The following phasing schedule represents the Order of Work, Section 01900, Existing Structures Work, and is not intended to be all-inclusive, but represents specific work that must be completed within a specific time frame.

January 10, 2005

Soundproofing of Monsignor McClancy Memorial High School

<u>PHASING SCHEDULE</u>	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
ACTIVITY	20	P	A	U	U	U	E	C	O	E	20	E	A	P	A	U	U	A	E	C	O	E	20
	05	R	Y	N	L	G	P	T	V	C	06	B	R	R	Y	N	L	G	P	T	V	C	07
All construction items with the exception of items listed below (NIC)																							
Contractor's staging area temporary chain link fence & gates (NIC)																							
Contractor's trailer & temporary electric power (NIC)																							
Temporary classroom trailers, associated site work & temporary electric power (NIC)																							
Asbestos removal basement pipe tunnel																							
Asbestos containing existing window sealant, vat & pipe insulation removal																							
Asbestos containing existing main roofing system removal																							
All main roof membrane waterproofing work (NIC)																							
Sample Room Work (NIC)																							
All auditorium work (NIC)																							
Substantial completion to punch list completion (NIC)																							
Substantial completion to administration completion (NIC)																							
Substantial completion to final acceptance by NYC Building Department (NIC)																							
Substantial completion to final payment (NIC)																							

END OF SECTION

**SPECIFICATIONS FOR
ABATEMENT OF
ASBESTOS CONTAINING MATERIALS
ASSOCIATED WITH THE
SOUNDPROOFING RENOVATION**

OF

**MONSIGNOR McCLANCY MEMORIAL HIGH SCHOOL
72-02 31ST AVENUE
QUEENS, NY**

Prepared By:



104 East 25th Street, 10th Floor
New York, New York 10010-2917

Date: June 2001
Revised: March 2004
NYS Asbestos Designer: 90-15278

ASBESTOS ABATEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The Contract Documents are as defined in the "Agreement". The General Conditions shall apply to all Work of this Section.
- B. Work specified herein shall be the removal and disposal of asbestos-containing materials (ACM) and asbestos containing roofing materials (ACRM) from designated areas at:

Monsignor McClancy Memorial High School

- C. The phasing and scheduling of work for this project shall be coordinated with and approved by the Owner, Construction Manager, Resident Engineer and Facility Manager. The Owner, Construction Manager, Resident Engineer and Facility Manager will make the final determination on all issues under this Contract covered by this Specification.

1.02 SCOPE OF WORK

- A. Contractor is to provide all labor, materials, equipment, services, testing, appurtenances, permits and agreements necessary to perform the work required for the abatement of ACM and ACRM as required by these contract documents. All work shall be performed in accordance with this Specification, EPA regulations, OSHA regulations, New York City Local Law 70, Title 15, Chapter 1 RCNY, New York State Industrial Code 56, NIOSH recommendations, and any other applicable federal, state or local government regulations. Whenever there is a conflict or overlap of the above references the most stringent provisions are applicable.
- B. Contractor is responsible for the confirmation of the actual total quantities of the Work to be performed prior to Bidding. The Contractor shall perform the following work as described below:
 - 1. Basement – Pipe tunnel:
 - a) Removal of approximately 7,000 linear feet of pipe insulation from pipe tunnel as per abatement, mechanical and architectural drawings.
 - 2. 1st Floor – Mall Classroom Entrance:
 - a) Limited removal of approximately 180 square feet of transite panel soffit.
 - 3. 1st Floor – Gymnasium/Weight Room
 - a) Removal of approximately 20 cementitious pipefittings as per abatement, mechanical drawings.
 - b) Removal of approximately 180 square feet of flooring paper under wood floor in weight room to structural slab from the area of floor removal as per abatement, mechanical and architectural drawings.
 - 4. 1st Floor – Classrooms 100, 101, 102, 103, 104, 105 and Cafeteria

- a) Removal of approximately 202 square feet of flooring materials to structural slab from the area of new ventilators and pipe chases as per abatement, mechanical and architectural drawings.
 - b) Removal of approximately 200 linear feet of pipe insulation concealed in wall chases from multiple locations as per abatement, mechanical and architectural drawings.
 - c) Bid alternate 1 - Removal of approximately 80 square feet of flooring materials to structural slab from the area of new ventilators and pipe chases as per abatement, abatement, mechanical and architectural drawings.
5. 2nd Floor – Classrooms 200, 201, 202, 203, 204, 205, 213,214,217, 217A, 218, 222, 223, 224, 225 and 226
- a) Removal of approximately 500 square feet of flooring materials to structural slab from the area of new ventilators and pipe chases as per abatement, mechanical and architectural drawings.
 - b) Removal of approximately 450 linear feet of pipe insulation concealed in wall chases from multiple locations as per abatement, mechanical and architectural drawings.
6. Classrooms 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 314, 317 and 319
- a) Removal of approximately 504 square feet of flooring materials to structural slab from the area of new ventilators and pipe chases as per abatement, mechanical and architectural drawings.
7. Roof
- a) Main Building - Removal of approximately 128 square feet of roof flashing for additional exhaust fans as per abatement, mechanical and architectural drawings.
 - b) Main Building - Removal of approximately 128 square feet of roof flashing for additional exhaust fans as per abatement, mechanical and architectural drawings.
 - c) Stage - Removal of approximately 250 square feet of roof flashing for additional exhaust fans as per abatement, mechanical and architectural drawings.

The roofing materials may include tar membrane, tar over flashing, flashing, felt paper, mastic, and insulation, shall be removed down to the deck or substrate wherever its disturbance will be affected by the scope of work as described herein. Remove all asbestos-containing roofing and/or roof flashing in the Work Area(s) utilizing "Attachment FR – Procedures for Use of Foam or Similar Viscous Liquid in Removal of Asbestos-Containing Roofing Material (ACRM) in New York City". A variance for utilizing these procedures within the Work Area(s) shall be applied for by the Contractor and approved by NYCDEP prior to the start of abatement activities.

The Contractor shall employ methods as outlined in the latest version of New York City DEP Attachment FR, FT or New York State Applicable Variance 119. The choice of method will not affect the cost (the Bid price) to the Owner for the work.

When applicable, the Contractor may utilize NYS DOL procedures upon prior approval from the Owner. There shall be no additional cost to the Owner if the Contractor elects to utilize NYS DOL procedures.

For roof decks constructed of wood or composition materials, the Contractor must file an ACP-5, with approval from the Owner, along with all appropriate DEP, NYS and DOL filings. For all other deck materials, the Contractor has the option of filing an ACP-5 or ACP-7.

If the Contractor has filed an ACP-5, protection of the windows on the floor beneath the roof is required.

- C. The intent of this Specification section is to ensure that Contractor is responsible for the following:
1. Abatement of all ACM and ACRM,
 2. Cleaning and decontamination of the entire affected area,
 3. Demolition that may be required to access ACM and ACRM in each area, Contractor shall dispose of all debris associated with demolition activities as ACM waste.
 4. Removal and disposal of any other ACM – thermal system insulation (TSI), asbestos coating that will be directly affected by the scope of work.
 5. Provide all scaffolding, platform installation, equipment, tools, transportation and any other equipment required and/or necessary to complete all work described in the Contract Documents.
 6. The Contractor shall be responsible for and shall include in its Bid any and all fees or changes imposed by Local, State or Federal Law, Rule or Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

The asbestos abatement Contractor shall provide a temporary roof consisting of a 10 mil polyethylene sheathing post abatement over the open roof areas. Strict coordination with the General Contractor, Construction Manager and/or Architect is required and necessary during this phase of the abatement.

Any ACRM removal from any part of temporary or permanent roofing area shall be the sole responsibility of the abatement Contractor as described above in this specification.

These Facilities are under the jurisdiction of the Owner AND provides services from 7:00 a.m. to 5:00 p.m. The phases and hours intended for the scheduling of the work for this asbestos abatement project has to be coordinated with the Owner, Construction Manager, and the Facility Manager (School Custodian). Unless indicated elsewhere in these Specifications, all work shall be accomplished during regular working hours. It is the Contractor's responsibility to plan and schedule the work of this Contract with the approval and consent of the Construction Manager and Facility Manager.

The Contractor shall establish his working schedule in a way that avoids interference or conflict

with the normal functioning of the facility. Working in the evenings and weekends shall be allowed and authorized by the Commissioner and shall be done at no additional cost to the Construction Manager.

Work Hours:

Removal of asbestos containing materials shall be performed after school hours on school days or on Saturdays, Sundays or school holidays, Winter and Spring recess, and Summer vacation. **REMOVAL OF ASBESTOS CONTAINING MATERIALS DURING SCHOOL HOURS IS PROHIBITED.**

Security-Contractor Employee Identification

The Contractor shall provide a photo identification badge for all his employees and in addition require that any and all sub-contractors provide the same for their employees.

- D. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE RULES AND REGULATIONS OF THE ASBESTOS CONTROL PROGRAM AS PROMULGATED BY TITLE 15, CHAPTER 1 OF RCNY, FEDERAL LAW (INCLUDING OSHA) AND NY STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 56 CITED AS 12 NYCRR PART 56, WHICHEVER IS MORE STRINGENT AS PER LATEST AMENDMENTS TO THESE LAWS AND AS MODIFIED HEREIN BY THESE SPECIFICATIONS.
- E. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT CERTAIN METHODS OF ASBESTOS ABATEMENT, INDICATED IN THE SPECIFICATIONS, ARE COVERED BY PATENTS. TO DATE, PATENTS HAVE BEEN ISSUED WITH RESPECT TO "NEGATIVE PRESSURE ENCLOSURE" OR "NEGATIVE-AIR" OR "REDUCED PRESSURE" AND "GLOVE BAG".
- F. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND SHALL HOLD THE OWNER HARMLESS FROM, ANY AND ALL DAMAGES, LOSSES AND EXPENSES RESULTING FROM ANY INFRINGEMENT BY THE CONTRACTOR OF ANY PATENT, INCLUDING BUT NOT LIMITED TO THE PATENTS DESCRIBED ABOVE, USED BY THE CONTRACTOR DURING PERFORMANCE OF THIS AGREEMENT.
- G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.
- H. Prior to starting, the Contractor must notify the Owner if he/she anticipates any difficulty in performing the work as directed and required by these Specifications. The Contractor will be required to attend an on-site job meeting with the Owner, Construction Manager, and Facility Manager prior to start of work to examine the conditions of the site for removal and plan the

sequence for removal operations.

In addition, the Contractor is also responsible for preparing, amending and submitting any Asbestos Variances Applications (ACP-9) that may be required for the completion of the Contract or incidental work..

- I. For coordination with other Contractors, see the General Conditions governing all Contracts.

Certain equipment in the Work Area may need to remain operational during removal. Therefore, *the removal of ACM from this equipment shall be performed as the last removal activities within the Work Area.* The Contractor shall coordinate the scheduling for the removal of ACM on functioning equipment with the Construction Manager.

- J. Noise Control:

1. The Contractor is advised that all work shall be performed in compliance with all applicable provisions of Local Law 57, New York City, Noise Control Code effective September 1, 1972.

2. The Contractor's attention is directed to the following specific provisions of the Code which applicable to construction and related work around school buildings:

Section 1403.3-3.01

No person shall make, continue or cause or permit to be made or continued any unnecessary noise.

Section 1403.3-401

Any act in violation of the provisions of this article of the code is deemed to be in violation of Article 111 of the code, without any way limiting the generality of the provisions of Article 111 of the code.

Section 1403.3-411 Construction Activities

Except as otherwise provided by this section, no person shall engage in or permit any person to be engaged in construction activities in any zone other than weekdays between the hours of 7:00 am and 6:00 pm.

Section 1403.3.4.13 Construction Devices

Except as provided in Article V of this code, no person shall operate or use or cause to be operated or use a construction device in such a way as to create a unnecessary noise.

Section 14.3 B-4.19 School, Hospitals, Courts

No person shall cause or permit the creation of any unnecessary noise through the use of any device on any street adjacent to any school or court while the same is in session or adjacent to any hospital.

Section 14.03.3-5.21 Paving Breakers

To be operated only within the allowable sound levels indicated in the code.

The Contractor is required to comply with all registration requirements issued under Section 1403.2.09 for air compressors and/or paving breakers used in the performance of the work.

It shall be the responsibility of each Contractor to obtain a copy of the Noise Control Code and familiarize himself with the applicable provisions and comply therewith the provisions in the performance of the work.

K. The following conditions shall apply to all temporary shutdowns of existing services.

All temporary lighting and temporary electrical services for use in the Work Area shall be in weather proof enclosures and be ground fault protected and:

1. Shall be performed at no additional charge to the Owner.
2. Shall be performed at times not interfering with the other activities in the building.
3. Shall be performed only with written consent from the Facility Manager.
4. Shall be made through written request to the Owner at least 10 days in advance with complete written description of the work to be performed.

L. Stages of Asbestos Removal Work:

The Abatement Contractor will be required to perform the work and it is the intent of this Specification to remove all asbestos containing and asbestos contaminated materials from the Work Area(s). The Contractor is responsible for verifying all quantities of materials listed here and Bid accordingly.

M. Related Asbestos Removal Work Under Other Contracts:

1. Each Contract (General, HVAC, Plumbing, Electrical) shall be responsible for the removal of incidental asbestos not identified in this section and found prior to or during the installation of their work.
2. Incidental asbestos is defined as ACM that is discovered during the course of their work that must be abated to enable them to perform the work of their Contract.

1.03 GUARANTEE

- A. Work performed in compliance with this Contract shall be guaranteed for a period of one year from the date the completed work is accepted by the Owner.
- B. The Contractor shall not be held liable for the guarantee where the repair required under the guarantee is a result of obvious abuse or vandalism, as determined by the Owner.
- C. Owner will notify the Contractor in writing regarding defects in work under the guarantee.

1.04 SPECIAL EXPERIENCE REQUIREMENTS FOR ASBESTOS ABATEMENT

A. PRIOR PROJECT EXPERIENCE:

- 1. The Contractor or Sub Contractor performing the work of this section must have been in the business of performing asbestos abatement work, in schools for the past three years. During that three (3) year period, the Contractor must have successfully completed in a timely fashion at least ten projects similar in scope, size and complexity to the required work (i.e., asbestos abatement projects using the techniques specified in this Contract):

The monetary value of the ten contracts shall be as follows:

- a) Two contracts valued at \$30,000 or more
- b) Three contracts valued at \$20,000 or more
- c) Five contracts valued at \$10,000 or more

At the discretion of the Owner, a combination of the above may be considered experience sufficient for qualification.

A minimum of five of the above contracts must have been performed as the prime contractor. If any of the ten contracts were not performed as the prime contractor, but rather, as a subcontractor, then all pertinent information necessary to make contact with both the prime contractor and the owner of the premises must be provided.

- 2. For each project submitted to meet the experience requirements set forth in item #1 above, the Contractor must provide the information set forth below for each project.
 - a) Name of Contractor
 - b) Name and location of the project
 - c) Name, title and telephone number of the Owner or an Owner's representative who is familiar with the Bidders work on the project
 - d) Brief description of the work completed
 - e) Indicate whether the work was performed as a prime or a Sub Contractor
 - f) Amount of the Contract or sub-Contract
 - g) Date of completion

B. ASBESTOS ABATEMENT LICENSE:

The Contractor or Sub Contractor performing the work of this section must, for the past (3) years have been licensed for asbestos abatement work by the New York State Department of Labor. The Contractor must submit a copy of such valid asbestos abatement license.

C. COMPLIANCE WITH EXPERIENCE REQUIREMENTS:

1. The Contractor is advised that no Sub Contractor will be approved for the performance of asbestos abatement work hereunder unless the Contractor demonstrates compliance with the experience requirements set forth above. Compliance with such experience requirements will be determined by the Owner.
2. In the event the Bidder is a joint venture, at least one firm in the joint venture must meet the above described requirements.

D. Insurance Requirements: The asbestos contractor must provide asbestos liability insurance in the following amount: 1 million dollars per occurrence, 2 million dollar aggregate (combine single limit). The Owner shall be named as an additional insured on such insurance policy.

E. Throughout the Specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Where materials or workmanship are required by these Specifications to meet or exceed the specifically named code or standard, it is the Contractor's responsibility to provide materials and workmanship which meet or exceed the specifically named code or standard.

F. Site Investigation: The Contractor will inspect all the Specifications, drawings and will investigate and confirm the conditions affecting the work, including but not limited to:

1. The physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstruction encountered in accessing or removing the material.
2. The handling, storage, transportation and disposal of the material.
3. The availability of qualified and skilled labor.
4. The availability of utilities.
5. The exact quantity of all material to be disturbed.
6. Be familiar and comply with all applicable Local, State, Federal rules and regulations.

1.05 WORK BY OTHERS

The Owner reserves the right during the term of this Contract to have work performed on asbestos abatement projects by other Contractors, as circumstances warrant.

1.06 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that Contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the Contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other Contractors who may be brought upon any site of the work of this Contract. The preceding paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter 1 of RCNY.

1.07 CANCELLATION

The Owner at its option, may terminate this Contract at any time upon written notice to the Contractor, in which event the Owner shall be liable for payment to the Contractor only for the work satisfactorily completed up to and including the date of termination of the Contract. The Contractor shall perform all work in an expeditious workmanlike manner. Unnecessary delays in completing the work ordered may result in cancellation of this Contract.

1.08 SCAFFOLDING

- A. The Contractor shall furnish all the scaffolding of whatever type is necessary to do the work of this Contract, subject to requirements of the Building Code of the Owner.
- B. Any scaffolding used, erected and later dismantled must be employed in a manner that does not damage the walls or floors of the Work Area. Any damage caused by the Contractor in the course of his operations must be repaired at no cost to the Owner.
- C. The area below the scaffolding shall be cordoned off (with a visible barrier such as asbestos hazard caution tape clearly identifying the work area boundaries) as a restricted area for certified asbestos personnel only. The abatement contractor shall regulate all access to his area.

1.09 LOG

- A. The Contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination's enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of Owners; name address and phone number of Environmental Control Representative; name, address and phone number of Abatement Contractor; name, name, address and phone number of the Construction Manager; address and phone number of Contractor's and Construction Manager's air testing entity; emergency numbers including, but not limited to local Fire/Rescue

Department. Log book shall contain a list of personnel approved by the laboratory for entry into the Work Area.

- B. All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted.

Upon completion of the job and as a condition of its acceptance, submit the job log book containing day-to-day record of personnel entering the Work Area and any significant event occurring during the abatement project. Daily log entries shall be countersigned by the Construction Manager everyday.

1.10 TELEPHONE PAGING DEVICE

The Contractor or his authorized representative shall, at all times during the normal workday or during periods of overtime work under this Contract, carry a digital telephone paging device ("Beeper") and/or cellular telephone which can be activated by a telephone number in the 212 or 718 or 917 area code. He shall supply to the Owner with the activation number for the device and he is liable to respond back to the calls from the Owner within the next one (1) hour period after he receives the calls from Owner. The cost to the Contractor for this device and all charges accruing thereto is deemed included in the Bid.

1.11 PROTECTIVE EQUIPMENT FOR CONSTRUCTION MANAGER

In addition to personal protective equipment for workers, the Contractor shall make available at each worksite at least four (4) additional uniforms and required respiratory equipment each day for personnel who are authorized to inspect the work site. He/she shall also provide, for the duration of the work at any site involving a decontamination unit for worksite access, a lockable storage locker for use by the Construction Manager. In addition to respiratory masks for workers, the Contractor must have on hand at the beginning of each work day, at least four (4) masks each with two sets of fresh filters, for use by personnel who are authorized to inspect the worksite. The Contractor shall check for proper fit of the respirators of all City personnel authorized to enter the Work Area.

1.12 PROTECTION OF FURNITURE, EQUIPMENT AND WORK SITE

The Contractor is responsible to cover all furniture and equipment that cannot be removed from Work Areas. Moveable furniture and equipment will be removed from Work Areas by Contractor prior to start of work and returned upon successful completion of the final air testing. At the conclusion of the work (after clearance level of air testing reaches to the acceptable limit), the Contractor will remove all plastic covering from walls, floors, furniture, equipment and reinstall furniture and equipment in the cleaned Work Area. He shall remove all shades, curtains and drapes from Work Area, and reinstall the same following the final clean-up.

- A. Use rubber-tired vehicles that use non-volatile fuels for conveying material inside building and provide temporary covering, as necessary, to protect floors.

- B. No materials or debris shall be thrown from windows or doors of the building. Building waste system shall NOT be used to remove refuse.
- C. Debris shall be removed from the work site daily. Premises shall be left neat and clean after each work shift, so that work may proceed for the next regular workday without interruption. Limited bag storage may take place within the Work Area when approved by the Resident Engineer and Construction Manager.
- D. Protect floors and walls along removal routes from damage, wear and staining with contamination control flooring. All finished surfaces to be protected with masonite or other rigid sheathing material.
- E. A preliminary inspection for pre-existing damage shall be conducted by Contractor, Construction Manager and representative of the Owner before commencement of the project.

1.13 DEFINITIONS

- A. General Explanation: Certain terms used in this Specification Section are defined below. Definitions and explanations of this Specification Section are not necessarily complete or exclusive, but are general for the Work to the extent they are not stated more explicitly in another element of the Contract Documents.
- B. Definitions in General Use:
 - 1. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in Contract Documents. In no case will "approval" by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.
 - 2. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Engineer," "requested by Engineer," and similar phrases. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Contractor's responsibility for construction supervision.
 - 3. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.
 - 4. Indicated: The term "indicated" is a cross-reference to graphic representations, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of

helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

5. **Install:** Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
6. **Installer:** The term "installer" is defined as the entity (person or firm) engaged by Contractor, or its subcontractor or sub-subcontractor for performance of a particular unit of work at Project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.
7. **Owner:** The term "Owner" is defined as representatives of the Owner authorized to coordinate construction activities at the site relating to the project described in the Contract Documents.
8. **Provide:** Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
9. **Testing Laboratory:** The term "Testing Laboratory" is defined as an entity engaged by Owner to perform specific inspections or tests of the work, either at Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

C. Definitions Relative to Asbestos Abatement:

1. **Abatement:** Procedures physically taken to control fiber release from ACM. This includes removal, encapsulation, enclosure, and repair.
2. **Aggressive Sampling:** Method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.
3. **AIHA:** American Industrial Hygiene Association.
4. **Airlock:** System for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.
5. **Air Sampling:** Process of measuring the fiber content of a known volume of air collected during a specific period. The procedure utilized for asbestos follows the NIOSH Standard

- Analytical Method 7400, or the provisional transmission electron microscopy methods developed by the US EPA which are utilized for lower detection levels and specific fiber identification.
6. **Amended Water:** Water to which a surfactant has been added.
 7. **ANSI:** American National Standards Institute
 8. **Area Air Sampling:** Any form of air sampling or monitoring where the sampling device is placed at some stationary location.
 9. **Asbestos:** Any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.
 10. **Asbestos-Containing Material (ACM):** Asbestos or any material containing more than one-percent asbestos.
 11. **Asbestos-Containing Waste Material:** ACM or asbestos-contaminated objects requiring disposal.
 12. **Asbestos Handler:** Individual who disturbs, removes, repairs, or encloses friable asbestos material. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.
 13. **Asbestos Handler Supervisor:** Individual who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.
 14. **Asbestos Handling Certificate:** Certificate(s) issued to individuals who have met the criteria established by NYCDEP and/or NYSDOL.
 15. **Asbestos Inspection Report:** A report on the condition of a building or structure in relation to the presence and condition of asbestos therein.
 16. **Asbestos Investigator:** An individual certified by NYCDEP as having successfully demonstrated his or her ability to identify the presence of and evaluate the condition of asbestos in a building or structure.
 17. **Asbestos Project:** Any form of work performed in connection with the alteration, innovation, modification, or demolition of a building or structure which will disturb (e.g. remove, enclose, encapsulate) more than three linear feet or more than three square feet of friable ACM.

18. **ASTM:** the American Society for Testing and Materials.
19. **Authorized Visitor:** Owner and his/her representative, and any representative of a regulatory or other agency having jurisdiction over the project.
20. **Owner:** Person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Owner means the person in whom beneficial title is vested.
21. **Certified Industrial Hygienist (CIH):** Individual with a minimum of five years experience as an industrial hygienist and who has successfully completed both levels of the examination administered by the American Board of Industrial Hygiene and who is currently certified by that board.
22. **Certified Safety Professional (CSP):** Individual having a bachelor's degree from an accredited college or university and a minimum of four years experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified by that board.
23. **Clean Room:** An uncontaminated area or room that is part of worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.
24. **Clearance Air Monitoring:** Employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers and shall be performed as the final abatement activity.
25. **Commissioner:** Commissioner of the NYCDEP.
26. **Curtained Doorway:** Device that consists of at least three overlapping sheets of polyethylene over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.
27. **Decontamination Enclosure System:** Series of connected rooms, separated from the Work Area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.
28. **Department:** NYCDEP.
29. **Encapsulant (sealant) or Encapsulating Agent:** Liquid material which can be applied to ACM and which temporarily controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by

- penetrating into the material and binding its components together (penetrating encapsulant). This may also be used to seal surfaces from which ACM has been removed.
30. **Encapsulation:** Coating or spraying of ACM with a sealant.
 31. **Enclosure:** Construction of airtight walls and/or ceilings between ACM and the facility environment, or around surfaces coated with ACM, or any other appropriate procedure as determined by the Department which prevents the release of asbestos fibers.
 32. **ELAP:** Environmental Laboratory Approval Program administered by the New York State Department of Health.
 33. **EPA or USEPA:** United States Environmental Protection Agency.
 34. **Equipment Room:** Contaminated area or room that is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.
 35. **Fixed Object:** Unit of equipment or furniture in the Work Area that cannot be removed from the Work Area.
 36. **Friable Asbestos Material:** Asbestos or any ACM that can be crumbled, pulverized, or reduced to powder when dry, by hand or other mechanical pressure.
 37. **Glove-Bag Technique:** Method for removing friable ACM from heating, ventilation, and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces in a non-contained Work Area. The glove-bag assembly is a manufactured device consisting of a glove-bag (constructed of at least 6-mil transparent polyethylene), two inward-projecting long sleeve gloves, one inward-projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glove-bag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and contains all asbestos fibers released during the removal process.
 38. **HEPA-Filter:** High efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.
 39. **Holding Area:** Chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.
 40. **Homogeneous Work Area:** Portion of the Work Area that contains one type of ACM and/or where one type of abatement is used.
 41. **Industrial Hygiene:** Science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the work place, which may

- cause sickness, impaired health and well being, or significant discomfort and inefficiency among worker or among the citizens of the community.
42. **Industrial Hygienist:** Individual having a college or university degree or degrees in Engineering, Chemistry, Physics or Medicine, or related Biological Sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities:
 - a. To recognize the environmental factors and to understand their effect on people and their well being; and
 - b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being; and
 - c. To prescribe methods to eliminate, control, or reduce such stresses when necessary to alleviate their efforts.
 43. **Large Asbestos Project:** Asbestos project involving the disturbances (e.g. removal, enclosure, encapsulation) of 260 linear feet or more of friable ACM or 160 square feet or more of friable ACM.
 44. **Major Violation:** Any action, on the job performance or lack of performance that may place any individual at risk other than the worker who commits the violation. A major violation is equivalent to two violation points.
 45. **Minor Asbestos Project:** Project involving the disturbance (e.g. removal, enclosure, encapsulation, repair) of more than three linear feet, but not more than 25 linear feet of friable ACM or more than three square feet, but not more than ten square feet of friable ACM.
 46. **Minor Violation:** Any action, on the job performance or lack of performance that may place the worker at risk. A minor violation is equivalent to one violation point.
 47. **Movable Object:** Unit of equipment or furniture in the Work Area that can be removed from the Work Area.
 48. **Negative Air Pressure Equipment:** Portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the Work Area.
 49. **NESHAPS:** National Emission Standards for Hazardous Air Pollutants.
 50. **NIOSH:** National Institute for Occupational Safety and Health.

51. **NYSDOL:** New York State Department of Labor.
52. **Occupied Area:** Area of the work site where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.
53. **OSHA:** Occupational Safety and Health Administration.
54. **Person:** Individual, partnership, company, corporation, association, firm, organization, governmental agency, administration, or department, or any other group of individuals, or any officer or employee thereof.
55. **Personal Air Monitoring:** Method used to determine employees' exposure to airborne fibers. The sample is collected outside the respirator in the worker's breathing zone.
56. **Personal Protective Equipment (PPE):** Appropriate protective clothing, gloves, eye protection, footwear, and head gear.
57. **Physician:** Person licensed or otherwise authorized under Article 131 Section 65.22 of the New York State Education Law.
58. **Plasticize:** Cover floors and walls with polyethylene sheeting as herein specified or by using spray plastics as acceptable to the Department.
59. **Professional Engineer (PE):** Individual having, at a minimum, a bachelor's degree in engineering from an accredited college or university with four years acceptable experience as an engineer and who has successfully completed both levels of the professional engineers examination administered by the State of New York Department of Education, Division of Professional Licensing.
60. **Qualitative Fit Test:** Individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face-piece. Three of the most popular methods include: 1) irritant smoke test; 2) odorous vapor test; and 3) taste test.
61. **Quantitative Fit Test:** Exposing the respiratory wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face-piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the test.
62. **Registered Architect (RA):** Individual having, at a minimum, a bachelor's degree in architecture from an accredited college or university with three years acceptable experience as an architect and who has successfully completed both levels of the

architects registration examination administered by the State of New York Department of Education, Division of Professional Licensing.

63. **Removal:** Stripping of any asbestos- containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.
64. **Shower Room:** Room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.
65. **Small Asbestos Project:** asbestos project involving the disturbance (e.g. removal, enclosure, encapsulation) of more than 25 and less than 260 linear feet of friable ACM or more than ten and less than 160 square feet of friable ACM.
66. **Staging Area:** Work Area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the Work Area.
67. **Structural Member:** Load-supporting member of a facility, such as beams and load-supporting walls, or any nonload-supporting member, such as ceiling and nonload-supporting walls.
68. **Surfactant:** Chemical wetting agent added to water to improve penetration.
69. **Visible Emissions:** Emissions containing particulate material that are visually detectable without the aid of instruments.
70. **Washroom:** Room between the Work Area and the holding area in the equipment decontamination enclosure system where equipment and waste containers are wet cleaned and/or HEPA-vacuumed prior to disposal.
71. **Wet Cleaning:** Removal of asbestos fibers from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water.
72. **Work Area:** Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take(s) place.
73. **Worker Decontamination Enclosure System:** Portion of a decontamination enclosure system designed for controlled passage of workers and authorized visitors, consisting of a clean room, a shower room, and an equipment room separated from each other and from the Work Area by airlocks and curtained doorways.
74. **Work Site:** Premises where abatement activity is being performed. May be composed of one or more Work Areas.

1.14 SPECIAL PRECAUTIONS

- A. The abatement project shall require a detailed plan of action to be prepared by the Abatement Contractor for acceptance by the Owner prior to commencement of work.

The developed detail plan of action shall contain special preparation, removal and cleanup techniques. The purpose of these special techniques is to intercept removed asbestos containing materials before they settle in nooks and crannies and become difficult to clean.

The detailed plan of action shall also include location(s) of asbestos control area(s), decontamination chamber(s), sequencing of asbestos related work, disposal plan, type of foam and asbestos sealer to be used, air monitoring and a detailed description of the method to be employed in order to control pollution, including but not limited to emergency procedures for fire and medical emergencies and for failure of seals. This plan must be approved by the Owner prior to the start of any asbestos work.

It is the Contractor's sole responsibility to plan and perform the work in such a manner that it is brought to successful completion. This includes Work Area preparation, removals and final cleaning to an acceptable standard.

- B. The Abatement Contractor shall also develop a detailed plan of action to respond to the release of airborne asbestos fibers in the event of an emergency. This plan (which must be accepted by the Construction Manager, Resident Engineer and School Principal) is to include but not limited to; procedures to isolate and eliminate ACM, emergency evacuation procedures, telephone numbers of all relevant parties such as the Construction Manager, Resident Engineer, school principal, school custodian, air monitor, etc.
- C. Prior to start of preparatory work as discussed, the Contractor shall attend a preconstruction conference and walk-through attended by Construction Manager and Testing Lab Environmental Control Representative (ECR).

Agenda for this conference will include but not necessarily be limited to:

1. Contractor's scope of work, work plan and schedule
2. Contractor's safety and health precautions including protective clothing and equipment and decontamination procedures.
3. Testing laboratory's air monitoring plan.
4. Contractor's work procedures including methods of job site preparation and decontamination chamber set-up, biodegradable foam and procedures, and removal methods; respiratory procedures; procedures for decontaminating the objects in the removal work procedures sections, methods of handling removed material and disposal procedures; cleanup procedures and equipment; signs and labels; fire exists and

emergency procedures.

5. Contractor's plan for 24 hours job security both for prevention of theft and for barring entry of curious but unprotected personnel into Work Areas.
6. Temporary utilities.
7. Documentation of compliance with environmental laws and standards.

1.15 STANDARD OPERATING PROCEDURES

- A. Develop and implement a written standard procedure for abatement work to ensure maximum protection and safeguard from asbestos exposure of the workers, the non work areas of the school, visitors, employees, public, and environment.
- B. The standard operating procedure shall ensure:
 1. Tight security from unauthorized entry into the workspace.
 2. Restriction of Contractor's personnel to the immediate Work Area and access/egress routes.
 3. Donning of proper protective clothing and respiratory protection prior to entering the Work Area.
 4. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or in any way breaking the respiratory protection.
 5. Proper exit practices from the work space to the outside through the showering and decontamination facilities.
 6. Removing asbestos in ways that minimize release of fibers.
 7. Packing, labeling, loading, transporting, and disposing of contaminated material in a way that minimize exposure and contamination.
 8. Emergency evacuation procedures, for medical or safety situations, to minimize the potential exposure to airborne asbestos fibers for emergency personnel, building occupants, and building environment.
 9. Safety from accidents in the workspace, especially from electrical shocks, fall hazards associated with scaffolding, slippery surfaces, and entanglements in loose hoses and equipment.
 10. Provisions for effective supervision, air monitoring and personnel monitoring for

exposure during the work.

11. Engineering systems that minimize exposure to fibers within the workspace.
 12. Contractor shall provide a 24-hour fire watch throughout the entire term of the project, to protect against fire and unauthorized entry into the workspace. Fire watch shall be performed by an individual who is a certified asbestos worker capable of entering the Work Area for regular inspections.
- C. Provide an Asbestos Handler Supervisor to provide continuous supervision of all work, and to be responsible for the following:
1. Ensure that individuals are using proper personal protective equipment and are trained in its use.
 2. Maintain entry log records and ensure that they are recorded in accordance with the provisions of Title 15, Chapter 1 of RCNY.
 3. Surveillance of the Work Areas at a minimum of once per work shift or as required by Title 15, Chapter 1 of RCNY, to ensure that the workers personal protective equipment is not torn or ripped and that respiratory protection is worn at all times.
 4. Ensure that sufficient personal protective equipment is stored in the clean room.
 5. Take precautions to prevent heat stress. Precautions include, but are not limited to, selecting lightweight protective clothing, reducing the work rate, and providing adequate fluid breaks.
- D. **ENGINEERING CONTROLS**
1. The 8-hour time weighted average airborne concentration of fibers to which any passerby may be exposed shall not exceed 0.01 fibers per cubic centimeter of air when fibers have a physical dimension longer than 5 micrometers as determined by the method prescribed in these Specifications.
 2. All Large asbestos projects shall utilize negative pressure ventilation equipment.
 3. The negative pressure ventilation equipment shall operate continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off, adjacent areas shall be monitored for asbestos fibers.
 4. A static negative air pressure of 0.02 inches (minimum) water column shall be maintained at all times in the work place during abatement to ensure that contaminated air in the Work Area does not filter back to uncontaminated areas.

5. On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure ventilation equipment is operating again.
6. Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.
 - a. At no time shall the negative pressure ventilation unit exhaust with 40 feet of a receptor or adversely affect the intake ports, louvers, or entrances for the building or adjacent buildings.
 - b. Heavy duty ducting of equivalent, or larger, shape and dimension as that of the negative pressure ventilation exhaust port shall be used to exhaust to the structure.
 - c. All ducting shall be sealed and braced or supported to maintain airtight joints.
7. Where ducting to the outside is not possible, a second negative pressure ventilation unit *compatible with the primary unit's capacity shall be connected in series*. The area receiving the exhaust shall have sufficient, non-recycling exhaust capacity to the outside of the structure.
8. In the event that there is a failure of the containment system or a breach in the Isolation Barriers, all abatement work will cease and the Contractor will immediately correct the condition. Abatement work will not resume until the Work Area has been smoke tested by the third party laboratory and approved by the Construction Manager.

E. LOCKDOWN ENCAPSULATION PROCEDURES

The following procedures shall be followed to seal in nonvisible residue while conducting lockdown encapsulation on all surfaces from which ACM is removed:

1. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA Contract shall be used for lockdown encapsulation.
2. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon unless reviewed and approved by DEP.
3. Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.
4. Encapsulants shall be applied using airless spray equipment. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

1.16 FEES

The Contractor shall be responsible for and shall include in its Bid any and all fees or charges imposed by Local, State or Federal Law, Rule or Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the date of the Bid opening.

1.17 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS, AND POSTERS

- A. Erect bilingual (English-Spanish) warning signs around the work space and at every point of potential entry from the outside and at main entrance to building which can be viewed by the public without obstruction, in accordance with OSHA 29 CFR 1926.1101 (Sign Specifications) and Title 15, Chapter 1 of RCNY. The warning signs shall be a bright color so that they will be easily noticeable. The size of the sign and the size of the lettering shall be no less than OSHA requirements.
- B. Provide the required labels for all polyethylene bags and all drums utilized to transport contaminated material to the landfill in accordance with OSHA 29 CFR 1926.1101 and by 49 CFR Parts 171 and 172 of the Department of Transportation regulations.
- C. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. Post in a prominent and convenient place for the workers a copy of the latest applicable regulations from OSHA, EPA, NIOSH, State of New York and New York City and any additional items mandated for posting by the aforementioned regulations.

- D. Furnish all permits, variances and notices required to perform the Work.

1.18 EMERGENCY PRECAUTIONS

- A. Establish emergency and fire exits from the Work Area. The clean side of all emergency exits shall be equipped with two full sets of protective clothing and respirators at all times.
- B. Notify local medical emergency personnel, both ambulance crews and hospital emergency room staff prior to commencement of abatement operations as to the possibility of having to handle *contaminated or injured workmen, and shall be advised on safe decontamination.*
- C. Prepare to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated immediately for decontamination. When an injury occurs, precautions shall be taken to reduce airborne fiber concentrations (i.e. misting of the air with water) until the injured person has been removed from the Work Area.
- D. Notify, before actual removal of the asbestos material, the local police and fire departments to the danger of entering the Work Area. Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

1.19 SUBMITTALS

A. *Pre-Construction Submittals*

1. Attend a pre-construction meeting scheduled by the Owner. This meeting shall also be attended by designated representative of the third party air monitoring firm (Contractor's and Construction Manager's air testing entity); facility manager, Construction Manager and the Resident Engineer. At this meeting, the Contractor shall present three copies of the following items, bound and indexed. The detailed plan of action must be submitted at least five (5) days prior to the pre-construction meeting.
 - a. Contractor's scope of work, work plan and schedule.
 - b. Notifications to Government Agencies.
 - c. Copies of Permits, clearance and licenses if required.
 - d. Schedules: the Contractor shall provide to the Resident Engineer and Construction manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Contractor shall post a copy of all schedules at the site:
 - (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring,

- and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.
- (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.
 - (3) Submit all changes in schedule or staffing to the Resident Engineer prior to implementation.
 - (4) A schedule of equipment to be used including numbers and types of all major equipment such as HEPA Air Filtration Units, HEPA-vacuums, airless sprayers, Water Atomizing Devices and Type "C" compressors.
- e. A written plan and shop drawings for preparation of work site and decontamination chamber.
 - f. Description of protective clothing and approved respirator to be used, make, model, NIOSH approval numbers.
 - g. Delineation of responsibility of work site supervision, including competent person, with names, resumes, and home telephone numbers.
 - h. Explanation of decontamination sequence and isolation techniques.
 - i. Description of specific equipment to be utilized, including make and model number of air filtration devices, vacuums, sprayers, etc.
 - j. Description of any prepared methods, procedures, techniques, or equipment other than those specified in the Contract Documents.
 - k. Explanation of the handling of contaminated wastes including EPA and NYCDEP identification numbers of Waste Hauler.
 - l. Description of the final clean-up procedures to be used.
 - m. Name and qualifications of Contractor's testing laboratory including AIHA accreditation, and proof of NIOSH PAT and NIST/NVLAP Bulk Quality Assurance Proficiency of OSHA samples for approval by the City of New York Department of Design and Construction.
 - n. Written description of emergency procedures to be followed in case of injury, fire or fiber dispersal. This section must include evacuation procedures, source of medical assistance (name and telephone number) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE:

Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

- o. **Material Safety Data Sheets (MSDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive, and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until MSDS are reviewed and approved by the Resident Engineer.**
 - p. **Worker Training and Medical Surveillance: Contractor shall submit a list of the persons who will be employed by him and his Subcontractors in the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.**
 - q. **Logs: Specimen copies of daily progress log, visitor's log, and disposal log.**

 - (1) **The Contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain on title page the project name, name, address and phone number of Environmental Control Representative; name, address and phone number of Abatement Contractor; name, address and phone number of Contractor and City's air testing entity; emergency numbers including, but not limited to local Fire/Rescue Department. Log book shall contain a list of personnel approved by the laboratory for entry into the Work Area.**
 - (2) **All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Contractor shall submit the log book containing a day-to-day record of personnel log entries counter signed by the Resident Engineer everyday.**
 - r. **Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.**
- B. Submit copies of the following items to the Resident Engineer and Construction Manager during the work:**

1. Security and safety logs showing names of person entering work space, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.
2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Resident Engineer and Construction Manager.
3. Floor plans indicating Contractor's current work progress shall be submitted for review by the Resident Engineer and Construction Manager at weekly progress meetings.
4. All Contractor's air monitoring and inspection results.

C. Project Closeout Submittals

1. Upon completion of the project and as a condition of acceptance, the Contractor shall present two copies of the following items, bound and indexed:
 - a. Lien Waivers from Contractor, Sub-Contractors and Suppliers,
 - b. Daily OSHA air monitoring results,
 - c. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs.
 - d. Field Sign-In/Sign-Out Logs for every shift,
 - e. Copies of all Building Department Forms and Permits,
 - f. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,
 - g. All Warranties as stated in the Specifications,
 - h. Fully executed disposal certificates and transportation manifest.

1.20 QUALITY ASSURANCE

- A. Notification to EPA: Prior to start of the project, the Contractor shall be require to notify the Regional Federal Environmental Protection Agency Office and must obtain the instructions concerning proper disposal of asbestos waste materials.
- B. All work required for the completion of this project or called for in this Specification must be executed in a workmanlike manner by using the appropriate methods established by regulatory requirements and/or industrial standards. All workmanship or work methods are subject to review and acceptance by the Resident Engineer. Throughout the Specification, reference is

made to codes and standards which establish qualities, levels or types of workmanship which will be considered acceptable. It is the Abatement Contractor's responsibility to comply with these codes and standards during the execution of this work.

- C. All materials and equipment required or consumed during the work of this Contract must meet the minimum acceptable criteria established by codes and standards referenced elsewhere in this Specification. Materials and equipment must be submitted for prior approval as part of the Contractor's "Shop Drawings".
- D. Inspection: The Contractor shall conduct inspections of the work sites as often as the nature of abatement work require. The cleanliness maintained at the worksites shall conform to the requirements of the reference codes and that no visible emissions from worksites shall be evident.
- E. It is the Abatement Contractor's responsibility, when so required by the Specification or upon written request from the Owner or his representative to furnish all required proof that workmanship, materials and/or equipment meet or exceed the codes and standards referenced. Such proof shall be in the form requested, typically a certified report or test conducted by a testing entity approved for that purpose by Owner.
- F. The Contractor shall furnish proof that employees working under his supervision have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and OSHA regulations. This proof shall be in the form of a notarized affidavit to the effect that the above requirements have been satisfied.
- G. The Contractor will have at all times in his possession and in view at the job site the OSHA regulations 29 CFR 1910.1001, and 1926.1101 Asbestos, and Environmental Protection Agency 40 CFR, Part 61, subpart B: National Emission Standard for asbestos, asbestos stripping, work practices and disposal of asbestos waste. He shall also have one copy of NYC Title 15, Chapter 1 of RCNY and NYS DOL ICR 56 at the job site at all times.
- H. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements, and are suitable for their intended use. In addition to the standards described in this Section, the Contractor shall maintain that all his work complies with requirements of pertinent governmental agencies having jurisdiction.
- I. Storage, transport and disposal of contaminated waste shall be in accordance with all applicable rules and regulations including NYC Local Law 70/85.

Disposal of Asbestos Waste: The Contractor must furnish a properly executed waste manifest.

- J. Rejection of Non Complying Items: The Owner reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Owner further reserves

the right, and without prejudice to other recourse that maybe taken, to accept non-complying items subject to an adjustment in the Contract amount as approved by the Owner.

K. Applicable Regulations, Codes and Standards: Applicable standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. United States Environmental Protection Agency (EPA or USEPA)
Region II
Asbestos NESHAPS Contact
Air & Waste Management Division
(Air Compliance Branch) - USEPA
Federal Plaza, Room 500
New York, New York 10278
212-264-6770
2. Occupational Safety and Health Administration (OSHA)
Region II - Regional Office
Federal Plaza, Room 900
New York, New York 10278
212-264-2525
3. National Electrical Code (NEC)
See NFPA
4. National Fire Protection Association (NFPA)
Atlantic Avenue
Boston, Massachusetts 02201
5. National Institute for Occupational Safety and Health (NIOSH)
Robert A. Taft Laboratory
Columbia Pkwy
Cincinnati, Ohio 45226-1998
800-35-NIOSH
6. Department of Health and Human Services (DHHS)
Asbestos Removal
Federal Plaza
New York, New York 10007
212-264-2560
7. Specifications Sales (3F21) Building 197,
Washington Navy Yard, GS
Washington, DC

8. American National Standards Institute (ANSI)
(Successor to USASI and ASA)
Broadway
New York, New York 10018
 9. American Society for Testing and Materials (ASTM)
Race Street
Philadelphia, Pennsylvania 19103
 10. New York City Department of Environmental Protection (NYCDEP)
Bureau of Air Resources
59-17 Junction Boulevard, 8th Floor
Corona, New York 11368
718-595-3682
 11. New York City Department of Sanitation
125 Worth Street, Room 710
New York, New York 10013
212-566-1066
 12. New York State Department of Labor (NYSDOL)
Division of Safety and Health
Engineering Services Unit
State Office Building Campus
Albany, New York 12240-0010
- L. Post all applicable regulations in a conspicuous place at the job site. Assure that the regulations are not altered, defaced or covered by other materials. One copy of each regulation must also be kept at Contractor's office.

1.21 OWNER/CONTRACTOR RESPONSIBILITIES

- A. The normal occupants of the Work Areas will be relocated by the Owner prior to the performance of the abatement work and returned there to at the conclusion of the abatement work, at no cost to the Contractor. However, the Contractor shall protect all furniture and equipment in the Work Areas in a manner as herein specified. In addition, the Contractor shall perform the work of this Contract in a manner that will be least disruptive to the normal use of the non-Work Areas in the building.
- B. The Contractor shall be responsible for cleaning all portable items not specifically addressed by the Facility, in the Work Areas, or dispose of same as contaminated waste.
- C. The facility will provide the Contractor with a list of items that cannot be removed and need special attention.

- D. The facility will stop all deliveries that may be scheduled to the Work Area while work is in progress.
- E. Facilities shall have authorized personnel on site at all times or supply the Contractor with means of contacting such personnel without unreasonable delay. Such personnel shall have access to all areas, have knowledge of electrical, and air handling equipment. Such personnel shall assist the Contractor in case of any power failure or breakdown to shut down air supply systems, to reset and control all protective systems such as alarms, sprinklers, locks, etc. The Facility shall ensure no active air handling systems are operating within the Work Area.
- F. The other trades shall not occupy the portions of the building, in which work is being performed during the entire asbestos removal operation, including completion of clean up.
- G. The Contractor shall provide a plan for 24 hours job security both for prevention of theft and for barring entry of curious but unprotected personnel into Work Areas.
- H. Should the failure of any utility occur, the Owner will not be responsible to the Contractor for loss of time or any other expense incurred.
- I. The facility will be responsible to notify the Contractor of any planned electrical power shutdowns in order to ensure that there are no power interruptions in the negative air pressure systems.

1.22 USE OF BUILDING FACILITIES

- A. The Owner shall make available to the Contractor, from existing outlets and supplies, all reasonably required amounts of water and electric power at no charge.
- B. Electric power to all Work Areas shall be shut down and locked out except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided by Contractor in accordance with applicable codes. All power to Work Areas shall be brought in from outside the area through ground-fault interrupter circuits installed at the source. Stationary electrical equipment within the Work Area, which must remain in service, shall be adequately protected, enclosed and ventilated. The Facility and Construction Manager will identify all electric lines that must remain in service. Contractor shall protect all lines.
- C. Contractor shall provide, at his own expense, all electrical, water, and waste connections, tie-ins, extensions, and construction materials, supplies, etc. All water tie-ins shall be hard piped with polyethylene or copper piping. At the end of each shift, Contractor shall disconnect all hoses within the work zone and place in equipment room of the worker decontamination unit. Contractor shall ensure positive shutoff of all water to Work Area during non-working hours.

D. Utilities:

1. General:

- a. All temporary facilities required to be installed, shall be subject to the approval of the Owner. Prior to starting the work at any site; specify clearly the temporary locations of facilities preferably with sketches and submit the same to the Resident Engineer and Construction Manager for approval.

2. Water:

- a. The Owner will furnish all water needed for construction, at no cost to the Contractor in buildings under their jurisdiction. All temporary plumbing or adaptations to supply the needs of the Work Area shall be performed and removed by the Contractor and the cost thereof included in the Lump Sum price Bid for abatement work.. Shower water for the decontamination unit shall be provided hot. Heating of water, if necessary, shall be provided by the Contractor.

3. Electricity:

The Owner will furnish all electricity needed for construction, at no cost to the Contractor in buildings under their jurisdiction. All temporary electrical work or adaptations to supply the needs of the Work Area shall be installed and removed by the Contractor and the cost thereof included in the Lump Sum price Bid for abatement work.

All temporary lighting and temporary electrical services for use in the Work Area shall be in weather proof enclosures and be ground fault protected and:

- (1) Shall be performed at no additional charge to the Owner.
- (2) Shall be performed at times not interfering with the other activities in the building.

- E. Contractor shall provide a separate temporary electric panel board to power Contractor's equipment. The Facility and Construction Manager will designate an existing electrical source in proximity to the Work Area. Contractor's licensed electrician shall provide temporary tie-in via cable, outlet boxes, junction boxes, receptacles and lights, all with ground fault interruption. At no time shall extension cords greater than 50-feet in length be allowed. All temporary electrical installation shall be in accordance with OSHA regulations. The electric shut down for power panel tie-in will be on off-hours and must be coordinated with the Facility and Construction Manager. The Contractor shall provide to the Construction Manager a specification and drawing outlining his power requirements at the pre-construction meeting.

- F. Additional electrical equipment (i.e. transformers, etc.) which is necessary due to the lack of existing power on the floor shall be at the Contractor's expense.
- G. Contractor shall provide fire protection in accordance with all State and Local fire codes.
- H. When temporary service lines are no longer required, they shall be removed by the Contractor. Any parts of the permanent service lines, grounds and buildings, disturbed or damaged by the installation and/or removal of the temporary service lines, shall be restored to their original condition by the Contractor. Senior Stationary Engineer will inspect and test all switches, controls, gauges, etc. and shall submit a list to the Resident Engineer and Construction Manager of any equipment damaged by the Contractor.
- I. Contractor shall supply hot shower water necessary for use in the contamination unit.

1.23 USE OF THE PREMISES

- A. Contractor shall confine his apparatus, the storage of materials, and supplies, and the operation of his workmen to limits established by law, ordinances, and the directions of the Resident Engineer, Construction Manager and the Facility. All flammable or combustible materials shall be properly stored to obviate fire and in areas approved by the Facility.
- B. Contractor shall assure that no exits from the building are obstructed, that appropriate safety barriers are established to prevent access, and that Work Areas are kept neat, clean, and safe.
- C. All surrounding work, fixtures, soil lines, drains, water lines, gas pipes, electrical conduit, wires, utilities, duct work railings, shrubbery, landscaping, etc. which are to remain in place shall be carefully protected and, if disturbed or damaged, shall be repaired or replaced as directed by the Owner, at no additional cost.
- D. All routes through the building to be used by the Contractor shall first be approved by the Resident Engineer, Construction Manager and the Facility.
- E. Attention is specifically drawn to the fact that other Contractors, performing the work of other Contracts, may be (or are) brought upon any of the work sites of this Contract. Therefore, the Contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other Contractors who may be on (or are on) any site of the work of this Contract. Regulated area excepted.
- F. Temporary toilet facilities must be provided by the Contractor on the site. Coordinate location of facilities with the Construction Manager and Resident Engineer. No toilet facilities will be allowed in the Work Area.

1.24 RESPIRATORY PROTECTION REQUIREMENTS

- A. Respiratory protection shall be worn by all individuals who may be exposed to asbestos fibers from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with Regulations and these Specifications.
- B. Contractor shall develop and implement a written respiratory protection program with required site-specific procedures and elements. The program shall be administered by a properly trained individual. The written respiratory protection program shall include the requirements set forth in OSHA Standard 29 CFR 1910.134, at a minimum.
- C. The Contractor shall provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the Work Area(s), as specified in OSHA Standards 29 CFR 1910.134 and 29 CFR 1926.1101, NIOSH Standard 42 CFR 84, or as more stringently specified otherwise, herein.
- D. Where respirators with disposable filter parts are employed, the Contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.
- E. All respiratory protection shall be OSHA/NIOSH approved. All respiratory protection shall be provided by Contractor, and used by workers in conjunction with the written respiratory protection program.
- F. Contractor shall provide respirators selected by an Industrial Hygienist that meet the following requirements:

Airborne Concentration of Asbestos or Conditions of Use	Required Respirator
Not in excess of 1 fibers per cubic centimeter (f/cc), ten times Permissible Exposure Level (PEL)	Half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency filters.
Not in excess of 5 f/cc, 50 times PEL	Full facepiece air-purifying respirator equipped with high efficiency filters.
Not in excess of 10 f/cc, 100 times PEL	Powered air purifying respirator equipped with high efficiency filters or any supplied air respirator operated in continuous flow mode.
Not in excess of 100 f/cc, 1,000 times PEL	Full facepiece supplied air respirator operate in pressure demand mode.
Greater than 100 f/cc, 1,000 times PEL, or unknown concentration	Full facepiece supplied air respirator operate in pressure demand mode, equipped with an auxiliary positive pressure self-contained breathing apparatus.

- G. Selection of high efficiency filters:

1. All high efficiency filters shall have a nominal efficiency rating of 100 (99.97-percent effective) when tested against 0.3-micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.
 2. Choose N-, R-, or P-series filters based upon the presence or absence of oil particles.
 - a. N- series filters shall only be used for non-oil solid and water based aerosols or fumes.
 - b. R- and P-series filters shall be used when oil aerosols or fumes (i.e., lubricants, cutting fluids, glycerin, etc.) are present. The R-series filters are oil resistant and the P-series filters are oil proof.
 - c. Follow filter manufacture recommendations.
 3. If a vapor hazard exists, use an organic vapor cartridge in combination with the high efficiency filter.
- H. Historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for an abatement task. Historical data provided by the Contractor shall be based on personal air monitoring performed during work operations closely resembling the processes, type of material, control methods, work practices, and environmental conditions present at the site. Documentation of aforementioned results may be requested by the City and/or Testing Laboratory for review. This will not relieve the Contractor in providing personal air monitoring to determine the time-weighted average (TWA) for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101.
- I. At no time during actual removal operations shall half-mask air purifying respirators be allowed unless a full 8-hour TWA and ceiling concentration have been conducted, and reviewed by the Resident Engineer and Construction Manager . Use of single use dust respirators is prohibited for the above respiratory protection.
- J. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.
- K. Contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every 12 months thereafter with the type of respirator he/she will be using.
- L. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

- M. No facial hairs (beards) shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.
- N. Contact lenses shall not be worn in conjunction with respiratory protection on asbestos projects.
- O. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by Contractor at Contractor's expense.
- P. Respiratory protection maintenance and decontamination procedures shall meet the following requirements:
 - 1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134 (b); and
 - 2. High efficiency filters for negative pressure respirators shall be changed after each shower; and
 - 3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures as stated in Section 3.03 and/or 3.04.
 - 4. Airline respirators with high efficiency filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator face pieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers recommendations; and
 - 5. Respirators shall be stored in a dry place and in such a manner that the face-piece and exhalation valves are not distorted; and
 - 6. Organic solvents shall not be used for washing of respirators.
- Q. Authorized visitors shall be provided with suitable respirators and instruction on the proper use of respirators whenever entering the Work Area. Qualitative fit test shall be done to ensure proper fit of respirator.

1.25 PROTECTIVE CLOTHING

- A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. Provide to all workers, foremen, superintendents, authorized visitors and inspectors, protective disposable clothing consisting of full-body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.
- B. In addition to personal protective equipment for workers, the Contractor shall make available at each worksite at least four (4) additional uniforms and required respiratory equipment each day for personnel who are authorized to inspect the work site. He/she shall also provide, for the

duration of the work at any site involving a decontamination unit for worksite access, a lockable storage locker for use by the Resident Engineer. In addition to respiratory masks for workers, the Contractor must have on hand at the beginning of each work day, at least four (4) masks each with two sets of fresh filters, for use by personnel who are authorized to inspect the worksite. The Contractor shall check for proper fit of the respirators of all City personnel authorized to enter the Work Area.

- C. Asbestos handlers involved in tent procedures shall wear two (2) disposable suits, including gloves, hood and footwear, and appropriate respiratory equipment. All street clothes shall be removed and stored in a clean room within the work site.. The double layer personal protective equipment shall be used for installation of the tent and throughout the procedure, if a decontamination unit (with shower and clean room) is contiguous to the Work Area, only one (1) layer of disposable personal protective equipment shall be required; in this case, prior to exiting the tent the worker shall HEPA vacuum and wet clean the disposable suit.
 - 1. The outer disposable suit (if 2 suits are worn) shall be removed and remain in the tent upon exiting. Following the tent disposal and work site clean up the workers shall immediately proceed to a shower at the work site. The inner disposal unit and respirator shall be removed in the shower after appropriate wetting. The disposal clothing shall be disposed of as asbestos-containing waste material. The workers shall then fully and vigorously shower with supplied liquid bath soap, shampoo, and clean dry towels.
- D. Coveralls: provide disposable full-body coveralls and disposable head covers. Require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes for all workers in the Work Area.
- E. Boots: provide work boots with non-skid soles, and where required by OSHA, foot protection, for all workers. Provide boots at no cost to workers. Paint uppers of all boots yellow with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason after being contaminated with ACM and/or dust.
- F. Hard Hats: provide hard hats as required by OSHA for all workers, and provide a minimum of four spares for Inspectors, visitors, etc. Label all hats with same warning label as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may cause potential head injury. Provide hard hats of the type with polyethylene strap suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean and decontaminate and bag hard hats prior to removing them from the Work Area at the end of the work.
- G. Goggles: provide eye protection (goggles) as required by OSHA for all workers involved in any activity that may potentially cause eye injury. Require them to be worn at all times during these activities. Thoroughly clean and decontaminate goggles before removing them from the Work Area.
- H. Gloves: provide work gloves to all workers, of the type dictated by the Work and OSHA Standards. Do not remove gloves from the Work Area. Dispose of as asbestos-contaminated waste at the end of the work. Gloves shall be worn at all times, except during Work Area

Preparation activities that do not disturb ACM.

- I. Reusable footwear, hard hats and eye protection devices shall be left in the contaminated Equipment Room until the end of the Asbestos Abatement Work.
- J. Disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facility.
- K. Respirators, disposable coveralls, headcovers and footcovers shall be provided by Contractor for the Facilities Representative, Resident Engineer and any other authorized representative who may inspect the Work Area. Provide two respirators and six respirator filter changes per day.

1.26 AIR MONITORING

Work Area air monitoring for the pre, during and post abatement (clearance testing) shall be performed in accordance with the most stringent of the Federal, State and City of New York Laws and Regulations and the latest amendments to these laws concerning the asbestos removal. They shall be performed by a third party laboratory employed by the Owner under a separate Contract. The cost of this work is not included in the Bid.

Air Sampling and Analysis requirements under NYS DOL ICR 56 requires that the selected methodology of sampling and analysis of asbestos be the same for all pre-abatement, abatement-and-post-abatement monitoring, however whenever final air clearance is required, AHERA and the New York State Education Department requires public school final air clearance be performed and analyzed using the TEM method, as well as in nonpublic school asbestos projects.

A. Air Sampling and Analysis:

Section 763.90 of AHERA and the New York State Education Department requires that public schools accomplish final air sampling and analysis of all removal, encapsulation, or enclosure projects by using the transmission electron microscopy (TEM) method. Under AHERA, nonpublic schools must also use TEM for final air analysis. Note that no final air clearance is required for small-scale, short-duration O & M projects, unless there is a break in the containment.

B. The TEM Method for Final Air Clearance:

The TEM method involves the collection of at least five samples inside the work area, five samples representative of air outside of the work area collected at the same time as the indoor samples, and three quality control samples. The air samples must be collected using "aggressive" methods of artificially disturbing the air in the work area before sampling, as described in Appendix A, Section III(B)(7)(d) of the AHERA Rule. The volume of air drawn for each of the five samples collected within the functional space must be equal to or greater than 1,199 L of air for a 25mm filter or equal to or greater than 2,799L of air for a 37mm filter. If the average result of the five samples collected inside the work area meets an average of 70

structures per square millimeter ($70s/mm^2$), the response action is considered complete.

The response action may also be considered complete when the average concentration of asbestos of the five air samples collected within the affected work area and analyzed by the TEM method is not statistically significantly different, as determined by the Z-test calculation described in Appendix A of AHERA, from the average asbestos concentration of five air samples collected outside the affected work area and analyzed in the same manner, and the average asbestos concentration of the three quality control samples is below $70s/mm^2$, the test is voided and resampling must be done. If the difference in average asbestos concentration between in and out samples is statistically significant, the contractor must reclean the work area and resampling must be done at the Contractor's expense.

C. PCM Air Monitoring:

The phase contrast microscopy (PCM) method involves collecting at least five samples inside the work area by aggressive methods as described in Appendix A, Section III(B)(7)(d) of the AHERA Rule and having them analyzed on a PCM microscope. Unlike the TEM method, the PCM method does not call for the samples to be averaged; each sample stands on its own.

The clearance standard for PCM is 0.01 fibers per cubic centimeter of air (0.01 f/cc). If all five samples pass this standard, the response action is considered complete. If even one sample fails to pass the standard, the Contractor must reclean the area and resampling must be done.

D. Roof Abatement Not subject to TEM air sampling requirements under AHERA.

E. Air sampling not required when project filed as ACP-5 and conducted under NYS DOL Applicable Variance 119 procedures.

1.27 TESTING LABORATORY SERVICES

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400 or the provisional transmission electron microscopy methods developed by the USEPA and/or National Institute of Standard and Technology which are utilized for lower detectability and specific fiber identification.

B. Air monitoring of Contractor's personnel will be performed in conformance with OSHA requirements. (All costs associated with this work are deemed included in the unit price.)

C. Qualifications of Testing Laboratory:

The Contractor shall employ an Industrial Hygienist or Laboratory to conduct air testing. They shall be selected from the latest list of laboratories compiled by National Institute of Standards and Technology (NIST SRM 1876) as having participated in the NIST Proficiency Analytical

- Testing Program and been identified thereon as "Proficient" (P) in the analysis of samples for the presence of Asbestos.
- D. Contractor shall employ a qualified industrial hygiene laboratory to analyze air samples in accordance with OSHA Regulations, 1926.1101 (Asbestos Standards for Construction), and 1910.134 (Respirator Standard) and New York City regulations. All costs for this work shall be included in the Bid Price.
- E. The industrial hygiene laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory identification number shall be submitted and approved by the City. The laboratory shall be accredited by the AIHA and New York State department of Health Environmental Laboratory Approval Program (ELAP).
- F. Industrial hygiene laboratory shall also be a current proficient participant in the NIST/NVLAP Quality Assurance Program for the identification of bulk samples. Laboratory identification number shall be submitted to and approved by the City.
- G. Contractor shall require a competent person (as defined in OSHA 1926.1101) to perform the following functions and to be on-site continuously for the duration of the project:
1. Monitor the set up of the Work Area enclosure and ensure its integrity.
 2. Control entry and exit into the work enclosure.
 3. Ensure that employees are adequately trained in the use of engineering controls, proper work practices, proper personal protective equipment and in decontamination procedures.
 4. Insure that employees use proper engineering controls, proper work practices, proper personal protective equipment and proper decontamination procedures.
 5. Competent person shall check for rips and tears in work suits, and ensure that they are mended immediately or replaced.
- H. Air monitoring responsibilities, as defined in OSHA regulation 1926.1101, shall be performed by a representative of the testing laboratory retained by the Contractor.
- I. Contractor shall submit to the City all credentials of the designated competent person and industrial hygiene laboratory representative for approval.
- J. Air monitoring and inspection shall be conducted by the Contractor's competent person.
- K. Continuous (daily or per shift) monitoring and inspection will include Work Area samples, personnel samples from the breathing zone of a worker to accurately determine the employees' 8-hour TWA (unless Type C respirators are used) and decontamination unit clean room samples.

- L. Work Area samples and employee personnel samples shall be taken using pumps whose flow rates can be determined to an accuracy of ± 5 -percent, at a minimum of two liters per minute. This must be demonstrated at the job site.
- M. Sampling and analysis methods shall be per NIOSH 7400A.
- N. Test Reports:
 - 1. Promptly process and distribute one copy of the test results, to the Owner.
 - 2. Prompt reports are necessary so that if required, modifications to work methods and/or practices may be implemented as soon as possible.
 - 3. Contractor shall by facsimile, and notify the Owner with 24 hours of the results of each test, followed by written notification within three days.
 - 4. Competent person shall conduct inspections and provide written reports daily. Inspections will include checking the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project which may effect the health and safety of the people and environment.
- O. All costs for required air monitoring by the Contractor's competent person shall be borne by Contractor.
- P. The Owner reserves the right to conduct air and surface dust sampling in conjunction with and separate from the Testing Laboratory for the purposes of Quality Assurance.
- Q. All samples shall be accompanied by a Chain of Custody Record that shall be submitted to the Owner upon completion of analysis.

1.28 WORK AREA CLEARANCE LEVELS

"Clearance Air Monitoring" shall mean the employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers, and shall be performed as the final abatement activity.

- A. Clearance and/or Reoccupancy Criteria:

The clearance criteria shall be applied to each homogeneous Work Area independently as per section Clearance Testing of Work Areas in this Specification.
- B. For TEM analysis, the clearance monitoring will be considered satisfactory if conducted in accordance with 40 CFR Part 763, Subpart E, Appendix A - Section IV - Mandatory

- C. Interpretation of Transmission Electron Microscopy Results to Determine Completion of Response Actions.

1.29 LOCKDOWN ENCAPSULATION PROCEDURES

- A. The following procedures shall be followed to seal in nonvisible residue while conducting lockdown encapsulation on all surfaces from which ACM removed:
1. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA Contract shall be used for lockdown encapsulation.
 2. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon unless reviewed and approved by DEP.
 3. Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.
 4. Encapsulants shall be applied using airless spray equipment. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

1.30 CLEARANCE TESTING OF WORK AREAS

- A. **Built-Up Roof and Flashing Removal Clearance Procedure:** Cleaning of the work areas and other contaminated areas shall be conducted in accordance with procedure described below:

Step 1. Clean-up	Visual inspection
Step 2. Final Reoccupancy	Visual inspection and fiber Clearance count of <0.01 fiber/cc of air using NIOSH Method 7400.

1. At the conclusion of each shift, clearance air samples will be collected according to established air clearance criteria.
2. Results of clearance air samples shall be submitted to the Owner twenty-four (24) hours after completion of each shift.
3. Air monitoring not required for projects filed under NYC DEP ACP-5 conducted under NYS DOL Applicable Variance 119 Protocol.

- B. **Clearance Procedure for Areas Prepared Utilizing Tent Enclosure:**

1. Cleaning of the work areas and other contaminated areas shall be conducted in accordance with procedure described below:

Step 1. Clean-up	Visual inspection
Step 2. Final Reoccupancy	Visual Inspection and fiber Clearance count of <0.01 fiber/cc of air using NIOSH Method 7400 and less than 70 structures per mm ² when using Transmission Electron Microscopy.

2. Area air samples will be collected prior, during and after abatement according to established air clearance criteria per New York State ICR 56.
3. To determine final air clearance reoccupancy, the following air samples shall be collected for each tent (provided that the amount of ACM is less than or equal to 160 square feet or 260 linear feet):

Five (5) PCM samples - inside work area
Three (3) TEM samples - inside work area
Three (3) PCM samples - outside work area
Three (3) TEM samples - outside work area

All PCM and TEM results must satisfy the clearance criteria for reoccupancy.

C. Clearance Procedure Utilizing Modified Tent Procedure:

1. Cleaning of the work areas and other contaminated areas shall be conducted in accordance with procedure described below:

Step 1. Clean-up	Visual inspection
Step 2. Final Reoccupancy	Visual Inspection and fiber Clearance count of <0.01 fiber/cc of air using NIOSH Method 7400 and less than 70 structures per mm ² when using Transmission Electron Microscopy.

2. Area air samples will be collected prior, during and after abatement according to established air clearance criteria per New York State ICR 56.
3. To determine final air clearance reoccupancy, the following air samples shall be collected for each tent (provided that the amount of ACM is less than or equal to 160 square feet or 260 linear feet):

Five (5) PCM samples - inside work area
Three (3) TEM samples - inside work area
Three (3) PCM samples - outside work area
Three (3) TEM samples - outside work area

4. All PCM and TEM results must satisfy the clearance criteria for reoccupancy.

5. When volumes greater than or equal to 1,199 liters for a 25 mm filter and/or 2,799 liters for a 37 mm filter have been collected and the

1.31 SUBMITTALS

A. Test Reports:

1. Require immediate submittal of one (1) copy of all test results to the Construction Manager and Commissioner or his representative.
2. Are necessary so that, if required, modifications to work methods and/or practices may be implemented as soon as possible.
3. Shall be transmitted by the Abatement Contractor to the Construction Manager, and Commissioner or his representative within 24 hours of the result of each test by fax, followed by written notification of all the test results within three days.

1.32 PAYMENT FOR FINAL AIR TESTING

A. Final Air Testing Costs:

1. All costs for the initial final air testing of each work area following clean-up and as required by this Contract and Title 15, Chapter 1 of RCNY shall be borne by the Owner.
2. Retesting:

Should air tests (following final clean-up) indicate a fiber count greater than 0.01 fibers per cubic centimeter (PCM) or the average number of asbestos on TEM samples is greater than 70 s/mm³ of filter, in any of the building areas, the Contractor shall re-clean the specific area. The Construction Manager will then arrange for retesting by the third party laboratory. All costs of such retesting will be at the Contractor's expense. Repeated cycles of cleaning and clearance testing will be performed until a fiber count within the Work Area is equal to or less than 0.01 fibers/cubic centimeter (PCM) and the average number of asbestos structures on TEM samples is no greater than 70s/mm² of filter is attained. The repeated cleaning will be done by the Contractor at no cost to the Owner. A permanent deduction equal to the cost of additional clearance air testing including all costs incurred by Owner will be made from the Contractor's payment.

1.33 COOPERATION WITH TESTING LABORATORY

Representatives of all testing laboratories shall have access to the Work Area at all times. The Contractor shall provide facilities for such access so that the laboratories may properly perform its function.

NOTES:

- A. No person involved in asbestos abatement work shall be exposed to greater than 8 hour time weighted average asbestos fiber exposure level or instantaneous ceiling concentrations of asbestos fibers greater than the limits prescribed in OSHA 29 CFR 1926.1101. Where such exposures are discovered during testing appropriate measures as prescribed by OSHA 29 CFR 1926.1101 shall be taken.
- B. The discovery of more than 0.01 asbestos fibers/cc or 70 s/mm² of filter outside of the Work Area shall be cause for ceasing work immediately. In addition, any breach of a temporary enclosure (asbestos containment for Work Area) shall be cause for ceasing work until the breach is repaired, cleaning outside the Work Area is performed as necessary, and air tests demonstrate that there are 0.01 fiber/cc or less present outside the Work Area. If directed to cease work pursuant to this paragraph, the City will be held harmless from any claims arising from a delay in completion of this work experienced by the Contractor.

1.34 TESTING LABORATORY

- A. The Laboratory will perform analysis of air samples utilizing phase contrast microscopy (PCM) and/or transmission electron microscopy (TEM). The Laboratory shall also perform periodic observations of the Work Site.
- B. Observations will include, but not be limited to, checking the standard operating procedures, engineering control systems, respiratory protection, decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project that may effect the health and safety of the environment, Contractor, and/or facility occupants.
- C. The Testing Laboratory shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the Contractor to verify that said performance complies with this Specification. The Testing Laboratory shall be on site throughout the entire abatement operation.
- D. At a minimum, air sampling shall be conducted in accordance with the following schedule:

Abatement Activity	Pre-Abatement	During Abatement	Post-Abatement
Equal to or greater than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	TEM
Less than 10,000 square feet or 10,000 linear feet of ACM	PCM	PCM	PCM
Exceptions to the above:			

Abatement Activity	Pre-Abatement	During Abatement	Post-Abatement
Boiler Rooms	---	PCM	PCM
Tent and Glovebag Procedures	---	PCM	PCM
Demolitions	---	PCM	PCM

Note: TEM is acceptable wherever PCM is required.

- E. Prior to commencement of abatement activities, the Testing Laboratory will collect a minimum number of area samples inside each homogeneous work area.
1. Samples will be taken during normal occupancy activities and circumstances at the work site.
 2. Samplers shall be located within the proposed work area and at all proposed isolation barrier locations.
 3. Samples shall be analyzed using PCM.
 4. The number of samples to be collected will be determined by the size of the project and the abatement methods to be utilized.
- F. Frequency and duration of the air sampling during abatement shall be representative of the actual conditions during the abatement. The size of the asbestos project will be a factor in the number of samples required to monitor the abatement activities. The following minimum schedule of samples shall be required daily.
1. Projects Not Solely Employing Glove-Bag and/or Tent Procedures:
 - a. Two area samples outside the work area in uncontaminated areas of the building, remote from the decontamination facilities.
 - b. Primary location selection shall be within 10 feet of isolation barriers.
 - c. Where negative ventilation exhaust runs through uncontaminated building areas, one of the area samples will be required in these areas to monitor any potential fiber release.
 - d. Where adjacent non-work areas do not exist, an exterior area sample shall be taken.
 - e. One area sample within the uncontaminated entrance to each decontamination enclosure system.

- f. One area sample within 5 feet of the unobstructed exhaust from each AFD exhausting indoors.
2. **Projects Solely Employing Glove-Bag and/or Tent Procedures:**
 - a. One Baseline sample shall be taken near each entrance to the Work Area.
 - b. Area air samples shall be taken daily no less than 10 feet nor more than 15 feet from the glove-bag(s) or tent(s) actively being used in the abatement, or a similar appropriate and representative distance, using the following guidelines:
 3. **Glove-Bag Removals:**
 - a. For projects involving more than 25 linear feet and less than 260 linear feet, a minimum of two samples (one baseline and one active abatement area sample) shall be taken in each homogeneous Work Area.
 - b. For projects involving 260 linear feet or more and less than 500 linear feet of insulation to be removed, a minimum of two samples shall be taken concurrently with the abatement.
 - c. For projects involving 500 linear feet or greater of insulation to be removed, a minimum of three samples shall be taken concurrently with the abatement, for each 1,000 linear feet of removal.
 4. **Tent Procedures:**
 - a. For projects involving more than 25 linear feet or 10 square feet, a minimum of three continuous samples shall be taken concurrently throughout abatement.
- G. Post-abatement clearance air monitoring for projects not solely employing glove-bag procedures shall include a minimum number of area samples inside each homogeneous work area and outside each homogeneous work area (five samples inside/five samples outside for Large Projects and three samples inside/three samples outside for Small Projects). In addition to the five sample inside/five sample outside minimum for Large Projects, one additional representative area sample shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.
- H. Post-abatement clearance air monitoring for Small Projects solely employing glove-bag procedures is not required unless one or more of the following events occurs. In such cases, post-abatement clearance air monitoring procedures shall be followed. The events requiring post-abatement clearance air monitoring are:
1. The integrity of the glove-bag was compromised,
 2. Visible emissions are detected outside the glove-bag, and/or

3. Ambient levels exceed 0.01 f/cc during abatement.
- I. Monitoring requirements for other than post-abatement clearance air monitoring are as follows:
 1. The sampling zone for indoor air samples shall be representative of the building occupants' breathing zone.
 2. If possible, outdoor ambient and baseline samplers should be placed about 6 feet above the ground surface in reasonable proximity to the building and away from obstructions and drafts that may unduly affect airflow.
 3. For outdoor samples, if access to electricity and concerns about security dictate a rooftop site, locations near vents and other structures on the roof that would unduly affect airflow shall be avoided.
 4. Air sampling equipment shall not be placed in corners of rooms or near obstructions such as furniture.
 5. Samples shall have a chain of custody record.
 - J. Area air sampling during abatement shall be conducted as specified in the following documents except as restricted or modified herein:
 1. Measuring Airborne Asbestos Following an Abatement Action, US EPA document 600/4-85-049 (Nov., 1985);
 2. Guidance for Controlling Asbestos-Containing Materials in Buildings; US EPA Publication 560/5-85-024 (June, 1984);
 3. Methodology for the Measurement of Airborne Asbestos by Electron Microscopy US EPA Contract No. 68-02-3266;
 4. Mandatory and non-mandatory Electron Microscopy Methods set forth in 40 CFR Part 763, Subpart E, Appendix A.
 5. NIOSH 7400 method using "A" counting rules
 - K. In accordance with the above criteria, area samples (see NYCDEP Asbestos Control Program Regulations) shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow Rate
PCM, 25mm cassettes	560 liters	5 to 15 liters/minute
TEM, 25mm cassettes	560 liters	1 to 10 liters/minute
TEM, 37mm cassettes	1,250 liters	1 to 10 liters/minute

L. Post-abatement clearance air monitoring requirements are as follows:

1. Sampling shall not begin until at least one hour after wet cleaning has been completed and no visible pools of water or condensation remain.
2. Samplers shall be placed at random around the work area. If the work area contains the number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples, a representative sample of rooms shall be selected.
3. The representative samplers placed outside the work area but within the building shall be located to avoid any air that might escape through the isolation barriers and shall be approximately 50 feet from the entrance to the work area, and 25 feet from the isolation barriers.

M. The following aggressive sampling procedures shall be used within the work area during all clearance air monitoring:

1. Before starting the sampling pumps, use forced air equipment (such as a one horsepower leaf blower) to direct exhaust air against all walls, ceilings, floors, ledges and other surfaces in the work area. This pre-sampling procedure shall take at least five minutes per 1,000 square feet of floor area; then
2. Place a 20-inch diameter fan in the center of the room. (Use one fan per 10,000 cubic feet of room space.) Place the fan on slow speed and point it toward the ceiling.
3. Start the sampling pumps and sample for the required time or volume.
4. Turn off the pump and then the fan(s) when sampling is completed.
5. Collect a minimum number of area samples inside and outside each homogeneous work area (5 inside/5 outside samples for Large Projects and 3 inside/3 outside samples for Small Projects). In addition to the minimum for Large Projects, one representative area samples shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.

N. For post-abatement monitoring, area samples shall conform to the following schedule:

Area Samples for Analysis by	Minimum Volume	Flow Rate
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PCM	1,800 liters	5 to 15 liters/minute
TEM	1,250 liters	1 to 10 liters/minute

1. Each homogeneous work area that does not meet the clearance criteria shall be thoroughly recleaned using wet methods, with the negative pressure ventilation system in operation. New samples shall be collected in the work area as described above. The process shall be repeated until the work site meets the clearance criteria.
2. For an asbestos project with more than one homogeneous work area, the release criterion shall be applied independently to each work area.
3. Should airborne fiber concentrations exceed the clearance criteria, the Contractor shall reclean the work area utilizing wet wiping and HEPA-vacuuuming techniques. Following completion of recleaning activities, the Testing Laboratory will perform an observation of the Work Area. If the Testing Laboratory determines that the work was performed in accordance with the specifications, the appropriate settling period will be observed and additional air sampling will be performed.
4. All costs resulting from additional air tests and observations shall be borne by the Contractor. These costs may include, but are not limited to, labor, analysis fees, materials, and expenses.
5. After the area has been found to be in compliance, the Contractor may remove Isolation Barriers and perform final cleaning as specified.

O. Clearance and/or Reoccupancy Criteria

1. The clearance criteria shall be applied to each homogeneous work area independently.
2. For PCM analysis, the clearance air monitoring shall be considered satisfactory when each of the 5 inside/5outside samples for Large Projects and/or 3 inside/3outside samples for Small Projects is less than or equal to 0.01 f/cc or the background concentrations, whichever is greater.
3. For TEM analysis, the clearance air monitoring shall be considered satisfactory when the requirements stated in 40 CFR Part 763, Subpart E, Appendix A, Section IV are met.
4. As soon as the air monitoring tests are completed, the Testing Laboratory will send the results of such tests to the City and notify the Contractor.

P. The Contractor shall cooperate fully with all aspects of air monitoring operations.

1.35 TAMPERING WITH TEST EQUIPMENT

- A. All parties to this Contract are hereby notified that any tampering with testing equipment will be considered an attempt at falsifying reports and records to federal and state agencies and each

offense will be prosecuted under applicable state and federal criminal codes to the fullest extent possible.

PART 2 – PRODUCTS

2.01 MATERIAL HANDLING

- A. Deliver all materials to the job site in their manufacturer's original container, with the manufacturer's label intact and legible.
 - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
 - 2. Store all materials on pallets, away from any damp and/or wet surface. Cover materials in order to prevent damage and/or contamination.
 - 3. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the City.
- B. The Construction Manager may reject as non-complying such material and products that do not bear identification satisfactory to the Resident Engineer as to manufacturer, grade, quality and other pertinent information.

2.02 MATERIALS

- A. Wetting agent shall be Astrip Concentrate as manufactured by Hythe Chemicals Limited, Charleston Industrial Estate, Hardley, Hythe, Southampton S04626, Telephone - 0703891806, Telex 47631. BWE 5000 as manufactured by Better Working Environments Inc., of San Diego, CA or approved equivalent.
- B. Acceptable sealants shall be:
 - 1. Sealing material shall be both penetrating and bridging and may be applied by a one or two coat system and shall meet the following criteria:
 - a) ASTM Standard E84-84
 - b) Class A Fire Rating
Flame Spread: 0-25
Fuel Contribution: 10
Smoke Density: 5
 - c) Underwriters Laboratory approval for Class 1A
 - d) Acceptable sealants shall be:

- (1) Tri-Cote AE as manufactured by United Products Corp. of Little Rock, Arkansas.
 - (2) A-B-C Asbestos Binding Compound as manufactured by California Products Corp. of Cambridge, Massachusetts.
 - (3) Fosters protector and Bridging Encapsulants as manufactured by H.B. Fuller Co. of Houston, Texas.
2. Sealing materials to be applied to structural members and decking assemblies scheduled to receive spray-applied fireproofing shall be approved by UL for use with the specified material.
- C. Framing Materials and Doors: As required to construct temporary decontamination facilities and Isolation Barriers. Lumber shall be high grade, new, finished one side and fire retardant.
 - D. Fire Retardant Polyethylene Sheeting: minimum uniform thickness of 6-mil. Provide largest size possible to minimize seams.
 - E. Fire Retardant Reinforced Polyethylene Sheeting: For covering floor of decontamination units, provide translucent, nylon reinforced or woven polyethylene laminated, fire retardant polyethylene sheeting. Provide largest size possible to minimize seams, minimum uniform thickness 6-mil
 - F. Drums: Asbestos transporting drums, sealable and clearly marked with warning labels as required by OSHA and EPA.
 - G. Polyethylene Disposal Bags: Asbestos disposal bags, minimum of 6-mil thick. Bags shall be clearly marked with warning labels as required by OSHA and EPA.
 - H. Signs: Asbestos warning signs for posting at perimeter of Work Area, as required by OSHA and EPA.
 - I. Waste Container Bag Liners and Flexible Trailer Trays: One piece leak-resistant flexible tray with absorbent pad, as manufactured by Packaging Research and Design Corporation, Madison, WS 39130 or equivalent.
 - J. Tape: Provide tape which is of high quality with an adhesive which is formulated to aggressively stick to sheet polyethylene, as manufactured by Kendall Co., NASHUA Tape Products; or approved equivalent.
 - K. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene, as manufactured by 3M; NASHUA Tape Products; or approved or equivalent.
 - L. Flexible Duct: Spiral reinforced flex duct for air filtration devices.

- M. Disposable Coveralls: Dupont "Blockade" as manufactured by Dupont Company of Wilmington Delaware," Kleenguard Limited USE Coveralls" or "Duraguard" coveralls as manufactured by Kimberly Clark Corporation of Rosewell, Georgia, or approved equivalent.

2.03 TOOLS AND EQUIPMENT

- A. Air Filtration Device (AFD): AFDs shall be equipped with High Efficiency Particulate Air (HEPA) filtration systems and shall be approved by and listed with Underwriter's Laboratory. Air filtration devices shall be "Microtrap" as manufactured by Asbestos Control Technology of Maple Shade, New Jersey, or "RAM AIR 2M" as manufactured by Aramsco of Thorofare, New Jersey, or "Environmental Ltd., 300" as manufactured by Torchcross Agency Environmental, Hagerstown, Maryland or approved equivalent.
- B. Scaffolding: All scaffolding shall be designed and constructed in accordance with OSHA (29 CFR 1926/1910), New York City Building Code, and any other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references the most stringent provisions are applicable. All scaffolding and components shall be capable of supporting without failure a minimum of four times the maximum intended load, plus an allowance for impact. All scaffolding and staging must be certified by a Professional Engineer licensed to practice in the State of New York.
1. Equip rungs of all metal ladders, etc., with an abrasive, non-slip surface.
 2. Provide non-skid surface on all scaffold surfaces subject to foot traffic. Scaffold ends and joints shall be sealed with tape to prevent penetration of asbestos fibers.
- C. Transportation Equipment: Transportation Equipment, as required, shall be suitable for loading, temporary storage, transit and unloading of contaminated waste without exposure to persons or property. Any temporary storage containers positioned outside the building for temporary storage shall be metal, closed and locked.
- D. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems. Vacuum equipment shall be as manufactured by Nilfisk of America of Malvern, Pennsylvania (Models. GS 81 or GS 83) or equivalent.
- E. Vacuum Attachments: Soft Brush Attachment, Asbestos Scraper Tool, Drill Dust Control Kit.
- F. Electric Sprayer: An electric airless sprayer suitable for application of encapsulating material and shall be approved by and listed with Underwriters Laboratory.
- G. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer for amended water application.
- H. Portable Shower: For personnel decontamination, Enviro-Clean by CRSI; Aero-Porta Shower; or approved equivalent.
- I. Water Atomizer: Powered air-misting device, equipped with a ground fault interrupter and

equipped to operate continuously. Water atomizer device shall be the "Tri-Jet DS", No. 6228, as manufactured by Fogmaster Corp. of Hialeah, Florida, or EM 490 Portable Electrical/Airless Sprayer as manufactured by Graco, Inc., P.O. Box 1441, Minneapolis, MN 55440-1444.

- J. **Brushes:** All brushes shall have nylon bristles. Wire brushes are excluded from use due to their potential to shred asbestos fibers into small, fine fibers. Wire brushes maybe used for cleaning pipe joints within glove-bags upon written approval of the Resident Engineer.
- K. **Hand Power Tools:** shall be equipped with HEPA-filtered local exhaust ventilation if used to drill, cut into or otherwise disturb ACM.
- L. **Other Tools and Equipment:** Contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, sponges, rounded-edge shovels, brooms, and carts.
- M. **Fans and Leaf Blower:** Provide Leaf Blower (one leaf blower per floor) and one 20-inch diameter fans for each 10,000 cubic feet of Work Area volume to be used for aggressive sampling technique for clearance air testing.
- N. **Fire Extinguishers:** Provide type "A" fire extinguishers for temporary offices and similar spaces where there is minimal danger of electrical or grease-oil-flammable liquid fires. In other areas, provide type "ABC" dry chemical extinguishers of NFPA recommended types for the exposure in each case. All fire extinguishers shall comply with the applicable recommendations of NFPA Standard 10, "Standard For Portable Extinguishers." Provide a minimum of four fire extinguishers in each Work Area; one in the equipment room of the decontamination unit, one outside the Work Area in the clean room or directly outside same, and two fire extinguishers where they are most effective for their intended purpose. Do not exceed seventy-five feet between fire extinguishers within the Work Area.
- O. **First Aid Kits:** Contractor shall maintain adequately stocked first aid kits in the clean rooms of the decontamination units and within Work Areas. The first aid kit shall be approved by a licensed physician for the work to be performed under this Contract.
- P. **Water Service:**
 - 1. **Temporary Water Service Connection:** All connections to the Facilities water system shall include back flow protection. Valves shall be temperature and pressure rated for operation of the temperature and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping, and equipment. Leaking or dripping fittings/valves shall be repaired and or replaced as required.
 - 2. **Water Hoses:** Employ new heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each Work Area and to each Decontamination Enclosure Unit. Provide fittings as required for connection to existing wall hydrants or spouts, as well as temporary water

heating equipment, branch piping, showers shut-off nozzles and equipment.

3. **Water Heater:** Provide UL rated 40-gallon electric water heaters to supply hot water for Personal Decontamination Enclosure System Shower. Activate from 30 Amp Circuit breakers located within the Decontamination Enclosure subpanel. Provide relief valve compatible with water heater operations, pipe relief valve down to drip pan at floor level with type 'L' copper piping. Drip pans shall be 6-inch deep and securely fastened to water heater. Wiring of the water heater shall comply with NEMA, NECA, and UL standards.

Q. Electrical Service:

1. **General:** Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electric service.
2. **Temporary Power:** Provide service to decontamination unit subpanel with minimum 60 AMP, two pole circuit breaker or fused disconnect connected to the building's main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.
3. **Voltage Differences:** Provide identification warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.
4. **Ground Fault Protection:** Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate GFCIs exterior to Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in Work Area, decontamination units, exterior, or as otherwise required by NEC, OSHA or other authority. Locate in panel exterior to Work Area.
5. **Power Distribution System:** Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead, and rise vertically where wiring will be least subject to damage from operations.
6. **Temporary Wiring:** In the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Provide liquid tight enclosures or boxes for all wiring devices. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors.
7. **Electrical Power Cords:** Use only grounded extension cords; use hard service cords where exposed to traffic and abrasion. Use single lengths of cords only.
8. **Temporary Lighting:** All lighting within the Work Area shall be liquid and moisture proof and designed for the use intended.

- a) Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.
9. Provide lighting in the Decontamination Unit as required to supply a minimum 50-foot candle light level.

2.04 CLEANING

A. Throughout the construction period, the Contractor shall maintain that the building as described in this Section.

1. The Contractor shall prevent building areas other than the Work Area from becoming contaminated with asbestos-containing dust or debris. Should areas outside the Work Area become contaminated with asbestos-containing dust or debris as a consequence of the Contractor's work practices, the Contractor shall be responsible for cleaning these areas in accordance with the procedures appended in Title 15, Chapter 1 of RCNY and NYSDOL ICR56. All costs incurred in cleaning or otherwise decontaminating non-Work Areas and the contents thereof shall be borne by the Contractor at no additional cost to the City.
2. The Contractor shall provide to all personnel and laborers the required equipment and materials needed to maintain the specified standard of cleanliness.

B. General

1. Waste water from asbestos removal operations, including shower water, may be discharged into the public sewer system only after approved filtration is on operation to remove asbestos fibers.
2. Asbestos wastes shall be double bagged in six mil (.006") polyethylene bags approved for ACM disposal and shall be properly labeled and handled before disposal.
3. The Contractor shall use corrugated cartons or drums for disposal of asbestos-containing waste having sharp edged components (e.g. nails, screws, metal lathe and tin sheeting) that may tear polyethylene bags and sheeting. The waste within the drums or cartons must be double bagged.
4. The Contractor shall transport all bags of waste to disposal site in thirty gallon capacity metal or fiber drums with tight lids, or in locked steel dumpster.
5. Dumping of debris, waste or bagged waste will not be permitted.
6. Cleanup of visible accumulations of loose ACM shall occur whenever there is a sufficient amount to fill a single asbestos bag.

7. ACM shall be collected utilizing rubber dust pans and rubber squeegees.
8. HEPA vacuums shall not be used on wet materials unless specifically designed for that purpose.
9. Metal shovels shall not be used within the work area.
10. Accumulations of dust shall be cleaned off all surfaces of the Work Area daily.
11. Mastic solvent when used will be applied in moderation (e.g. by airless sprayer). Saturation of the concrete floor with mastic solvent must be avoided.
12. The Contractor shall retain all items in the storage area in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of all materials.
13. The Contractor shall not allow accumulation of scrap, debris, waste material, and other items not required for use in this work. When asbestos contaminated waste must be kept on the work site overnight or longer, it shall be double bagged and stored (with permission from the Construction Manager) in tightly closed and sealed fiber drums and placed inside or outside the contaminated area.
14. At least twice a week (more if necessary), the Contractor shall completely remove all scrap, debris and waste material from the job site.
15. The Contractor shall provide adequate storage space for all items awaiting removal from the job site, observing all requirements for fire protection and concerns for the environment.
16. All respiratory protection equipment shall be selected from the latest NIOSH Certified Equipment list.
17. Daily and more often, if necessary, the Contractor shall inspect the Work Areas and adjoining spaces, and pick up all scrap, debris, and waste material. All such items shall be removed to the place designated for their storage.
18. Weekly, and more often, if necessary, the Contractor shall inspect all arrangements of materials stored on the site; re-stack and tidy them or otherwise service them to meet the requirements of these Specifications.
19. The Contractor shall maintain the site in a neat and orderly condition at all times.

C. Initial Cleaning:

1. When double bagging of all removed asbestos material is completed, the Contractor shall label bags as required by Title 15, Chapter 1 of RCNY and NY State DOL Industrial Code Rule 56.
2. Bags shall be wiped with clean damp cloths and if necessary placed in fiber containers prior to transportation to approved disposal site.
3. Plastic barriers shall be HEPA vacuumed and wet wiped. Then the barriers shall be removed, folded inwards and double bagged as ACM waste.
4. *Hard surfaced flooring such as concrete, terrazzo, floor tile and ceramic tile, shall be wet mopped, allowed to dry, and damp mopped a second time with clean mop heads.*
5. Walls, Furniture and equipment (which remained in Work Area during work operations), windows and other surfaces shall be thoroughly cleaned twice with damp cloths.
6. Entire work area surfaces shall appear clean and free from contamination under visual inspection.
7. All mop heads and cleaning cloths shall be discarded in the same manner as described above as asbestos waste materials.

2.05 FINAL CLEAN-UP PROCEDURES:

A. Definition:

1. Except as otherwise defined, "Clean" (for the purpose of this Section) shall mean the level of cleanliness generally provided by skilled cleaners using building maintenance equipment and materials similar to that used in commercial buildings.
2. Should air tests following final clean-up indicate an average result that exceeds 70 structures per square millimeter of filter (70 s/mm^2), the Contractor shall re-clean Work Areas until additional air tests indicate a fiber count less than or equal to 70 s/mm^2 .

B. General:

Prior to completion of the work, all tools, surplus materials, equipment, scrap, debris and waste shall be removed from the job site. Final progress cleaning as described in paragraph 4.6 shall be carried out.

NOTE: The cleaning work shall progress from the point most remote from the negative pressure exhaust units and proceed towards the unit and from the highest point of the surface being cleaned towards the lowest surface point.

C. Interior:

All interior surfaces in and adjacent to Work Area shall be visually inspected and all traces of soil, waste material, smudges and other foreign materials shall be removed. All traces of splashed materials shall be removed from adjacent surfaces. All paint droppings, spots, stains, and dirt from finished surfaces shall be removed. The specified cleaning materials and equipment particularly suitable for the purpose shall only be used.

D. Timing:

The final cleaning time shall be scheduled as per approval of the Commissioner. This will enable the Department of Design and Construction to arrange for inspections of the site and determine if the cleaning performed for the site is up to the level of acceptance.

E. The Construction Manager and the Facility Manager will inspect and test all equipment controls gauges, etc. within the Work Area and submit a list of damaged or non functional items to the Abatement Contractor for repair.

F. First Cleaning:

After removal of all visible accumulations of ACM, the area shall be:

1. HEPA vacuumed on dry surfaces.
2. Wet/dry HEPA vacuums (dedicated to asbestos abatement) may be used to pick up excess water and gross saturated debris.
3. All surfaces will be wet cleaned.

The Contractor will request and pass a visual inspection ("Post-removal Visual") to be performed by the Construction Manager before proceeding to the next step. The Construction Manager will check for visible dust and debris on structures from which ACM has been removed, and on surfaces surrounding these structures. Passing of this inspection shall be recorded in the daily logbook.

4. The Work Area shall be vacated for twelve (12) hours to allow for fibers to settle.

G. Second Cleaning:

After the first waiting period:

1. All surfaces shall be wet cleaned.
2. The exposed, first layer of the plastic surface barriers will be removed from walls, ceiling and floor where present and disposed of as ACW.

3. When a high degree of cleanliness has been achieved, the Contractor will notify the Construction Manager that the Work Area is ready for a pre-encapsulation inspection. During this inspection the Construction Manager will inspect the area for visible dust and debris.
4. After the four (4) hours of this second waiting period, the Contractor will thoroughly encapsulate surfaces from which ACM has been removed and lightly mist all plastic surface barriers.
 - a. The encapsulant shall be EPA approved and be of the penetrating type.
 - b. The encapsulant shall be compatible with the new, non-asbestos insulation material that is to replace the removed material.

H. Third Final Cleaning:

1. The last layer of plastic will be removed from walls, floors and ceiling. The critical barriers will remain in position. The first surface layer of plastic will be removed from objects. Plastic barriers shall be carefully removed, folded inward and double bagged for disposal.

Note: Critical barriers shall not be removed until work of all trades involved in the abatement work is completed. In all respect, the Work Area shall be cleaned, air tests should be completed and the work should be accepted as completed.

2. Hard surfaced flooring such as concrete, terrazzo, floor tile and ceramic tile, shall be wet mopped, allowed to dry, and damped mopped a second time with clean mop heads.
3. Walls, furniture and equipment (which remained in Work Area during work operations), windows and other surfaces shall be thoroughly cleaned twice with damp cloths.
4. All surfaces shall be left visually clean.
5. All mop heads and cleaning cloths shall be discarded in the same manner as applicable as asbestos waste.
6. The Contractor will notify the Construction Manager the Work Area is ready for a final inspection.
7. The Construction Manager will inspect the completeness of the encapsulation. Both parties will check the cleanliness of the Work Area.
8. Passing of the final visual inspection shall be recorded in the daily log book.

- I. Settling periods not required for projects filed under NYC DEP ACP-5 conducted under NYS DOL Applicable Variance 119 Protocol.

2.06 FINAL AIR TESTING

1. One (1) hour after the third final cleaning period, final air testing can commence. Air sampling will be performed utilizing aggressive air sampling methods.
2. Not required for projects filed under NYC DEP ACP-5 conducted under NYS DOL Applicable Variance 119 Procedures.

PART 3 – EXECUTION

3.01 WORKER DECONTAMINATION FACILITY

A. Large Asbestos Projects (Small Project Option):

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas
 - a) Structure:
 - (1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.
 - (2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.
 - (3) Interior shall be covered with two layers of opaque 6-mil polyethylene sheeting, with a minimum overlap of 16 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of sixteen inches.
 - (4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.
 - b) Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

- c) **Air Locks:** Air locks shall consist of two curtained doorways placed a minimum of three feet apart.
- d) **Decontamination Enclosure System** shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:
 - (1) **Equipment Room:** The equipment room shall have a curtain doorway to separate it from the Work Area, and share a common airlock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing them enough room to remove their protective clothing and footwear), and a 6-mil disposal bag for collection of discarded clothing and equipment. The equipment room shall be utilized for the storage of equipment and tools after decontamination using a HEPA-vacuum and/or wet cleaning. A one-day supply of replacement filters, in sealed containers, for HEPA-vacuums and negative air machines, extra tools, containers of surfactant, and other materials and equipment required for the project shall be stored here. A walk-off pan filled with water shall be placed in the Work Area just outside the equipment room for persons to clean foot coverings when leaving the Work Area. Contaminated footwear and reusable work clothing shall be stored in this room.
 - (2) **Shower Room:** The shower room shall have two airlocks (one that separates it from the equipment room and one that separates it from the clean room). The shower room shall contain at least one shower, with hot and cold water adjustable at the tap, per eight workers. Careful attention shall be given to the shower to ensure against leaking of any kind. Contractor shall supply towels, shampoo and liquid soap in the shower room at all times. Shower water shall be drained collected, and filtered through a system with at least a 5-micron particle size collection capacity. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filters by large particles. Filtered water shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.
 - (3) **Clean Room:** The clean room shall share a common airlock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. Lockers, for storage of workers' street clothing, and shelves, for storing respirators, shall be provided in this area. Clean disposable clothing, replacement filters for respirators, and clean dry towels shall be provided in the clean room. The clean room shall not used for the storage of tool, equipment or other materials.

B. Small Asbestos Projects

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.
 - a) Structure:
 - (1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.
 - (2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.
 - (3) Interior shall be covered with two layers of opaque 6-mil polyethylene sheeting, with a minimum overlap of 16 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of sixteen inches.
 - (4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.
 - b) Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.
 - c) Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart.
 - d) Decontamination Enclosure System shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:
 - (1) Shower Room: The shower room shall have two airlocks (one that separates it from the work area and one that separates it from the clean room). The shower room shall contain at least one shower, with hot and cold water adjustable at the tap, per eight workers. Careful attention shall be given to the shower to ensure against leaking of any kind. Contractor shall supply towels, shampoo and soap in the shower room at all times. Shower water shall be drained collected, and filtered through a system with at least a 5-micron particle size collection capacity. A system containing a series of several filters with progressively smaller pore sizes

shall be used to avoid rapid clogging of the filters by large particles. Filtered water shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.

- (2) Clean Room: The clean room shall share a common airlock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. Lockers, for storage of workers' street clothing, and shelves, for storing respirators, shall be provided in this area. Clean disposable clothing, replacement filters for respirators, and clean dry towels shall be provided in the clean room. The clean room shall not be used for the storage of tool, equipment or other materials.

- C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Contractor, and as specified herein.

3.02 WASTE DECONTAMINATION FACILITY

A. Large Asbestos Project (Small Project Option)

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas

a) Structure:

- (1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.
- (2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8" thickness plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.
- (3) Interior shall be covered with two layers of opaque 6-mil polyethylene sheeting, with a minimum overlap of 16 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of sixteen inches.
- (4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.

- b) Curtained Doorways: A device to allow ingress or egress from one room to

another while permitting minimal air movement between the rooms.

- c) **Air Locks:** Air locks shall consist of two curtained doorways placed a minimum of three feet apart.
- d) **Decontamination Enclosure System** shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:
 - (1) **Washroom:** An equipment washroom shall have two air locks (one separating the unit from the Work Area and one common air lock that separates it from the holding area. The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the Work Area, prior to moving to the washroom.
 - (2) **Holding Area:** A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the Work Area.

B. **Decontamination Enclosure System Utilities:** Lighting, heat, and electricity shall be provided as necessary by the Contractor, and as specified herein.

3.03 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING REMOTE DECONTAMINATION FACILITIES

- A. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall fully identify the facility, agents, contractor(s), the project, each Work Area, and worker respiratory protection employed. The job supervisor shall be responsible for the maintenance of the log during the abatement activity.
- B. Each worker shall remove street clothes in the clean room; wear two disposable suits, including gloves, hoods and non-skid footwear; and put on a clean respirator (with new filters) before entering the Work Area.
- C. Each worker shall, before leaving the Work Area or tent, shall clean the outside of the respirators and outer layer of protective clothing by wet cleaning and/or HEPA-vacuuming. The outer disposable suit shall be removed in the airlock prior to proceeding to the Worker Decontamination Unit. The inner disposable suit and respirator shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to aggressive shower.
- D. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately.

3.04 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING ATTACHED DECONTAMINATION FACILITIES

- A. All workers and authorized visitors shall enter the Work Area through the worker decontamination facility.
- B. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, contractor(s), the project, each Work Area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity.
- C. Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator with filters, and clean protective clothing before entering the Work Area through the shower room and equipment room.
- D. Each worker or authorized visitor shall, each time he leaves the Work Area, remove gross contamination from clothing before leaving the Work Area; proceed to the equipment room and remove clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.
- E. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the Work Area is not permitted outside the Work Area.

3.05 MAINTENANCE OF DECONTAMINATION ENCLOSURE FACILITIES AND BARRIERS

- A. The following procedures shall be followed during the conduct of abatement activities.
 - 1. All polyethylene barriers inside the work place and partitions constructed to isolate the Work Area from occupied areas shall be inspected by the asbestos handler supervisor at least twice per shift.
 - 2. Smoke tubes shall be used to test the integrity of the Work Area barriers and the decontamination enclosure systems daily before abatement activity begins and at the end of each shift.
 - 3. Damage and defects in the decontamination enclosure system shall be repaired immediately upon discovery.
 - 4. At any time during the abatement activity, if visible emissions are observed, or elevated asbestos fiber counts outside the Work Area are measured, or if damage occurs to

barriers, abatement shall stop. The source of the contamination shall be located, the integrity of the barriers shall be restored and extended to include the contaminated area, and visible residue shall be cleaned up using appropriate HEPA-vacuuming and wet cleaning.

5. Inspections and observations shall be documented in the daily project log by the asbestos handler supervisor.

3.06 MODIFICATIONS TO HVAC SYSTEMS

- A. Shut down, isolated or seal, all existing HVAC units, fans, exhaust fans, perimeter convection air units, supply and/or return air ducts, etc., situated in, traversing or servicing the work zone.
- B. Seal all seams with duct tap. Wrap entire duct with a minimum of two layers of 6-mil polyethylene sheeting. All shutdowns are to be coordinated with the Facility. Where systems must be maintained, i.e. traversing Work Areas to non-Work Areas, only supply ducts will be maintained, protect as described above. All returns must be blanked off in Work Area and adjacent areas, including floor above and below Work Area. When required Contractor shall apply for a clarification from NYCDEP. The Contractor shall implement the following engineering procedures:
 1. Maintenance of a positive pressure within the HVAC system of 0.01 inch water gauge (or greater) with respect to the ambient pressure outside the Work Area. The conditions for this system shall be maintained and be operational 24 hours per day from the initiation of Work Area preparation until successful final air clearance;
 2. The positive pressurization of the duct shall be tested, inspected and recorded both at the beginning and at the end of each shift;
 3. The positive pressurization shall be monitored using instrumentation which will provide a written record of pressurization and that will trigger an audible alarm, if the static pressure falls below the set value;
 4. The supply air fan and the supply air damper for the active positive-pressurized duct shall be placed in the manual "on" positions to prevent shutdown by fail-safe mechanisms;
 5. The return air fan and the return air dampers shall be shut down and locked-out;
 6. All the seams of the HVAC ducts that pass through the Work Area shall be sealed;
 7. The HVAC ducts that pass through the Work Area shall be covered with two (2) layers of 6-mil polyethylene sheeting, and all seams and edges of both layers shall be sealed airtight;
 8. The supply air fans, return air fans, and all dampers servicing the Work Area itself shall be shut down and locked-out. All openings within the Work Area of supply and return air ducts shall be sealed with 3/8-inch plywood and two layers of 6-mil polyethylene;

9. When abatement occurs during periods while the HVAC system is shut down so that an alternative method of pressurization of the duct passing through the Work Area is used (e.g., by low-pressure “blowers”, etc., directly coupled into the duct). Item #4 above shall be deleted and shall be replaced by the requirement to set the dampers of the HVAC duct in the manual closed positions, in order to effect pressurization.
- C. Contractor to coordinate this item with the Facility and Resident Engineer at the commencement of work.
- D. Where present HVAC systems (ducts) service a area, and that air system cannot be shut down, Contractor shall isolate and seal the ducts, both supply and return, at the boundary of that zone.
1. To isolate, cap, or seal a duct, the Contractor shall remove insulation from duct (if necessary), then disconnect linkage to fold shut all fire dampers. Contractor shall seal all edges and seams with caulk and duct-tape.
 2. Contractor shall then cut existing duct and fold metal in and secure with approved fasteners. Contractor shall caulk and duct-tape all seams and edges.
 3. All ducts shall then be completely wrapped and sealed with duct-tape and three (3) layers of reinforced polyethylene sheeting.
 4. All ducts shall be restored to original working order at the end of the project.
- E. Where present HVAC systems (ducts) service occupied areas (non-Work Areas), the Contractor shall blank off the ducts.
1. To isolate or seal the return duct, the Contractor shall remove any insulation (if necessary) from the duct. Then disconnect linkage to fold shut all fire dampers and insert a fiberglass board within the duct. Contractor shall seal all edges and seams with caulk, duct-tape and three (3) layers of reinforced polyethylene sheeting.
 2. All isolation of return ducts and any other activity that requires removal of ceiling by the Contractor shall be conducted under controls. Work is to be coordinated with the Resident Engineer and the Facility and is described as follows:
 - a) Work shall occur as scheduled.
 - b) Horizontal surfaces near the blanking operations shall be protected with 6-mil polyethylene sheeting.
 - c) Plastic drapes shall be used to enclose the immediate area.
 - d) Contractor to position and operate air filtration devices and HEPA-vacuums in the area to clean space after blanking operations.
 - e) All personnel involved with this work shall receive personal protection (i.e.

respirators and disposable suits).

- F. Upon loss of negative pressure or electric power, all work activities in an area shall cease immediately and shall not resume until negative pressure and/or electric power has been fully restored. When a power failure or loss of negative pressure lasts, or is expected to last, longer than thirty (30) minutes, the following sequence of events shall occur.
1. All make up air inlets shall be sealed airtight.
 2. All decontamination facilities shall be sealed airtight after evacuation of all personnel from the Work Area.
 3. All adjacent areas shall be monitored for potential fiber release upon discovery of and subsequently throughout, power failure.

3.07 LOCKOUT OF HVAC SYSTEMS AND ELECTRIC POWER

- A. Prior to the start of any prep work, the Contractor shall employ skilled tradesmen with limited asbestos licenses for the following work:
1. Disable all ventilating systems or other systems bringing air into, or exhausting air out of, the Work Area. Disable system by disconnecting wires removing circuit breakers, by lockable switch or other positive means to ensure against accidental re-starting of equipment.
 2. Lockout power to the Work Area by switching off all breakers and removing them from panels or by switching and locking entire panel. Label panel with following notation: "DANGER CIRCUIT BEING WORKED ON". Give all keys to Facility.
 3. Lock out power to circuits running through Work Area whenever possible by switching off and removing breakers from panel. If circuits must remain live, the Facility shall notify Contractor in order that he may secure a variance from NYCDEP. Protect all conduit and wires to remain and label all active circuits at intervals not to exceed 3 feet with tags having the following notation: "DANGER LIVE ELECTROCUTION HAZARD". Label all circuits in all locations including hidden locations that may be affected by the work in a similar manner.

PART 4 – PREPARATION OF WORK AREA AND REMOVAL PROCEDURES

4.01 REMOVAL OF ASBESTOS-CONTAINING ROOFING MATERIALS

- A. Contractor shall be responsible for the proper removal of ACM from the Work Area using standard industry techniques. The Testing Laboratory representative shall observe the Work.

1. General Requirements
 - a) Removal of ACM shall be performed using wet methods. Dry removal of ACM is prohibited.
 - b) Spray ACM with amended water with sufficient frequency and quantity to enhance penetration. Sufficient time shall be allowed for amended water to penetrate the material to the substrate prior to removal. All ACM shall thoroughly wetted all sides while work is being conducted.
 - c) Accumulation of standing water on the floor of the Work Area is prohibited.
 - d) Apply removal encapsulants, when used, in accordance with the manufacturer's recommendations and guidelines.
 - e) Containerize ACM immediately upon detachment from the substrate. Alternately, ACM may be dropped in to a flexible catch basin and promptly bagged. Excess air within the bag shall be removed before sealing. ACM shall not be dropped from a height of greater than 10 feet. Above 10 feet, dust free inclined chutes may be used. Maximum inclination from horizontal shall be 60-degrees for all chutes.

- B. Removal of ACM Roofing and Flashing shall be as follows:
 1. For roof decks constructed of wood or composition materials, the Contractor must file an ACP-5 (with prior approval from the Owner) along with all appropriate DEP, NYS and DOL filings. For all other deck materials, the Contractor has the option of filing an ACP-5 or ACP-7. If the Contractor has filed an ACP-5, protection of the windows on the floor beneath the roof is required.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE INTERIOR SPACES BENEATH THE ROOF.
 3. Removal and disposal of asbestos-containing roofing materials shall be performed under a thick blanket of non-toxic, water based biodegradable foam at least 2' thick. This biodegradable foam shall be produced on site by the Contractor and shall be approved by the Resident Engineer.
 4. The Contractor shall provide temporary roof protection consisting of 10 mil. polyethylene sheathing following abatement over the open roof areas. Strict coordination with the General Contractor, Construction Manager and/or Architect is required and necessary during this phase of abatement.
 5. Preliminary examination shall be conducted and precautions shall be taken to prevent damage to the interior of the building and to ensure no adverse effect on the structural stability of the roof due to the abatement activity.

The Contractor will be required to provide the necessary hoist, chute or elevator for

removing the debris and asbestos bags from the roof. Removal operations must be approved by the Facility and Construction Managers. Whichever method is approved and accepted, the Contractor is responsible to follow all applicable codes, standards and regulations. Hoists shall be constructed according to the Building Code of the City of New York.

Asbestos containing material located more than 10 feet above the floor shall be dropped into inclined chutes or dropped onto scaffolding or contained at that height for eventual disposal. For materials located at heights greater than 40 feet above the floor, a dust-tight, enclosed chute shall be constructed to transport material directly to containers located on the floor.

If an elevator is used to transport ACM, the interior car shall be plasticized with 2 layers of 6 mil polyethylene sheeting. The sheeting shall be removed at the end of each period of use for removing bagged asbestos waste and the car shall also be HEPA vacuumed and wet wiped.

6. Abatement activities shall not be carried out during adverse weather conditions (e.g., precipitation, heavy winds, etc.).
7. The work area on the roof shall be cordoned off, and only authorized persons shall have access to the "designated" work area. The removal shall start with the section(s) furthest away from the decontamination system and working progressively towards it. The Contractor may not remove more roofing material in a Work Area than can be covered by temporary roofing during that work period over the area of removal.
8. Movable objects shall be removed from the work area, or kept in place and wrapped in one sheet of 6-mil plastic sheeting. Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of plastic (minimum height of 6 feet).
9. The worker decontamination unit shall be constructed at an entry/exit from each work area with at least a shower room and a clean room. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet. For more than 1,000 square feet of removal, a separate waste decontamination facility shall be located at an entry/exit from each work area.
10. The floor area between the remote decontamination facility and the Work Area must be protected with 2 layers of 6-mil. polyethylene sheeting suitably anchored.

11. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings are to be sealed with two layers of 6-mil plastic or fitted with HEPA-filters where appropriate. In lieu of sealing vents, air intakes, etc., with two layers of plastic or HEPA-filters, temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange. Drains may be equipped with 5 micron filtering systems in lieu of being sealed.
12. Pre-Removal Inspections
 - a) Prior to removal of any ACRM, the Contractor shall notify the Testing Laboratory and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Testing Laboratory.
 - b) Contractor shall correct any deficiencies observed by Testing Laboratory at no additional cost to City.
 - c) Following the Testing Laboratory's approval of the Work Area preparations, removal of ACM may commence.
13. Removal of ACM Roofing and Flashing Materials:
 - a) Abatement shall not be performed in adverse weather conditions (e.g., precipitation, heavy winds, etc.)
 - b) Prior to actual removal, the built-up roofing and flashing shall be blanketed and wetted with a minimum two-inch thick coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.
 - c) Manual methods of removal are recommended; however, if hand-held power tools are used to drill, cut into, or otherwise disturb the asbestos-containing roofing material, the power tools shall be equipped with HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.
 - d) Portable HEPA-vacuum machines shall be available during abatement.

After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed then wet cleaned and transferred into the shower room for double bagging. The double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container
14. Following Removal of ACM Roofing and/or Flashing:
 - a) Upon completion of the abatement in roof work area, clean-up procedures shall involve removal and bagging of:

- b) the asbestos containing roofing material
- c) visible accumulations of asbestos containing waste
- d) all excess foam or similar viscous liquid
- e) all debris, and shall be followed by a thorough wet cleaning.
- f) All tools shall be wet cleaned and HEPA-vacuumed, and then removed from the work area upon completion.
- g) The work area shall be allowed to dry completely before the visual inspection is conducted. The inspection shall confirm the absence in the work area of:
- h) ACM, debris, bagged ACM waste,
- i) excess foam or other viscous liquid.
- j) If the work area fails visual inspection, it shall undergo another wet cleaning and/or HEPA vacuuming until it passes the visual inspection.
- k) When the visual inspection and clearance testing is successful, all plastic may be removed.
- l) Encapsulate the entire surface from which ACRM was removed with the approved sealer.

All polyethylene sheets and other barriers shall be sprayed with encapsulant following removal of ACRM as described herein but shall remain in place until successful air clearance has been achieved. All removed material shall be disposed of as asbestos containing waste. This disposal shall be in accordance with the provisions of Title 15, Chapter 1 of RCNY.

Respiratory protection during Work Area preparation and removal operation shall be (at a minimum) half-face respirators with HEPA filter cartridges.

Any modifications to the above procedures (including Air Monitoring) may be made only upon application to and approval of NYC Department of Environmental Protection Asbestos Control Program, Bureau of Air Resources through form ACP-9.

4.02 REMOVAL OF ACM UTILIZING TENT CONTAINMENT PROCEDURES

Removal of ACM Utilizing Tent Containment Procedures shall be as follows:

1. Preparation Procedures:

- a. Ensure that the Testing Laboratory has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.
- b. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC components shall be sealed with tape and two layers of polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos-contaminated waste.
- c. Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.
- d. Provide and install decontamination enclosure systems in accordance with PART 3 - EXECUTION, Articles 3.01 and 3.02 of these Specifications and the NYCDEP Variance. Decontamination facilities may be remote from the Work Areas upon approval from NYCDEP.
- e. Construct rigid framework to support Work Area barriers. Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist.
- f. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of 6-mil plastic and minimum 3/8" plywood, as necessary, and provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer. Any opening greater than 32 square feet shall be framed with 2-inch by 4-inch studding placed 16 inches on center.
- g. Install and initiate operation of AFDs to provide a negative pressure and a minimum of two air changes per hour within the Work Area relative to surrounding non-Work Areas. Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuums to produce a negative air pressure inside the enclosure is prohibited.
- h. Maintain emergency and fire exits from the Work Areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.
- i. Temporary lighting within the Work Area and decontamination system shall be

provided as required to achieve minimum illumination levels.

- j. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be equipped with HEPA filtered local exhaust ventilation.
- k. Prior to being plasticized, the Work Areas shall be cleaned using HEPA-vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.
- l. Plasticize the area after pre-cleaning, using the following procedures. Do not apply polyethylene sheeting wall and ceiling surfaces that will be demolished to access ACM.
 - (1) Cover floor with one layer of 6-mil polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.
 - (2) Cover walls with one layer of 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.
 - (3) Cover ceilings with one layer of 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to wall layer.
 - (4) Repeat procedure for second layer. All joints in polyethylene sheeting shall be glued and taped in such a manner as to prohibit air passage. Joints on plastic layers shall be staggered to reduce the potential for water to penetrate.
 - (5) In areas where demolition is required to access ACM, a layer of 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.
 - (6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM as described in this Specification.
 - (7) Repeat preparation of areas accessed by demolition activities as described above.
 - (8) Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.
 - (9) Protect non-ACM insulation within the Work Area(s) with two individual layers of 6-mil polyethylene sheeting. Sheeting shall remain in-place until satisfactory clearance air monitoring results are achieved.

m. Pre-Removal Inspections

- (1) Prior to removal of any ACM, the Contractor shall notify the Testing Laboratory and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Testing Laboratory.
- (2) Contractor shall correct any deficiencies observed by Testing Laboratory at no additional cost to City.
- (3) Following the Testing Laboratory's approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Utilizing Tent Containment Procedure:

- a) Mist material with amended water and/or foam. Allow sufficient time for the amended water to penetrate the material to be removed.
- b) Cut bands, wire or other items placed over insulation or ACM.
- c) Remove the ACM using hand tools such as knives or scrapers.
- d) Exercise caution when removing ACM.
- e) Remove any residual asbestos-containing material from the substrate using wet cleaning methods.
- f) Seal exposed ends of remaining insulation or ACM with a "wettable cloth" and/or encapsulant.
- g) Place the removed material immediately into a properly labeled 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.
- h) Following the completion of removal of ACM, all visible residue shall be removed from the substrate.

3. Following Removal of ACM Utilizing Tent Containment Procedure:

- a) Clean all visible accumulations of loose ACM. Metal shovels shall not be used within the Work Area.
- b) Accumulations of dust shall be cleaned continuously until completion of clean up.
- c) Apply a thin coat of an encapsulating agent shall be applied to any surfaces in the Work Area which were not the subject of removal or other remediation activities.

In no event shall encapsulant be applied to any surface that was the subject of removal or other remediation activities prior to obtaining satisfactory clearance air monitoring results.

- d) After removal of all visible accumulations of ACM, the area shall be:
- (1) HEPA-vacuumed on dry surfaces.
 - (2) Wet/dry shop vacuums (dedicated to asbestos abatement) may be used to pick up excess water and gross saturated debris.
 - (3) All surfaces shall be wet cleaned. Contractor shall request and pass a visual inspection performed by the consultant before proceeding to the next step. Documentation of passing this inspection shall be recorded in a daily logbook.
 - (4) The Testing Laboratory will conduct a visual observation of the Work Area to verify the absence of asbestos-containing waste materials.
 - (5) If the Work is accepted by the Testing Laboratory based on the inspection, Contractor shall be notified. Conduct the following activities in accordance with the contract and all applicable laws, codes, rules and regulations.
 - (a) All waste shall be removed from the Work Area and holding areas.
 - (b) All tools and equipment are to be removed and decontaminated in the decontamination enclosure system.
 - (6) If the Work is not approved, the Testing Laboratory will inform Contractor who will then HEPA-vacuum and/or wet-clean the Work Area. The Testing Laboratory will then perform a subsequent visual observation. This process will continue until the Testing Laboratory accepts the Work Area as clean.
 - (7) The Work Area shall be vacated for a minimum of one hour to allow fibers to settle prior to clearance air monitoring, when required.
- e) Final Barrier Removal
- (1) Upon receipt of acceptable clearance testing results polyethylene sheeting (inside layers) and Isolation Barriers shall be removed and disposed accordingly as ACM.
 - (2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA-vacuum and wet methods.
- f) The Testing Laboratory will conduct final visual. Approval must be granted prior to break down of decontamination facility and contractor demobilization. Other

Information: Extra time required to clean Work Areas in order to achieve clearance criteria shall not be considered grounds for an extension of time for contract completion.

4.03 REMOVAL OF ACM UTILIZING FULL CONTAINMENT PROCEDURES

A. Removal of ACM Utilizing Full Containment Procedures shall be as follows:

1. Preparation Procedures:

- a) Ensure that the Testing Laboratory has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.
- b) Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC components shall be sealed with tape and two layers of polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos-contaminated waste.
- c) Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.
- d) Provide and install decontamination enclosure systems in accordance with Sections 3.01 and 3.02 of this Specifications.
- e) Remove ACM that may be disturbed by the erection of partitions using tent procedures and wet removal methods. Removal shall be limited to a one-foot wide strip running the length/height of the partition.
- f) Pre-clean and remove moveable objects from the Work Area. Pre-cleaning shall be accomplished using HEPA-vacuum and wet-cleaning techniques. Store moveable objects at a location determined by the City.
- g) Protect carpeting that will remain in the Work Area.
 - 1) Pre-clean carpeting utilizing wet-cleaning techniques.
 - 2) Install a minimum of two layers of 6-mil reinforced polyethylene sheeting over carpeting.
 - (10) Place a rigid flooring material, minimum thickness of 3/8-inch, over polyethylene sheeting.
- h) Pre-clean all fixed objects to remain within the Work Area using HEPA-vacuum

and wet-cleaning techniques.

- i) Seal fixed objects with two individual layers, minimum, of 6-mil polyethylene sheeting.
- j) Pre-clean entire Work Area utilizing using HEPA-vacuum and wet-cleaning techniques. Methods of cleaning that raise dust, such as dry sweeping or use of vacuum equipment not equipped with HEPA-filters, is prohibited.
- k) Install isolation barriers (i.e., sealing of all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffusers, and other penetrations within the Work Area) using two layers of 6-mil polyethylene sheeting and duct-tape.
- l) Construct rigid framework to support Work Area barriers.
 - 1) Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist for all openings greater than 32 square feet. Framework is not required except where one dimension is one foot or less or the opening will be used as an emergency exit.
 - 2) Apply a solid construction material, minimum thickness of 3/8-inch to the Work Area side of the framing. In secure interior areas, not subject to access from the public or building occupants, an additional layer of 6-mil polyethylene sheeting may be substituted for the rigid construction material.
 - 3) Caulk all wall, floor, ceiling, and fixture joints to form a leaktight seal.
- m. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of 6-mil plastic and plywood, as necessary, and provide a system to collect all water used by the Contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.
- n. Remove ceiling mounted objects not previously sealed that will interfere with removal operations. Mist object and surrounding ACM with amended water prior to removal to minimize fiber dispersal. Clean all moveable objects using HEPA-vacuum and wet-cleaning techniques prior to removal from the Work Area.
- o. Fiberglass insulation with intact coverings shall be protected in place during abatement activities. These materials shall be protected with two layers of 6-mil polyethylene sheeting as isolation barriers and two additional layers of 6-mil polyethylene sheeting serving as primary and secondary surface barriers.
- p. Install and initiate operation of AFDs to provide a negative pressure and a minimum of two air changes per hour within the Work Area relative to

surrounding non-Work Areas. Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuum to produce a negative air pressure inside the enclosure is prohibited.

- q. Maintain emergency and fire exits from the Work Areas or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.
- r. Temporary lighting within the Work Area and decontamination system shall be provided as required to achieve minimum illumination levels.
- s. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be equipped with HEPA filtered local exhaust ventilation.
- t. Prior to being plasticized, the Work Areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.
- u. Plasticize the area after pre-cleaning, using the following procedures.
 - (1) Cover floors with one layer of 6-mil polyethylene sheeting, turning layer a minimum of 6 inches up wall, and seal layer to wall.
 - (2) Cover walls with one layer of 6-mil polyethylene sheeting, overlapping wall layer a minimum of 6 inches, and seal layer to floor layer.
 - (3) Cover floors with a second layer of 6-mil polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.
 - (4) Cover walls with a second layer of 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.
 - (5) In areas where demolition is required to access ACM, a layer of 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.
 - (6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM as described in this Specification.

- (7) Repeat preparation of areas accessed by demolition activities as described above.
- v. Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.
- w. Scaffolds shall be provided for workers engaged in work that cannot safely be performed from the ground or other solid Work Area surface.
- x. Pre-Removal Inspections
 - 1) Prior to removal of any ACM, the Contractor shall notify the Testing Laboratory and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Testing Laboratory.
 - 2) Contractor shall correct any deficiencies observed by Testing Laboratory at no additional cost to City.
 - 3) Following the Testing Laboratory's approval of the Work Area preparations, removal of ACM may commence.
- 2. Removal of ACM Within Full Containment:
 - a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.
 - b. Remove the material using hand tools such as scrapers or putty knives. Wire-mesh or wood lathe reinforcing, when present, shall be cut into manageable pieces and disposed of as ACM.
 - c. Remove any residual material from the substrate using wet cleaning methods and nylon-bristled hand brushes.
 - d. Place the removal material immediately into a properly labeled 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.
 - e. Following the completion of removal of insulation, all visible residue shall be removed from the substrate
- 3. Following Removal of ACM utilizing Full Containment Procedures:
 - a. First Cleaning:
 - (1) Remove any visible accumulation of asbestos material and debris. HEPA-

vacuuming and wet cleaning shall be performed on all surfaces inside the Work Area. All sealed drums, plastic bags, and equipment used in the Work Area shall be removed from the Work Area.

- (2) Upon request of the Contractor, the Testing Laboratory will perform a visual inspection. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.
- (3) Remove first layer of plastic sheathing inside the Work Area. The isolation barriers and decontamination facility shall remain in place and be utilized.

b. Second Cleaning:

- (1) After the first cleaning, the Work Area shall be vacated for twelve hours to allow fibers to settle.
- (2) All objects and surfaces in the Work Area shall be HEPA - vacuumed and wet cleaned for a second cleaning.
- (3) A thin coat of lockdown encapsulant shall be applied to all plastic covered surfaces in the Work Area.
- (4) When the encapsulant is dry, second layer of polyethylene sheeting on the walls, ceiling and floors shall be removed. Do not remove seals from doors, windows, Isolation Barriers or disconnect the negative pressure equipment.

c. Third Cleaning:

- (1) A minimum of four hours after the second cleanup, all the surfaces in the Work Area shall be HEPA-vacuumed and wet cleaned for a third cleaning.
- (2) Upon the request of the Contractor, the Testing Laboratory for observing whether cleaned areas are free of dust, dirt, and debris will do final visual inspection for reoccupancy. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.
- (3) When the Work Area passes the Testing Laboratory's visual reoccupancy inspection, air sampling shall not begin until at least one hour after the completion of the third cleanup. The testing laboratory shall perform air monitoring using aggressive testing techniques. The Testing Laboratory will approve Reoccupancy if the specified fiber count in the Work Area is achieved according to the testing laboratory.
- (4) When the Work Area passes the reoccupancy test, all controls and seals

established shall be removed.

- d. **Final Barrier Removal**
 - (1) Upon receipt of acceptable clearance testing results, polyethylene sheeting and Isolation Barriers shall be removed and disposed accordingly as asbestos-containing material.
 - (2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.
- e. The Testing Laboratory will conduct a final visual observation. Approval must be granted prior to break down of decontamination facility and contractor demobilization.

4.04 MAINTENANCE OF CONTAINED WORK AREA AND DECONTAMINATION ENCLOSURE SYSTEMS

- A. Ensure that barriers are installed in a manner to appropriate to the expected weather conditions expected during the project and for its duration. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect barriers at the beginning and end of each work period.
- B. Visually inspect non-Work Areas and the decontamination enclosure system for water leakage. Check the floor below, ceiling and walls, and view beneath/or around the decontamination enclosure system, for signs of leakage. Perform the visual inspection a minimum of twice each 8-hour work shift.

PART 5 – ASBESTOS WASTE MANAGEMENT

5.01 ACM WASTE REQUIREMENTS

- A. The Contractor and all sub-Contractor are specifically alerted to the illegal practice of combining asbestos-containing waste (ACW) from one project with the ACW of other projects without using the services of a permitted waste transfer station as defined by 6 NYCRR Part 360 and 364. As part of the shop drawing submittals, the Contractor must submit for approval the proposed method of transportation and disposal that will be utilized to manage the ACW of this Contract. If a permitted transfer station is to be used, the cost shall be included in the Bid price. The Contractor must submit a waste manifest consistent with whatever approved method is utilized as part of the invoicing and payment procedures.
- B. The Contractor shall maintain compliance with the strictest set of regulations of Title 15, Chapter 1 of RCNY, NYC LL 70/85, NYS DOL ICR 56, USEPA, Asbestos Regulation 40CFR 61.152, 29 CFR 1926.1101, 29 CFR 1910.1200 (F) of OSHA's Hazard Communication Standards, and

other applicable standards.

NOTE: Any penalties incurred for failure to comply with any of the above regulations will be the sole responsibility for fines imposed due to negligence of the Contractor.

- C. When presenting ACW for storage at the generation site, the Contractor shall:
1. Wet down ACW in a manner sufficient to prevent all visible emissions of dust into the air.
 2. Seal material in a leak tight container while wet.
 3. Keep ACW separate from any other waste.
- D. When presenting ACW for storage away from the site of generation, the Contractor shall:
1. Ensure that ACW has been properly packaged as per requirements above.
 2. Examine the containers of ACW to ensure that there are no breaks in the containers and that no visible dust are being released into the air.
 3. If examination reveals damage to a container of ACW the Contractor or person accepting the waste shall immediately wet down the ACW and repackage it into a clean leak tight container. The subsequent repackaging shall be the financial responsibility of the Contractor and occur at no extra cost to the City.
 4. Keep ACW separate from any other waste.
- E. When storing ACW – The Contractor shall:
1. Ensure that the ACW has been sufficiently wetted down in tight container.
 2. Re-wet and repackage any damaged containers.
 3. Maintain at storage site an adequate supply of spare leak tight containers.
 4. Maintain at storage site an adequate supply of amended water.
 5. Keep ACW separate from any other waste.
 6. Keep ACW in a secured, enclosed, and locked container.
 7. If the Contractor has intention of sorting a quantity of ACW greater than or equal to 50 cubic yards, the Contractor shall:
 - a. Submit a written request and receive written approval from the City.

- F. When presenting for transport, the Contractor shall:
1. Ensure that ACW has been sufficiently wetted down.
 2. Examine the integrity of the container's airtight seal.
 3. Re-wet and repackage any damaged containers.
 4. Keep ACW separate from all other waste.
 5. Ensure that a person transporting asbestos waste holds a valid permit issued pursuant to law.
 6. Frequency of Waste Removal:
 - a. Properly packaged and labeled asbestos waste shall be removed from the site on a daily basis. Under no circumstance shall asbestos waste be stored on site without written approval from the Construction Manager and the City. The Waste Hauler and landfill shall be as indicated on the notifications to regulatory agencies.
- G. Waste Load-out Through Equipment Decontamination Enclosure (Full Decontamination Facility): Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick polyethylene sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA-vacuuming in a designated part of the Work Area. Move wrapped asbestos waste to the equipment washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil polyethylene sheeting, as the item's physical characteristics demand. Air volume shall be minimized, and the bags or sheeting shall be sealed airtight with tape.
1. The clean containerized items shall be moved to the equipment decontamination enclosure holding area pending load-out to storage or disposal facilities.
 2. Workers who have entered the equipment decontamination enclosure system from the uncontaminated non-Work Area shall perform load-out of containers from the decontamination enclosure holding area. Dress workers moving asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the Work Area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the Work Area. Ensure that contaminated workers do not exit the Work Area through the equipment decontamination enclosure system.
 3. Thoroughly clean the equipment decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.
 4. Labeled ACM waste containers or bags shall not be used for non-ACM debris or trash. Any materials placed in labeled containers or bags, including those turned "inside-out", shall be handled and disposed of as ACM waste.

- H. All asbestos materials, wastes, shower water, polyethylene, disposable equipment and supplies shall be disposed of as contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York Department of Environmental Conservation and New York City Department of Sanitation.
- I. All asbestos materials shall be prepared for transportation in accordance with this specification and all applicable Federal, State, County and City Regulations. Contractor shall submit the following documentation:
 - 1. Where applicable, an EPA Generator's identification numbers which has been obtained from the EPA for all asbestos waste generated from the project.
 - 2. Applicable State Waste Hauler license and registration numbers.
 - 3. Federal Hazardous Materials Waste Hauler number.
 - 4. Designated landfill EPA Permit numbers.
- J. Prior to loading asbestos waste the enclosed cargo areas (dumpster) shall be prepared as follows:
 - 1. Clean via HEPA-vacuum and wet wipe techniques the enclosed cargo areas of all visible debris prior to preparing with polyethylene.
 - 2. Line the cargo area with two layers of 6-mil polyethylene sheeting to prevent contamination from damaged or leaking containers. Floor sheeting shall be installed first and extend up the walls a minimum of 24-inches. Wall sheeting shall be overlapped and taped securely into place.
- K. Asbestos-containing waste shall be placed on level surfaces in the cargo area of the dumpster and shall be packed tightly to prevent any shifting or tipping of the waste during transportation.
- L. Asbestos-containing waste shall not be thrown into or dropped from the dumpster. All material shall be handled carefully to prevent rupture of the containers.
- M. All personnel engaged in handling and loading of contaminated waste outside of the Work Area shall wear protective clothing. The disposable clothing shall include head, body and foot protection and color of clothing shall be different from abatement personnel in the Work Area. Minimum respiratory protection shall be half. face, dual cartridge, air purifying respirators with HEPA-filters.
- N. Contractor shall immediately clean debris or residue observed on containers or surfaces outside of the Work Area. Cleaning shall be via HEPA equipped wet/dry vacuums only.
- O. All asbestos-containing waste shall be transported from the abatement site to the landfill by a registered Waste Hauler. When transporting ACW:
 - 1. Ensure that the ACW has been sufficiently wetted down in a leak tight container.

2. Re-wet and repackage any damaged containers.
 3. Maintain at storage site an adequate supply of spare leak tight containers.
 4. Maintain at storage site an adequate supply of amended water.
 5. Keep ACW separate from any other waste.
- P. Keep ACW in a secured, enclosed, and locked container.
- Q. Waste transport documents shall conform to the requirements of the U.S. Department of Transportation, Hazardous Materials Transportation Regulation, 49 CFR Part 173 and EPA 40 CFR 61.150 (d)(1)(2). Shipping documents shall be clearly marked with the required designation "RQ Asbestos". Contractor shall provide a copy of this document to the City.
- R. A uniform hazardous waste manifest shall be prepared by the Contractor and signed by the Contractor each time the Contractor ships a dumpster load of Asbestos-Containing Waste Material. The uniform hazardous waste manifest shall include the site of waste generation, the names and addresses of the Transporter, the Contractor, and the landfill operator with information on the type and number of asbestos-waste containers, time and date. Contractor shall provide the Construction Manager with signed copies of the waste manifest before each departure.
- S. Contractor or his registered hazardous Waste Hauler shall transport asbestos-containing waste material from the abatement site directly to the specified disposal site. Contractor or their Waste Hauler shall not accept material from any other site when transporting asbestos-containing waste material from the abatement site. The Construction Manager reserves the right to travel with Contractor's Waste Hauler to the waste disposal site. No intermediate storage of waste material (i.e. Contractor's warehouse) shall be permitted.
- T. Final or progress application for payments will not be processed unless all hazardous waste manifests generated to date have been received and reviewed by the Resident Engineer and Construction Manager.
- U. All asbestos materials, wastes, shower water, polyethylene disposable equipment and supplies shall be disposed of as contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York State Department of Environmental Conservation and the New York Department of Sanitation.
- V. Contractor shall transport all sealed drums to a landfill disposal site approved by the Department of Environmental Conservation and the EPA. Transportation shall be performed by a New York State registered Waste Hauler, where required. When presenting the ACW for disposal the Contractor or sub Contractor shall:
1. Ensure that waste container is properly labeled according to the National Emission Standard for Hazardous Air Pollutants (NESHAP); Asbestos Revision, 40 CFR, Part 61,

- Subpart M. The labels shall include the name of the waste generator and the location where the waste was generated.
2. Comply with all applicable orders issued pursuant to asbestos disposal.
 3. Ensure that ACW has been sufficiently wetted down.
 4. Re-wet and repackage any damaged containers.
 5. Keep ACW separate from all other wastes.
- W. Contractor shall notify the waste disposal site, at least 24 hours prior to transportation of contaminated waste to be delivered. Contractor shall determine if a larger notification period is required.
- X. At the site Contractors or Waste Hauler trucks shall approach the dump location as close as possible for unloading asbestos waste. Containers shall be carefully placed in the ground. Do not throw containers from truck.
- Y. Contractor or Waste Hauler shall inspect containers as they are unloaded at the disposal site. Material in damaged containers shall be repacked in empty containers, as necessary.
- Z. Contractor or Waste Hauler shall not remove asbestos-containing waste Material from drums unless required to do so by the disposal site. Used drums shall be disposed of as asbestos-contaminated waste.
- AA. All personnel engaged in unloading of the containers at the waste site shall wear protective clothing. The disposable clothing shall include head, body and foot protection. Minimum respiratory protection shall be half. face, dual cartridge, air purifying respirators with HEPA-filters. Workers shall remove their protective clothing at the disposal site, place it in labeled disposal bags and leave them with the deposited waste shipment.
- BB. For the compaction operation, the Contractor shall ensure that disposal sites personnel have been provided with personal protective equipment by the disposal operator. If the disposal site has not provided this protective equipment, the Contractor shall supply protective clothing and respiratory protection for the duration of this operation (PAPR respirators are mandatory).
- CC. If containers are broken or damaged, the Contractor or Waste Hauler shall, using personnel who are properly trained and wearing proper protective equipment, shall repackage the waste in properly labeled containers. Contractor shall then clean the entire truck and its contents using HEPA-vacuums and wet cleaning techniques until no visible residue is observed.
- DD. Following the removal of all containerized waste, the Contractor shall decontaminate the truck cargo area using HEPA-vacuums and/or wet cleaning techniques until no residue is observed. All 6-mil polyethylene sheeting shall be removed and discarded as asbestos-containing waste material along with contaminated cleaning material and protective clothing, in containers at the disposal site.

- EE. The transporter(s) of all asbestos waste shall not back-haul any items on his return from landfill/disposal site.
- FF. All asbestos waste shall be disposed of in an approved Asbestos Landfill site only.
 - 1. NO PERSON UNDER ANY CIRCUMSTANCES SHALL ABANDON A.C.W. The same shall be disposed of only by certified persons in approved landfills.
 - 2. A manifest form will be signed by the Landfill City documenting receipt and acceptance of the asbestos-containing waste. This manifest will be furnished to the Construction Manager and the City of New York.
 - 3. It is the responsibility of the Asbestos Contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Asbestos Contractor must comply fully with these regulations and all appropriate U.S. Department of Transportation, EPA and other Federal, State and Local entities' regulations and all other current legal requirements.
 - 4. The Asbestos Contractor shall obtain an agreement from the transporter (s) that the practice of "Back-Hauling" will not be engaged in, with respect to any and all waste loads taken from this site during the work.
 - 5. The Asbestos Contractor will document actual disposal of the waste at the designated landfill by having completed a Disposal Certificate and will provide a copy of the same to the Construction Manager and the Department of Design and Construction.

5.02 ACCEPTANCE

- A. Upon satisfactory completion of all decontamination procedures, a certificate will be issued by the Resident Engineer and Construction Manager with copies to all parties.
- B. A letter of Compliance stating that all the work on the project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations.
- C. All warranties as stated in the Specifications.

END OF SECTION 02081

ELECTRICAL DESIGN ISSUES

Drawing E0.01

1. No comments.

Drawing E2.01

1. Control switch for kitchen exhaust fan KX-1 is not shown by the kitchen area.
2. Most of the circuiting and demolition work are covered by notes only rather than showing actual circuit numbers on the floor plan.

Drawing E2.02

1. Exhaust fans EF-1 and EF-2 located outdoors on the roof above the Electrical Service Room are shown to have non-weatherproof local thermal overload disconnect switch.
2. Most of the circuiting and demolition work are covered by notes only rather than showing actual circuit numbers on the floor plan.
3. Duplex outlet located on the roof above Mall area is not shown to be weatherproof type.
4. Exhaust fan located in the Chemical Lab Classroom no. 226 is not provided with local thermal overload switch to shut the power off during electrical maintenance period.

Drawing E2.03

1. Motor starter for GX-2 fan is two-speed type but the feeder shown is 3#10 in lieu of 6#10. Instead, the feeder for kitchen exhaust KX-1 is shown as 6#10 for single-speed starter. Feeder indications for GX-2 and KX-1 shall be swapped.
2. Wire size of 3#8 for exhaust fan GX-1 is not adequate and it will have a voltage drop of more than 5% due to its distance from Panel LP-UV3 via starter location.

Drawing E2.04

1. Electrical Service Room has two doors but the lighting control switch is not three-way type.
2. Note Nos. 5, 6, 7 and 8 call for #12 gauge wire run for Gymnasium lighting fixture. Due to high ceiling and long cable run, #12 gauge wire may provide very high voltage drop. Additionally, electrical circuiting of these fixtures is not shown on Contract Drawings and it is left up to the Contractor to decide how many fixtures to connect on one circuit.
3. Note No. 13 calls for all existing fire alarm speakers to be removed and re-installed but the Drawing does not show quantity of the speakers and their locations.

MECHANICAL DESIGN ISSUES

Drawing M2.01

1. Gas pipe should have been specified as galvanized for external use.

Drawing M2.02

1. CFM for low speed exhaust fan setting is not consistent as a percentage of high speed.
2. Room unit ventilators modulate the OA damper based on economizer mode. GX-1 and GX-2 go into high speed when one unit ventilators goes into economizer mode. This maintains classrooms under negative pressure. The engineer should have used gravity roof ventilators. A grv would maintain the classroom under positive pressure, when the pressure became excessive the grv would open relieving the pressure. This setup would be more energy efficient and would prevent drawing cold air through "cracks" in the building in the winter.
3. Indoor portion of kitchen exhaust should have been provided with new calcium silicate as per New York City code.

Drawing M2.03

1. Room unit ventilators modulate the OA damper based on economizer mode. GX-1 and GX-2 go into high speed when one unit ventilators goes into economizer mode. This maintains classrooms under negative pressure. The engineer should have used gravity roof ventilators. A grv would maintain the classroom under positive pressure, when the pressure became excessive the grv would open relieving the pressure. This setup would be more energy efficient and would prevent drawing cold air through "cracks" in the building in the winter.
2. LE-1 penetration through floor should be provide with FSD not FD.

Drawing M2.04

1. Exhaust shown with too short of straight run before fan inlet.

Specification

1. Missing louver section.

Monsignor McClancy Memorial High School Mechanical and Electrical Investigation Report

November 2008



200 Old Country Road, Suite 670
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Project No. 4651

LIZARDOS ENGINEERING ASSOCIATES, P.C.

Discipline: Electrical Sheet: 1 of 2Prepared by: ZAR Date: 11/6/2008**Electrical Construction Cost Estimate**Checked by: JM Date: 11/6/2008Project Title: Monsignor McClancy Memorial High School

Item #	Description	Quantity	Unit Price \$	Total \$	Assumption / Basis
1	Replace all EMT feeders and sub-feeders with rigid galvanized steel (RGS) conduits.	Lump Sum	\$120,000	\$120,000	
2	Provide cables in RGS conduits.	Lump Sum	\$70,000	\$70,000	
3	Provide PVC coated RGS conduits for incoming service feeders.	Lump Sum	\$125,000	\$125,000	
4	Provide incoming service conductors.	Lump Sum	\$80,000	\$80,000	
5	Provide additional support for EMT conduits and pull boxes to the building structure.	Lump Sum	\$20,000	\$20,000	
6	Separate DP-AC load side feeders from MDP trough.	Lump Sum	\$40,000	\$40,000	
7	Replace all branch circuit Greenfields with EMT conduits.	Lump Sum	\$80,000	\$80,000	
8	Furnish and install all branch circuit wiring in EMT conduits.	Lump Sum	\$35,000	\$35,000	
9	Replace Greenfield conduits for motor connection with Sealite	Lump Sum	\$5,000	\$5,000	
10	Provide rigid galvanized steel conduits for fire alarm system along with new fire alarm cables.	Lump Sum	\$125,000	\$125,000	
11	Provide missing fire alarm duct detectors and fire smoke dampers.	Lump Sum	\$15,000	\$15,000	
12	Remove, refurbish all fixtures Type 'FA' at the factory and re-install.	Lump Sum	\$25,000	\$25,000	
13	Provide patching and firestopping at all wall and ceiling penetration.	Lump Sum	\$15,000	\$15,000	
14	Replace dual disconnect switches on the roof with 6-pole switches.	Lump Sum	\$5,000	\$5,000	
15	Provide phenolic labels on all equipment panelboards and switches.	Lump Sum	\$3,000	\$3,000	
16	Replace panelboard LP-UV2. Replace 1 pole circuit breakers with 3 pole breakers to feed 3 phase loads.	Lump Sum	\$10,000	\$10,000	
17	Separate branch circuits and provide additional EMT conduits with new cables so that no more than three (3) circuits are run in any one conduit homerun from Panel LP-UV1, LP-UV2 and LP-UV3.	Lump Sum	\$60,000	\$60,000	
18	Replace exposed Greenfield conduits in Boiler Room with rigid metal conduits and provide new wiring.	Lump Sum	\$20,000	\$20,000	
19	Provide wiring and conduit for Chemistry Lab exhaust fan.	Lump Sum	\$10,000	\$10,000	
20	Increase the wiring and conduit size for GX-1 exhaust fan on the roof due to voltage drop.	Lump Sum	\$15,000	\$15,000	

Project No. 4651

LIZARDOS ENGINEERING ASSOCIATES, P.C.

Discipline: Mechanical

Sheet: 1 of 2

Prepared by: TS

Date: 11/6/2008

Mechanical Construction Cost Estimate

Checked by: JM

Date: 11/6/2008

Project Title: Monsignor McClancy Memorial High School

Item #	Description	Quantity	Unit Price \$	Total \$	Assumption / Basis
1	Demolition	Lump Sum	\$75,000	\$75,000	
2	Piping	Lump Sum	\$80,000	\$80,000	
3	Pipe Insulation	Lump Sum	\$90,000	\$90,000	
4	Firestopping Pipe Penetrations	Lump Sum	\$40,000	\$40,000	
5	Natural Gas Line	Lump Sum	\$8,000	\$8,000	
6	Valves	Lump Sum	\$120,000	\$120,000	
7	Valve Tags	Lump Sum	\$3,000	\$3,000	
8	Ductwork	Lump Sum	\$130,000	\$130,000	
9	Equipment Tags	Lump Sum	\$4,000	\$4,000	
10	Unit Ventilator	Lump Sum	\$110,000	\$110,000	
11	Duct Insulation	Lump Sum	\$50,000	\$50,000	
12	Fix Exterior Louvers	Lump Sum	\$90,000	\$90,000	
13	Equipment Insulation	Lump Sum	\$52,000	\$52,000	
14	Pipe Hangers	Lump Sum	\$21,000	\$21,000	
15	Pipe Identification	Lump Sum	\$5,000	\$5,000	
16	AC Service Platforms	Lump Sum	\$4,000	\$4,000	
17	Venturi Flow Meters	Lump Sum	\$8,000	\$8,000	
18	Glycol Fill Units	Lump Sum	\$10,000	\$10,000	
19	Condensate Pumps	Lump Sum	\$12,000	\$12,000	
20	Construction Clean-up	Lump Sum	\$20,000	\$20,000	
21	Commissioning	Lump Sum	\$98,000	\$98,000	
22	Structural Analysis	Lump Sum	\$40,000	\$40,000	
23	Environmental Analysis	Lump Sum	\$25,000	\$25,000	
24	Controls	Lump Sum	\$80,000	\$80,000	
25	Engineering CA	Lump Sum	\$50,000	\$50,000	
26	Engineering Survey and Design	Lump Sum	\$50,000	\$50,000	
27	Clean and Flush System	Lump Sum	\$55,000	\$55,000	

Project No. 4651

LIZARDOS ENGINEERING ASSOCIATES, P.C.

Discipline: Mechanical Sheet: 1 of 2

Prepared by: TS Date: 11/6/2008

Checked by: JM Date: 11/6/2008

Mechanical Construction Cost Estimate

Project Title: Monsignor McClancy Memorial High School

Item #	Description	Quantity	Unit Price \$	Total \$	Assumption / Basis
28	Water/Air Balance	Lump Sum	\$140,000	\$140,000	
29	Miscellaneous	Lump Sum	\$50,000	\$50,000	
	Subtotal			\$1,520,000	
	20% Overhead & Profit			\$304,000	
	Total			\$1,824,000	

ELECTRICAL DESIGN ISSUES

Drawing E0.01

1. No comments.

Drawing E2.01

1. Control switch for kitchen exhaust fan KX-1 is not shown by the kitchen area.
2. Most of the circuiting and demolition work are covered by notes only rather than showing actual circuit numbers on the floor plan.

Drawing E2.02

1. Exhaust fans EF-1 and EF-2 located outdoors on the roof above the Electrical Service Room are shown to have non-weatherproof local thermal overload disconnect switch.
2. Most of the circuiting and demolition work are covered by notes only rather than showing actual circuit numbers on the floor plan.
3. Duplex outlet located on the roof above Mall area is not shown to be weatherproof type.
4. Exhaust fan located in the Chemical Lab Classroom no. 226 is not provided with local thermal overload switch to shut the power off during electrical maintenance period.

Drawing E2.03

1. Motor starter for GX-2 fan is two-speed type but the feeder shown is 3#10 in lieu of 6#10. Instead, the feeder for kitchen exhaust KX-1 is shown as 6#10 for single-speed starter. Feeder indications for GX-2 and KX-1 shall be swapped.
2. Wire size of 3#8 for exhaust fan GX-1 is not adequate and it will have a voltage drop of more than 5% due to its distance from Panel LP-UV3 via starter location.

Drawing E2.04

1. Electrical Service Room has two doors but the lighting control switch is not three-way type.
2. Note Nos. 5, 6, 7 and 8 call for #12 gauge wire run for Gymnasium lighting fixture. Due to high ceiling and long cable run, #12 gauge wire may provide very high voltage drop. Additionally, electrical circuiting of these fixtures is not shown on Contract Drawings and it is left up to the Contractor to decide how many fixtures to connect on one circuit.
3. Note No. 13 calls for all existing fire alarm speakers to be removed and re-installed but the Drawing does not show quantity of the speakers and their locations.

4. All Classroom lighting fixtures are shown as existing to remain. However, there are many 4'-0" fixtures where second pendant rod is missing and the fixture is hung on one pendant rod only.
5. There are emergency battery packs existing in the mall area but they are not adequate to provide code mandated footcandles in the area.
6. Existing battery packs in the Cafeteria area are not adequate to provide code mandated footcandles.

Drawing E6.01

1. Grounding of fire alarm control panel or fuse cut-out is not shown on the Drawing.

Drawing E6.02

1. Wiring for fire alarm system is not shown on the Drawings.

MECHANICAL DESIGN ISSUES

Drawing M2.01

1. Gas pipe should have been specified as galvanized for external use.

Drawing M2.02

1. CFM for low speed exhaust fan setting is not consistent as a percentage of high speed.
2. Room unit ventilators modulate the OA damper based on economizer mode. GX-1 and GX-2 go into high speed when one unit ventilators goes into economizer mode. This maintains classrooms under negative pressure. The engineer should have used gravity roof ventilators. A grv would maintain the classroom under positive pressure, when the pressure became excessive the grv would open relieving the pressure. This setup would be more energy efficient and would prevent drawing cold air through "cracks" in the building in the winter.
3. Indoor portion of kitchen exhaust should have been provided with new calcium silicate as per New York City code.

Drawing M2.03

1. Room unit ventilators modulate the OA damper based on economizer mode. GX-1 and GX-2 go into high speed when one unit ventilators goes into economizer mode. This maintains classrooms under negative pressure. The engineer should have used gravity roof ventilators. A grv would maintain the classroom under positive pressure, when the pressure became excessive the grv would open relieving the pressure. This setup would be more energy efficient and would prevent drawing cold air through "cracks" in the building in the winter.
2. LE-1 penetration through floor should be provide with FSD not FD.

Drawing M2.04

1. Exhaust shown with too short of straight run before fan inlet.

Specification

1. Missing louver section.

**EXECUTIVE
SUMMARY**

MECHANICAL

ELECTRICAL

RECOMMENDATIONS

CODE REFERENCES

EXECUTIVE SUMMARY

Purpose

To find construction deficiencies in the recently constructed mechanical and electrical systems installed by the Contractors for the project "Soundproofing of Monsignor McClancy Memorial High School" located at 71-06 31st Avenue, East Elmhurst, NY 11370.

Summary

Lizardos Engineering Associates, P.C. (Lizardos) was engaged by the Monsignor McClancy Memorial High School to perform a field survey and document the deficiencies of construction work performed by the Contractors.

A walk-through was conducted prior to the beginning of the survey and Lizardos was briefed on the existing conditions in the building.

Lizardos was able to examine electrical equipment by opening the covers for electrical panelboards, pullboxes, junction boxes, and disconnect switches, in the newly constructed electrical service room and the adjacent mechanical spaces. System pumps (associated valves, strainers, thermometers, pressure gauges, and flexible connections), piping, insulation, hydronic accessories, unit heater, air separators, glycol fill units, expansion tanks, and controls were examined in the newly constructed mechanical room and existing boiler room. Unit ventilator (UV) installation and miscellaneous outlets relocated, to accommodate UV installation, were inspected in classrooms and offices on the first through the third floor. All units were inspected externally and internally by removing the covers. Exhaust fans and HVAC units on the roof were also surveyed. All systems and equipment were studied for compliance with contract drawings, contract specifications, contract documents, local codes, as well as universally accepted design standards.

Following is a list of contract documents which Lizardos has used in preparing this report.

1. Drawings
 - a. Mechanical Drawings M0.01, M1.00, M1.01 thru M1.03, M2.00 and M2.01 thru M2.15 dated January 10, 2005.
 - b. Electrical Drawings E0.01, E2.01 thru E2.04, E6.01, E6.02 and E6.03 dated January 10, 2005.
 - c. Plumbing Drawings P0.01, P2.01, P2.02 and P2.03 dated January 10, 2005.
2. Mechanical and Electrical Specifications dated October 31, 2003.
3. Mechanical and Electrical Shop Drawings.

Lizardos has provided this report by documenting our visual findings and prepared a list of recommendations as outlined in the Recommendation section of this report.

Electrical and Mechanical Code references have been attached in the Code Reference Section of this report.

EXISTING MECHANICAL ISSUES

GROUND FLOOR

A. NEW MECHANICAL ROOM

1. Glycol chilled water piping

The following is a list of deficiencies in the installation of the glycol chilled water piping:

(a) Piping is not per specification section 15820-2.01 and 15820-2.02.

- Piping installed is gruvlok which is a mechanical grooved connection.
- Specification section 15820-2.01 calls for flanged or welded piping.

2. Glycol heating hot water piping

The following is a list of deficiencies in the installation of the glycol heating hot water piping:

(a) Piping is not per specification section 15820-2.01 and 15820-2.02.

- Piping installed is gruvlok which is a mechanical grooved connection.
- Specification section 15820-2.01 calls for flanged or welded piping.

3. Glycol chilled water pumps

The following is a list of deficiencies in the installation of the glycol chilled water pumps:

(a) Pump casings are not insulated as per specification section 15850-2.08-E. Refer to Figure M1.



Figure M1

- (b) Flex hose is not insulated as per specification section 15850-2.01-E. Refer to Figure M1.
- (c) Strainer/suction diffuser is not insulated as per specification section 15850-2.01-K. Refer to Figure M1.
- (d) Valves associated with chilled water pumps are not tagged per specification section 15000-1.25-A.
- (e) Pump not provided with nameplate as per specification section 15000-1.24-A.
- (f) Piping not provided with identification as per specification section 15000-1.26. Refer to Figure M2.



Figure M2

- (g) Butterfly isolation valves at pump (typical of 4) are not per specification section 15830-2.07. Refer to Figure M3 and Figure M2.
 - Specification section 15830-2.07-B calls for cast iron or malleable iron lug body, aluminum bronze disk, Teflon seats, and stainless steel stem.
 - Valves installed are "Globe Fire Sprinkler" grooved iron body with iron disk.
 - Valves submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05). No butterfly valves were submitted in the valve submittal.
 - Valve manufacture has not been manufacturing valves for 10 years or more as required by specification section 15830-1.03-A.
 - Valves are equipped with motorized actuators. Actuator wires are cut to valve.

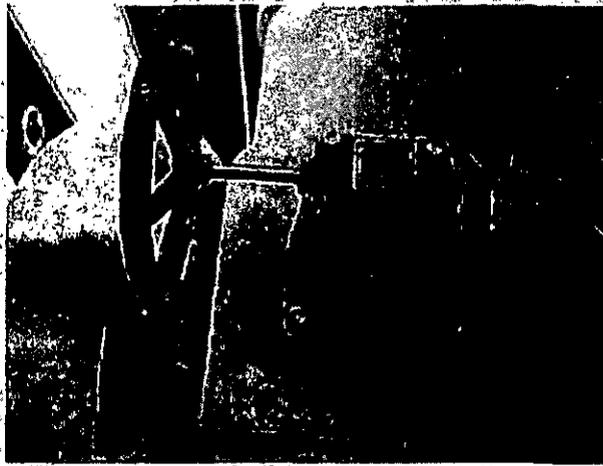


Figure M3

4. Glycol chilled water expansion tank

The following is a list of deficiencies in the installation of the Glycol chilled water expansion tank:

- (a) Expansion tank not provided with nameplate as per specification section 15000-1.24-A.
- (b) Valves associated with expansion tank are not tagged per specification section 15000-1.25-A.
- (c) Ball isolation valves associated with the expansion tank are not per specification section 15830-2.06-B.
 - Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Everflow.
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating, "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".
- (d) Air vent model and manufacturer not per specification section 15801-2.08.
 - Specification section 15801-2.08 calls for Armstrong No: 1 AV or Sarco 13W automatic air vents with test petcock.
 - Automatic air vent installed is Maid-o-Mist model 67.

- (e) Expansion tank is not insulated as per specification section 15850-2.08-A,B,C,F. No insulation is installed. Refer to Figure M4.

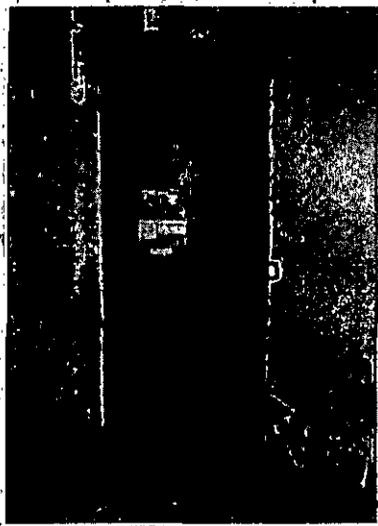


Figure M4.

5. Chilled water air separator

The following is a list of deficiencies in the installation of the chilled water air separator:

- (a) Air separator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Valves associated with air separator are not tagged per specification section 15000-1.25-A.
- (c) Ball isolation valves associated with the air separator are not per specification section 15830-2.06-B.
 - Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee BA-485B (soldered end constructed with brass body, ball, and stem)
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".
- (d) Top of air separator is not insulated. See Figure M5.
- (e) Lack of dielectric fitting between has caused premature corrosion. Refer to Figure M5.



Figure M5

6. Glycol chilled water fill unit

The following is a list of deficiencies in the installation of the glycol chilled water fill unit:

- (a) Product data was not submitted to the architect/engineer for this product as required by spec section
- (b) Unit make and model not per engineering specifications section 15815-2.04. Specification calls for J.L. Wingert Co. Model GL50-D glycol feed package. Unit installed is Advantage Controls model AFG-2.
- (c) Unit not provided with nameplate as per specification section 15000-1.24: A.
- (d) The duplex positive displacement pumps are damaged due to dead heading the pumps. The pressure relief valves were observed to be left at the factory setting of 125 psi, well above the system fill pressure.
- (e) The pressure gauges for both pumps read 0 psig leading to believe that the fill line is not completely tapped into the glycol chilled water system. Refer to Figure M6.

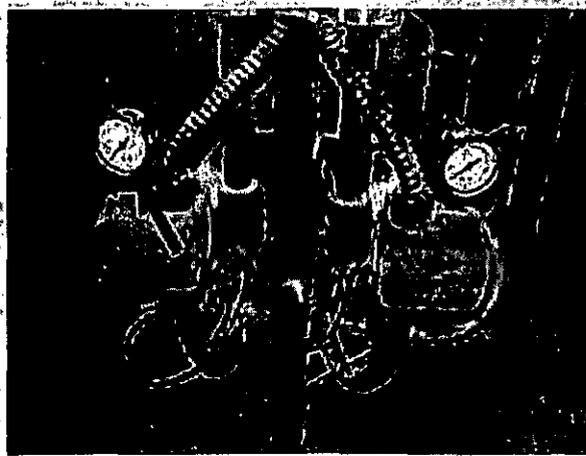


Figure M6

- (f) Label on control panel states "BEFORE INSTALLATION - Remove filler from behind panel". Refer to Figure M7 and Figure M8 showing this had not been completed.

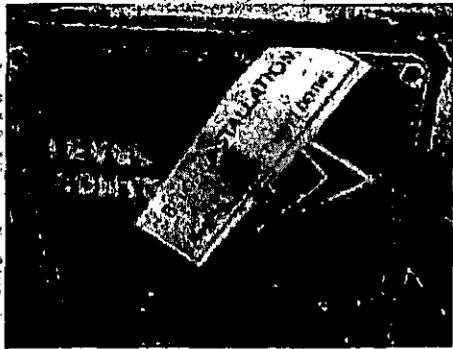


Figure M7

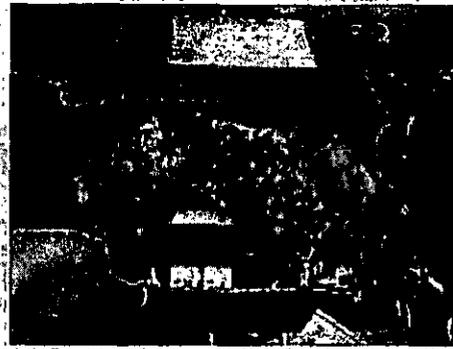


Figure M8

- (g) Pumptrol pressure switch (integral to unit) had not been calibrated to match system fill pressure.
- (h) Check valve is not installed in fill line as per contract drawing M2.07.
- (i) Ball isolation valves associated with the chilled water glycol fill unit are not per specification section 15830-2.06-B.
- Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee BA-485B (soldered end constructed with brass body, ball, and stem) or MATCO.
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating, "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM." "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".
- (j) Valves associated with glycol fill unit are not tagged per specification section 15000-1.25-A.

7. Glycol chilled water venturi flow meter

The following is a list of deficiencies in the installation of the glycol chilled water venturi flow meter:

- (a) Product data was not submitted to the architect/engineer for this product. Specification section 15830-2.17-A calls for venturi flow measuring system as manufactured by Barco.
- (b) Valve installed is Tour & Anderson balancing valve not a venture flow measuring devise. Refer to Figure M9.

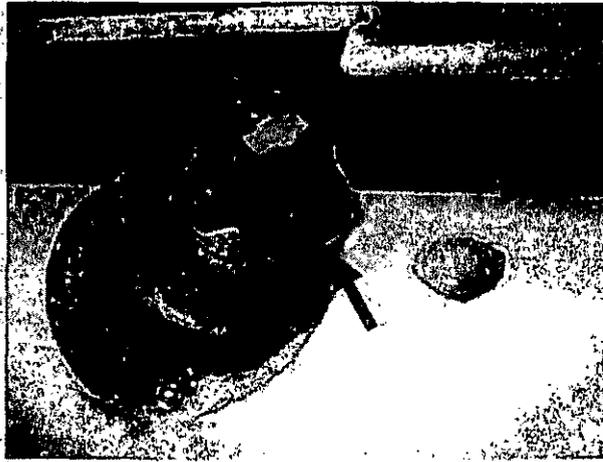


Figure M9

8. Glycol heating hot water pumps

The following is a list of deficiencies in the installation of the heating hot water pumps:

- (a) Pump casing is not insulated as per specification section 15850-2.08-E. Refer to photo M1-b-i-(1).
- (b) Butterfly isolation valves at pump (typical of 4) are not per specification section 15830-2.07. Refer to Figure M10.



Figure M10

- Specification section 15830-2.07-B calls for cast iron or malleable iron lug body, aluminum bronze disk, Teflon seats, and stainless steel stem.
- Valves installed are Gruvlok grooved iron body with iron disk.
- Valves submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05). No butterfly valves were submitted in the valve submittal.

9. Glycol heating hot water venturi flow meter

The following is a list of deficiencies in the installation of the glycol heating hot water venturi flow meter:

- (a) Venturi flow meter is not installed. Installation location shown on mechanical drawing M2.07.

10. Glycol heating hot water air separator

The following is a list of deficiencies in the installation of the glycol heating hot water air separator.

- (a) Air separator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Valves associated with air separator are not tagged per specification section 15000-1.25-A.
- (c) Ball isolation valves associated with the air separator are not per specification section 15830-2.06-B.
 - Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee BA-485B (soldered end constructed with brass body, ball, and stem). Refer to Figure M11.

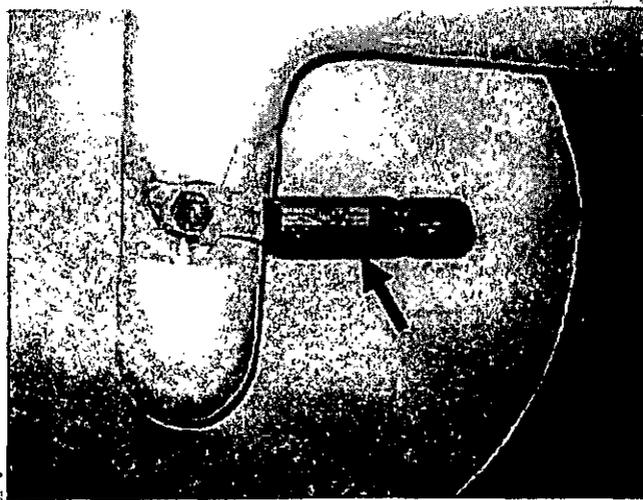


Figure M11

- Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".

(d) Top of air separator is not insulated.

11. Glycol heating hot water fill unit

The following is a list of deficiencies in the installation of the glycol heating hot water fill unit:

- (a) Product data was not submitted to the architect/engineer for this product as required by spec section
- (b) Unit make and model not per engineering specifications section 15815-2.04. Specification calls for J.L. Wingert Co. Model GL50-D glycol feed package. Unit installed is Advantage Controls model AFG-2.

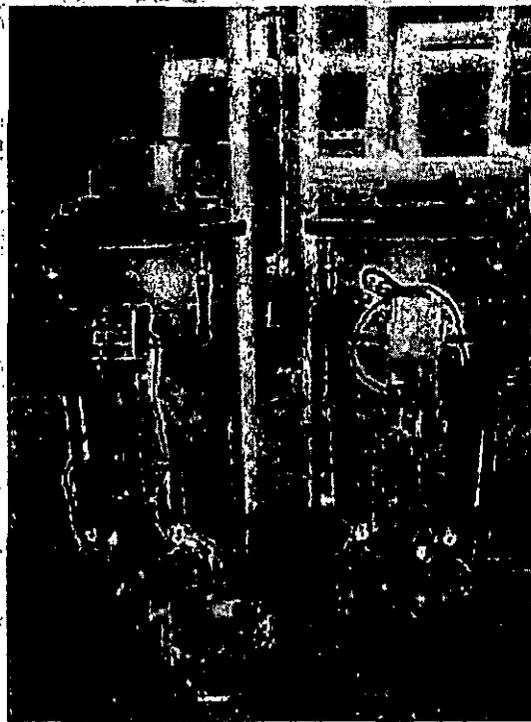


Figure M12

- (c) Unit not provided with nameplate as per specification section 15000-1.24-A.
- (d) Both pumps spray glycol mixture from pump discharge.
- (e) The pressure relief valves were observed to be left at the factory setting of 125 psi, well above the system fill pressure.
- (f) Label on control panel states "BEFORE INSTALLATION - Remove filler from behind panel".

- (g) Pumptrol pressure switch (integral to unit) had not been calibrated to match system fill pressure.
- (h) Check valve is not installed in fill line as per contract drawing M2.07.
- (i) Ball isolation valves associated with the chilled water glycol fill unit are not per specification section 15830-2.06-B.
 - Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee BA-485B (soldered end constructed with brass body, ball, and stem) or MATCO.
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".
- (j) Valves associated with glycol fill unit are not tagged per specification section 15000-1.25-A.

12. Unit Heater (UH-1)

The following is a list of deficiencies in the installation of the heating hot water unit heater:

- (a) Unit heater not provided with nameplate as per specification section 15000-1.24-A.
- (b) Unit heater piping not provided with identification as per specification section 15000-1.26.
- (c) Unit heater fan observed to be running in summer. This is due to the lack of a wall mounted thermostat as per "SCHEDULE OF UNIT HEATER" on contract drawing M2.10. The requirement of the wall mounted thermostat is also mentioned in specification sections 15770-2.01-F and 15950-3.12-A. Submittal number 19 from Trane shows a remote wall mounted thermostat
- (d) Unit is not provided with globe style hot water balancing valve as per "HOT WATER UNIT HEATER OR CABINET HEATER PIPING" on contract drawing M2.14.
- (e) Unit is not provided with unions as per "HOT WATER UNIT HEATER OR CABINET HEATER PIPING" on contract drawing M2.14.
- (f) Unit heater is not balanced. The water side is unable to be balanced due to the lack of balancing valve. The aquastat was observed to have the dial set at 80°F, according to specification section 15950-3.12-B the aquastat should be set at 100°F.
- (g) Air vent model and manufacturer not per specification section 15801-2.08.
 - Specification section 15801-2.08 calls for Armstrong No. 1 AV or Sarco 13W automatic air vents with test petcock.
 - Automatic air vent installed is Maid-o-Mist model 67 with no petcock.

13. Glycol heating hot water expansion tank

The following is a list of deficiencies in the installation of the Glycol heating hot water expansion tank:

- (a) Expansion tank not provided with nameplate as per specification section 15000-1.24-A.
- (b) Valves associated with expansion tank are not tagged per specification section 15000-1.25-A.
- (c) Ball isolation valves associated with the expansion tank are not per specification section 15830-2.06-B.
 - Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee BA-485B (soldered end constructed with brass body, ball, and stem).
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".
- (d) Air vent model and manufacturer not per specification section 15801-2.08.
 - Specification section 15801-2.08 calls for Armstrong No. 1 AV or Sarco 13W automatic air vents with test petcock.
 - Automatic air vent installed is Maid-o-Mist model 67.
- (e) Expansion tank is not insulated as per specification section 15850-2.08-A,B,C,F. No insulation is installed. Refer to Figure M13.



Figure M13

14. Glycol heating hot water to heating hot water heat exchanger

The following is a list of deficiencies in the installation of the glycol heating hot water to heating hot water heat exchanger:

- (a) Heat exchangers not insulated as per specification section 15850-2.08-A, B, C, D.
- Specification section 15850-2.08-A, B, C, D calls for 2" thick calcium silicate with aluminum jacking over insulation. (Refer to specification sections listed for greater detail).
 - Insulation installed is glass fiber. No aluminum jacketing installed. Refer to Figure M14.

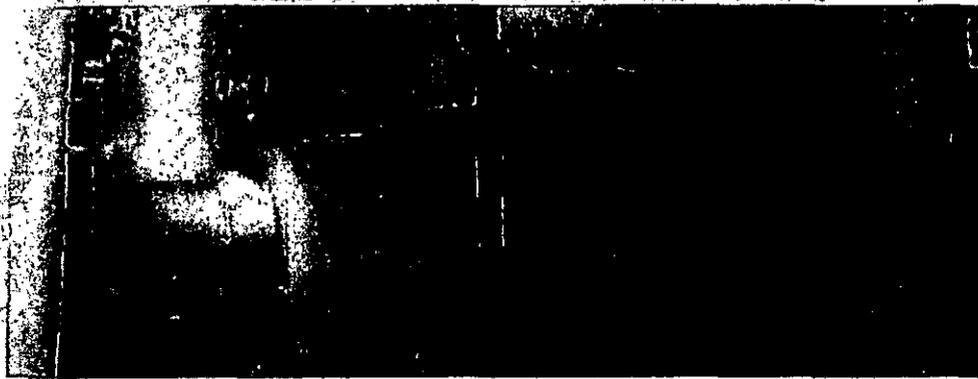


Figure M14

15. Area drain at west exit of new mechanical room.

The following is a list of deficiencies in the installation of the area drain:

- (a) Improper installation of area drain. Drain appears to be much older than the age of the installation. Refer to figure Figure M15.



Figure M15

16. Fresh air louver.

The following is a list of deficiencies in the installation of the louver:

- (a) Motorized damper not installed as per contract drawing M2.05. Refer to figure Figure M16.



Figure M16

17.EF-2.

The following is a list of deficiencies in the installation of the exhaust fan:

- (b) Motorized damper not installed as per contract drawing M2.13. Submittal from SRS includes motorized backdraft damper. Refer to figure Figure M17.

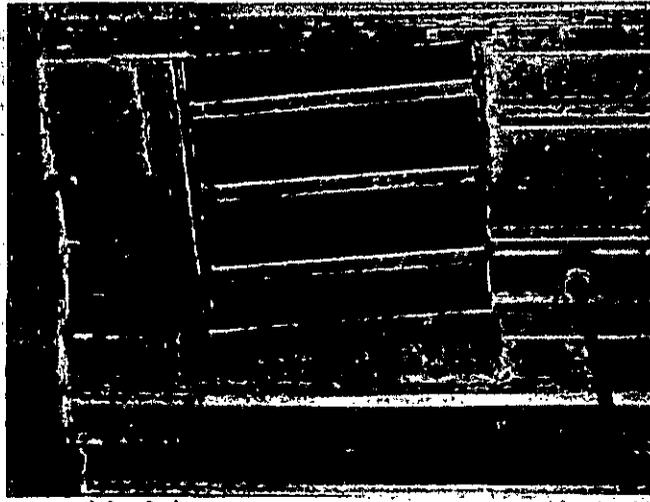


Figure M17

B. NEW ELECTRICAL ROOM

- 1. Fresh air louver.

The following is a list of deficiencies in the installation of the louver:

- (a) Motorized damper not installed as per contract drawing M2.05. Refer to figure Figure M18.

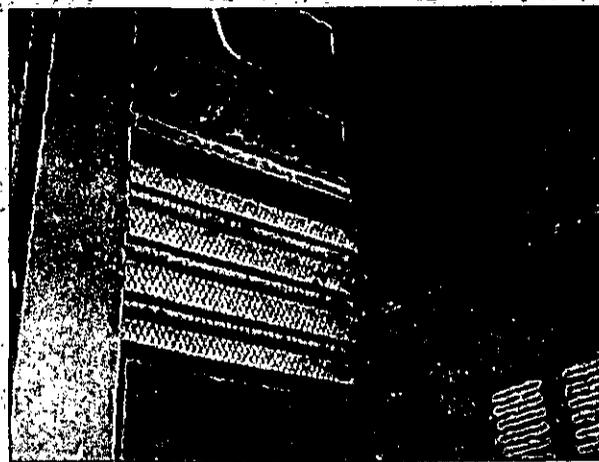


Figure M18

2. EF-2:

The following is a list of deficiencies in the installation of the exhaust fan:

- (b) Motorized damper not installed as per contract drawing M2.13. Submittal from SRS includes motorized backdraft damper. Refer to figure Figure M19.

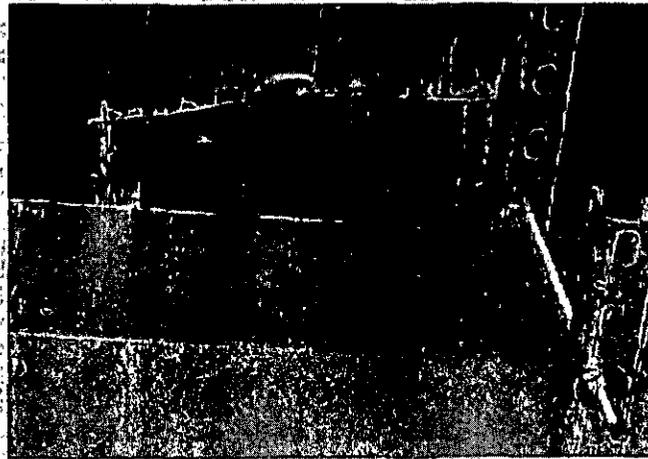


Figure M19

C. EXISTING MECHANICAL ROOM

1. Heating hot water-venturi flow meter

The following is a list of deficiencies in the installation of the heating hot water venturi flow meter:

- (a) Venturi flow meter is not installed. Installation location shown on mechanical drawing M2.07.

1. Piping Penetrations

The following is a list of deficiencies in the installation of the through wall piping penetrations:

- (a) Piping penetrations through rated wall are not per "DETAIL OF PIPING PIRING REQUIRED FIRE RATED PARTITIONS AND WALL" on contract drawing M2.13. Actual pipe penetrations lack one or more of the follow: pipe sleeve, escutcheon on both sides, and space between pipe and sleeve packed full depth with mineral wool or other UL approved equal. Refer to Figure M20 through Figure M23.



Figure M20

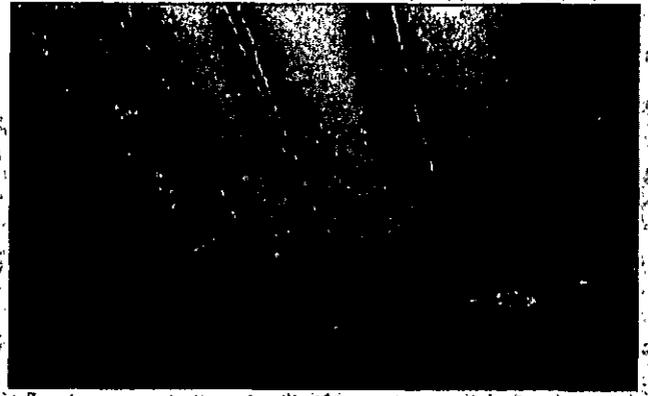


Figure M21



Figure M22



Figure M23

D. CLASSROOM 101 (ART CLASSROOM)

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A. Refer to Figure M24. This situation is typical for all unit ventilators.

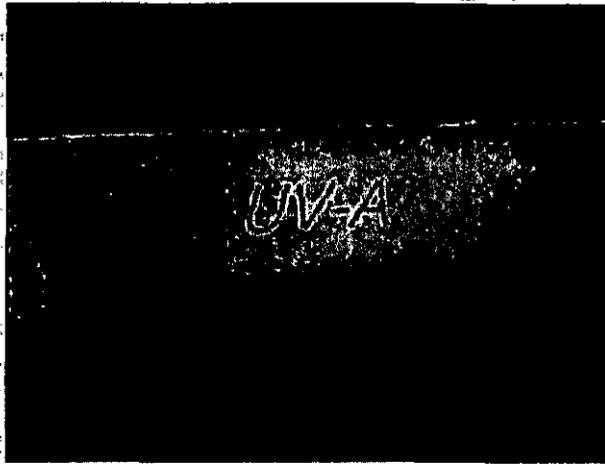


Figure M24

- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Image Figure M25.



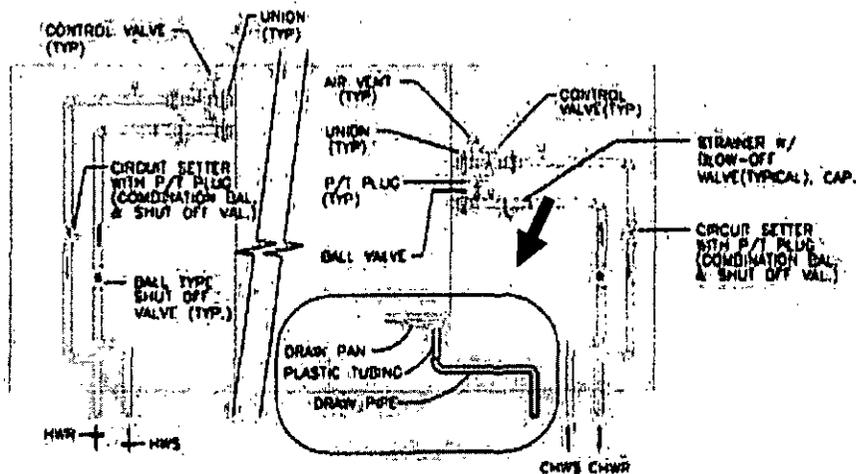
Figure M25

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M26. The fire stopping application shown does not meet UL standards.



Figure M26

- (d) Condensate drain hose is kinked preventing condensate flow. Refer to Figure M26. The drain line is not constructed per sketch issued to contractor. Refer to Figure M27 for sketch issued to contractor.



NOTES: 1. CHILLED WATER CONTROL VALVE SHALL BE NORMALLY CLOSED, TO COL. HOT WATER CONTROL VALVE SHALL BE NORMALLY OPEN.

FOUR PIPE UNIT VENTILATOR PIPING

NOT TO SCALE

Figure M27

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M26.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M26.

- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) Condensation from the chilled water lines formed pools of water below the piping. Refer to Figure M28.



Figure M28

- (i) Approximately 1" of standing water was observed in the condensate drain pan. Refer to Figure M29. This observation shows that a condensation test was not performed as per required in manufactures installation literature. The system should be checked by an environmental consultant for microbial growth.



Figure M29

- (j) The return air sampling chamber as shown in Image Figure M30 may provide an inaccurate space temperature when unit is not in operation.

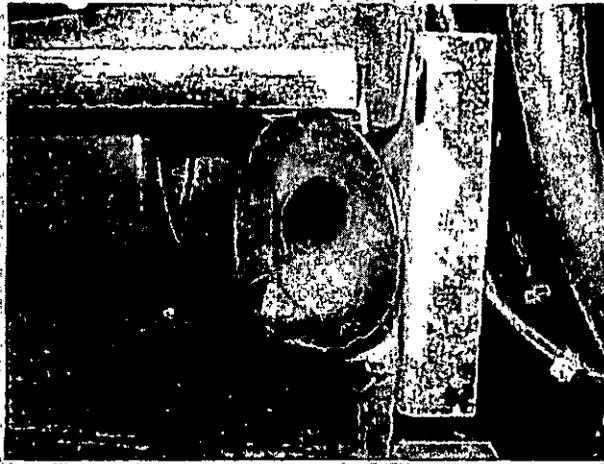


Figure M30

(k) Unit ventilator is not secured to wall as per Trane installation manual. Below are steps 4 and 5 of the unit ventilator mounting procedure.

- 4) Push the unit tightly against the wall to compress the seal on the back edge of the unit and intake opening. Anchor the unit by using the 1/2" mounting holes in both end pockets. Units containing a falseback; The falseback unit ventilator contains mounting holes located on the falseback metal. Use these holes rather than the holes located in the unit's end pockets. *Note: Ensure the unit is level. Coils and drain pans inside the unit are pitched properly for draining before shipment.*
- 5) Ensure the unit rests tightly against the wall. Check for proper seal and that air does not leak underneath the unit.

2. Unit ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification, section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB".
- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards.



Figure M31

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Image Figure M31.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M31. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M31.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) Approximately 1" of standing water was observed in the condensate drain pan. Refer to Figure M32. This observation shows that a condensation test was not performed as per required in manufactures installation literature. The system should be checked by an environmental consultant for microbial growth.



Figure M32

- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

E. CLASSROOM 102

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB".
- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M34. The fire stopping application shown does not meet UL standards.



Figure.M34

- (d) Condensate drain hose is kinked preventing condensate flow. The condensate hose broke off of the drain pan and a funnel was used to replace it. Refer to Figure M35. The drain line is not constructed per sketch issued to contractor. Refer to Figure M27 for sketch issued to contractor.



Figure M35

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Image Figure M35.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) Approximately 1" of standing water was observed in the condensate drain pan. Refer to Figure M36. This observation shows that a condensation test was not performed as per required in manufactures installation literature. The system should be checked by an environmental consultant for microbial growth.

- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M38.



Figure M38

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M39. The fire stopping application shown does not meet UL standards.



Figure M39

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M39.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M39. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

F. CLASSROOM 103

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M40.

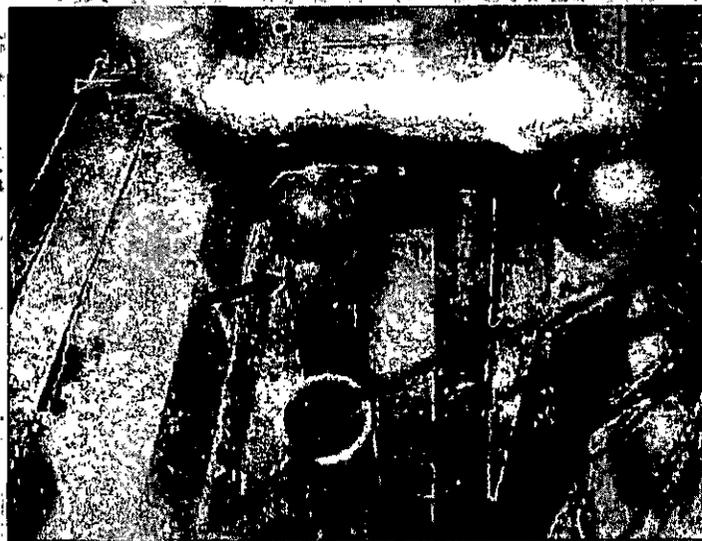


Figure M40

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M41.

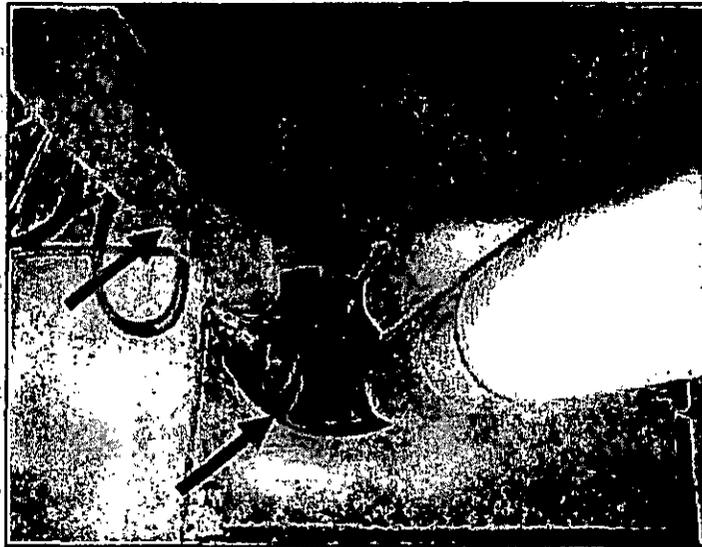


Figure M41

- (a) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M41.
- (b) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M41. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (c) Condensate drain piping not insulated below penetration. Specification section 15850-2.01 calls for all condensate piping to be insulated. Refer to Figure M42.

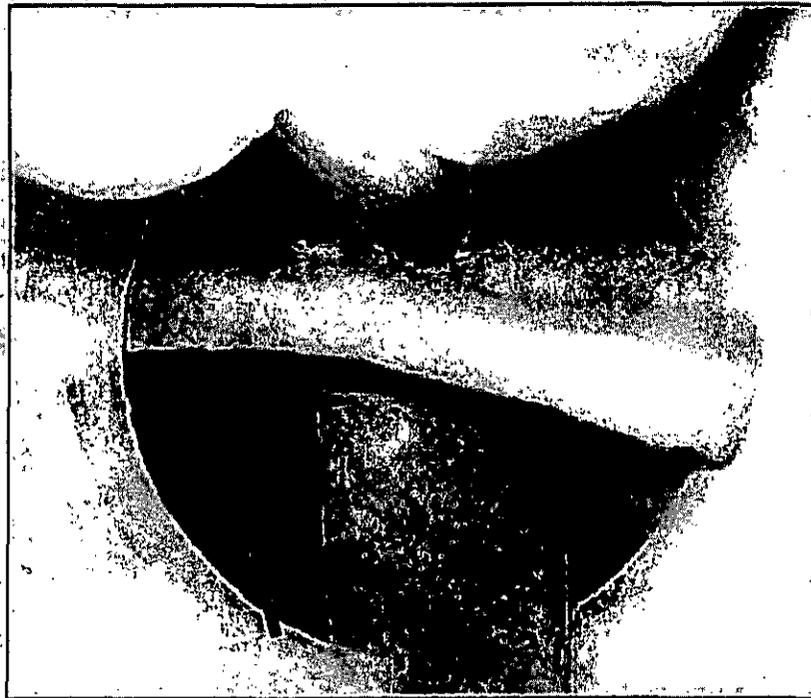


Figure M42

- (d) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M43.
- (e) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".



Figure M43

- (f) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (g) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M44.

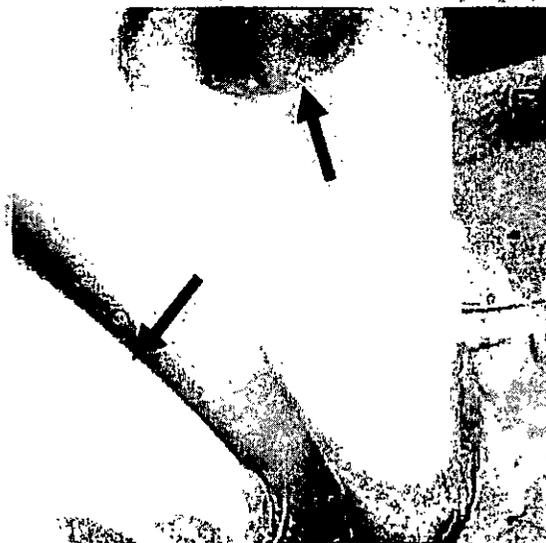


Figure M44

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M45. The fire stopping application shown does not meet UL standards.



Figure M45

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M45.

- (e) Condensate drain line has broken free from manufacturer connection to drain pan. Refer to Figure M45.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M45. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer, "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber as shown in Image, may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

G. CLASSROOM 104

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M46.



Figure M46

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M47. The fire stopping application shown does not meet UL standards.



Figure M47

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M47.
- (e) Condensate drain hose is kinked preventing condensate flow. Refer to Figure M47.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M47. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M48.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".



Figure M48

- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-B-1):

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M49.



Figure M49

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M50. The fire stopping application shown does not meet UL standards.



Figure M50

- (d) Condensate drain line is not insulated as per specification section 15850-2.01.

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M50. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber as shown in Image may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

H. CLASSROOM 105

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M51.



Figure M51

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M52. The fire stopping application shown does not meet UL standards.



Figure M52

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M52.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M52. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M53.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".



Figure M53

- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M54.

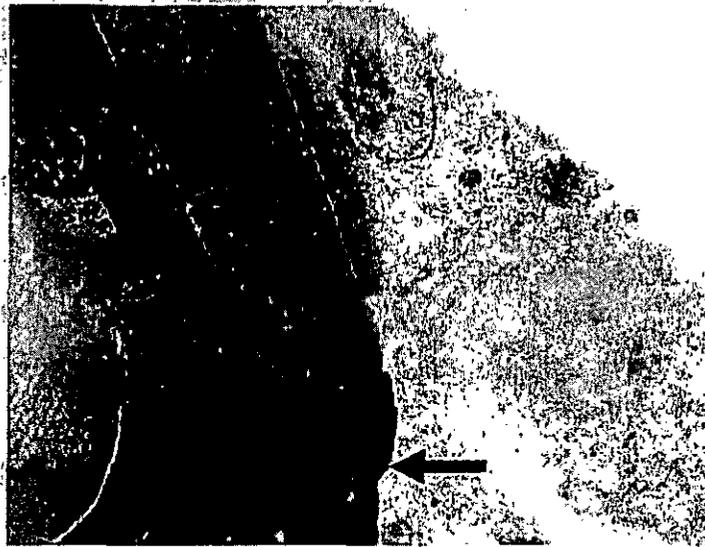


Figure M54

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M55. The fire stopping application shown does not meet UL standards.

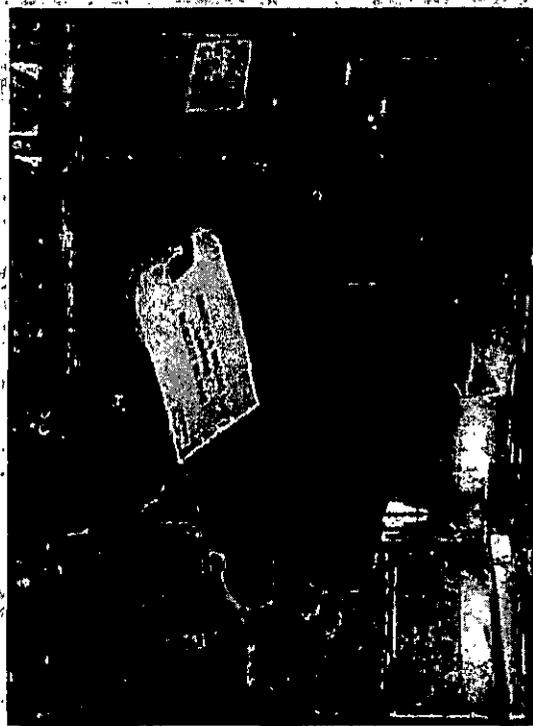


Figure M55

- (d) Condensate drain line is not insulated as per specification section 15850-2.01.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M55. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber as shown in image may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

I. ATHLETIC DIRECTORS OFFICE #1

1. Fan Coil (FC-A)

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M56. The fire stopping application shown does not meet UL standards.

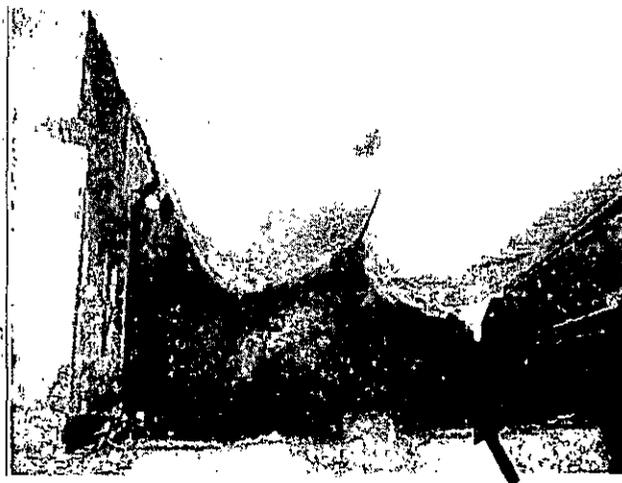


Figure M56

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M57.



Figure M57

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M57. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M57.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual. Refer to Figure M58 and Figure M59.



Figure M58



Figure M59

(i) The unions are leaking glycol-chilled water. Refer to Figure M60.



Figure M60

1. Fan Coil (FC-A)

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M61. The fire stopping application shown does not meet UL standards.



Figure M61

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M62.



Figure M62.

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M64. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M64.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.

K. Corridor

1. Piping Penetrations

The following is a list of deficiencies in the installation of the through wall piping penetrations:

- (a) Piping penetrations through rated wall are not per "DETAIL PF PIPING PIRING REQUIRED FIRE RATED PARTITIONS AND WALL" on contract drawing M2.13. Actual pipe penetrations lack one or more of the follow pipe sleeve, escutcheon on both sides, and space between pipe and sleeve mineral wool or other UL approved equal. Refer to Figure M63.

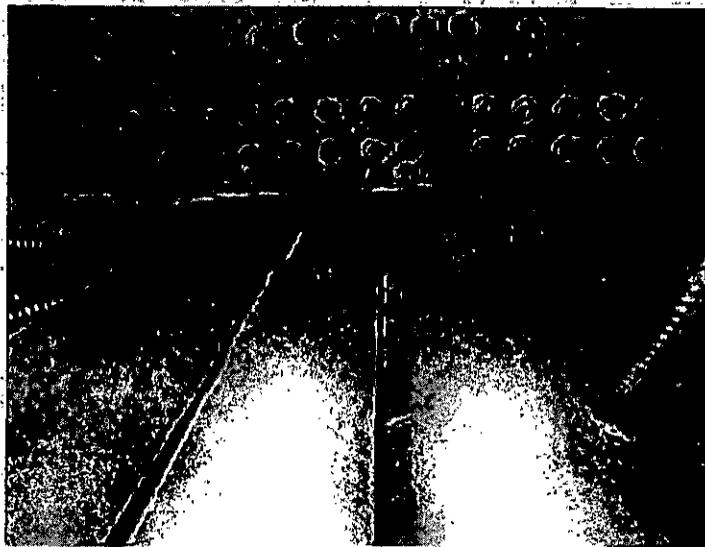


Figure M63

SECOND FLOOR

A. CLASSROOM 201

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M64.



Figure M64

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M65. The fire stopping application shown does not meet UL standards.



Figure M65

- (d) Standing water was observed in the condensate drain pan. Refer to Figure M66. This observation shows that a condensation test was not performed as per required in manufacturer's installation literature. The system should be checked by an environmental consultant for microbial growth.



Figure M66

- (e) Condensate drain line is not insulated as per specification section 15850-2.01.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M65.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M67.



Figure M67

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M68. The fire stopping application shown does not meet UL standards.



Figure M68

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M69.



Figure M69

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M69. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M69.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".

- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

B. CLASSROOM 202

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M70. Paper towels were found packed into the annular space of the penetration. Refer to Figure M70 and Figure M71.

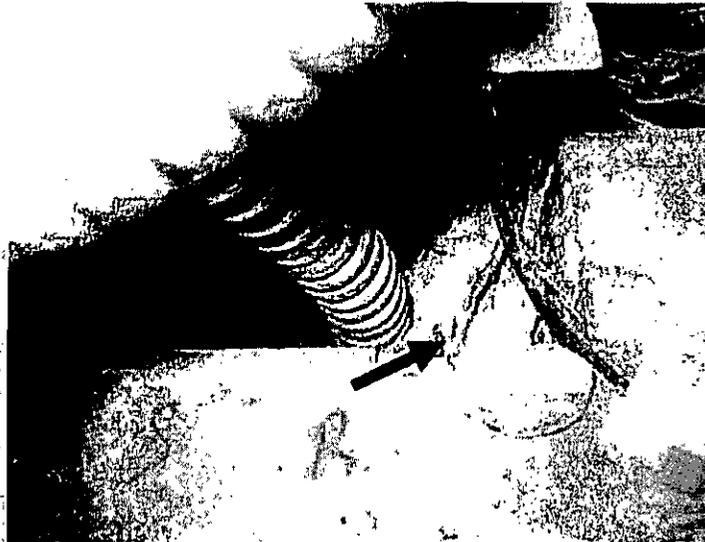


Figure M70



Figure M71

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M72. The fire stopping application shown does not meet UL standards.



Figure M72

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M52.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M73. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M73.



Figure M73

- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M74.

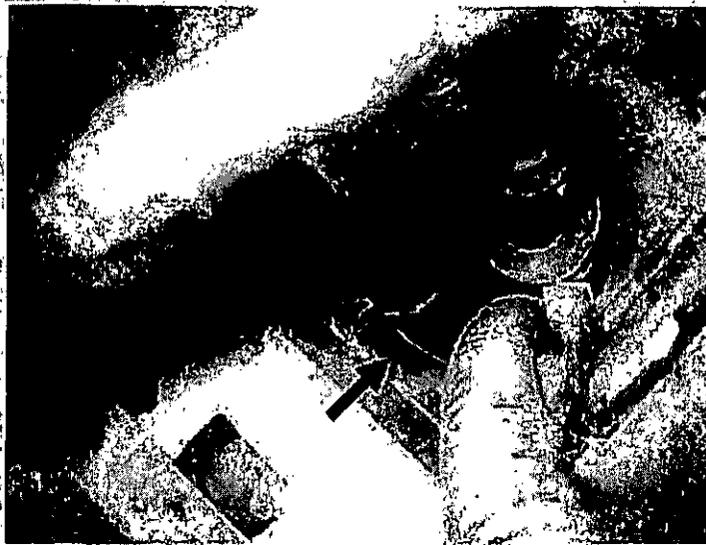


Figure M74

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M75. The fire stopping application shown does not meet UL standards.



Figure M75

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M75.

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M75. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M75.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

3. Fire Smoke Damper (FSD)

The following is a list of deficiencies in the installation of the fire smoke damper:

- (a) The fire smoke damper has exposed wires and electrical tape in air stream. Refer to Figure M76 and Figure M77.

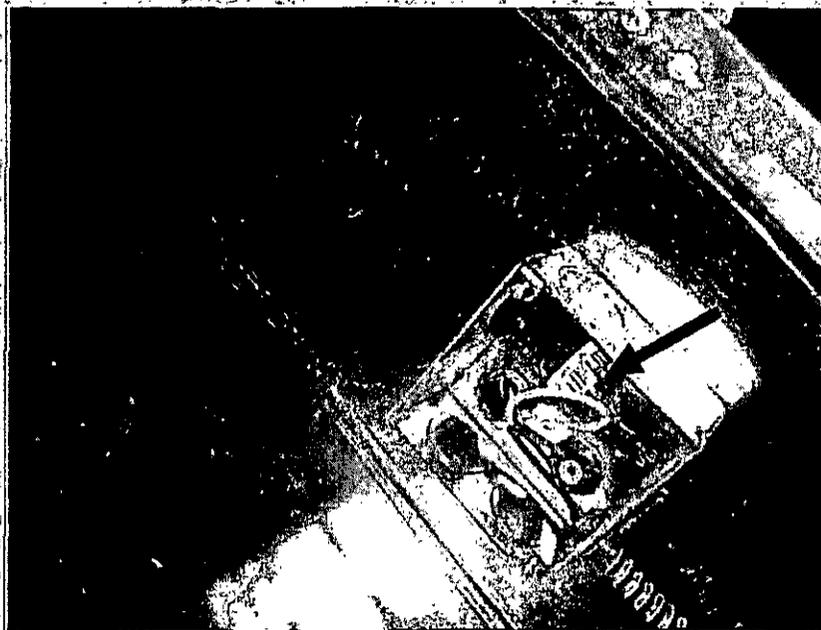


Figure M76

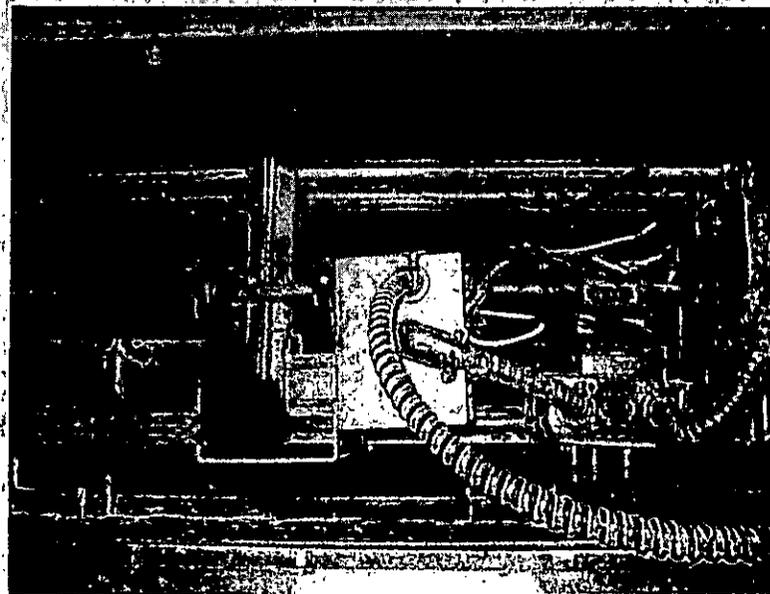


Figure M77

- (b) The fire smoke damper has exposed wire is exposed through duct penetration. Refer to Figure M78.

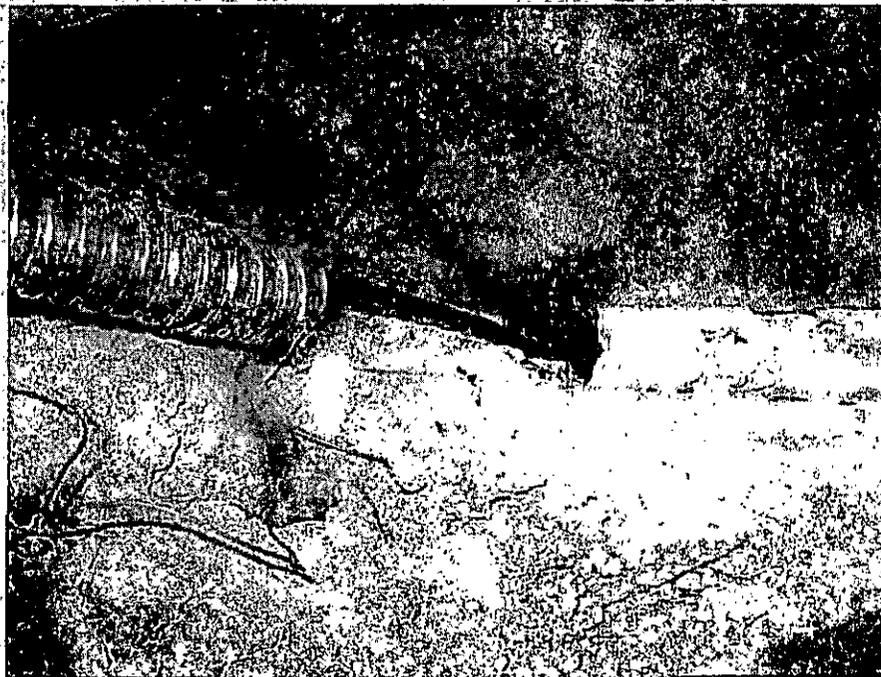


Figure M78:

- (c) Shaft contains large amounts of rubble. Refer to Figure M79.

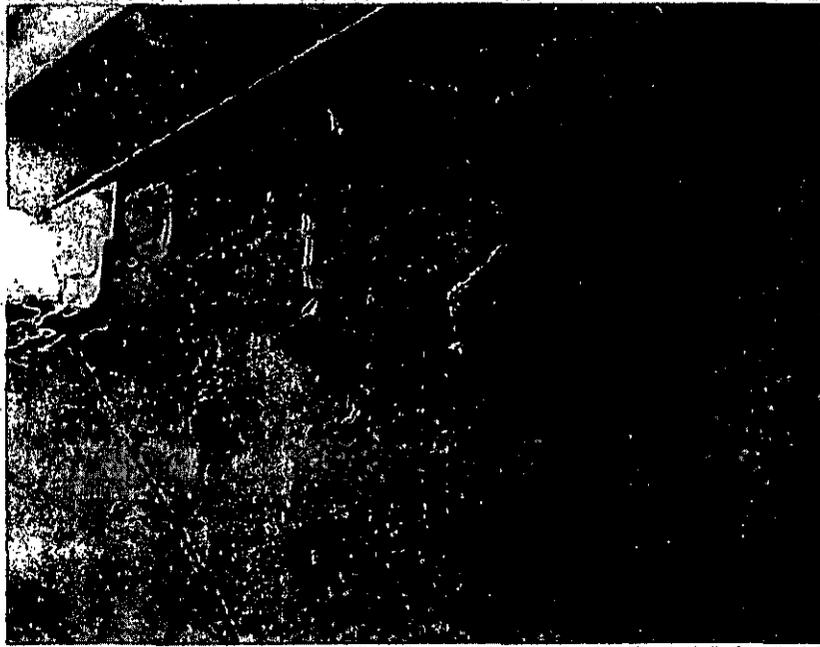


Figure M79

C. CLASSROOM 203

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.
- (b) Not applicable.

- (c) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (d) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M81.



Figure M81.

- (e) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M82. The fire stopping application shown does not meet UL standards.



Figure M82

- (f) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M82.
- (g) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M82. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (h) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M82.
- (i) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (j) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (k) Unit ventilator is not secured to wall as per Trane installation manual.
- (l) Core drill cut through steel channel. Structural analysis may need to be performed to insure structural integrity. Refer to Figure M83.



Figure M83

2. Unit Ventilator (UV-B-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

(a) Not applicable.

(b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M85.



Figure M85

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M86. The fire stopping application shown does not meet UL standards.



Figure M86

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M87.



Figure M87

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M87. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (a) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M87.
- (b) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING"
- (c) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (d) Unit ventilator is not secured to wall as per Trane installation manual.
- (e) Unit is not assembled properly. Refer to Figure M88 and Figure M89.

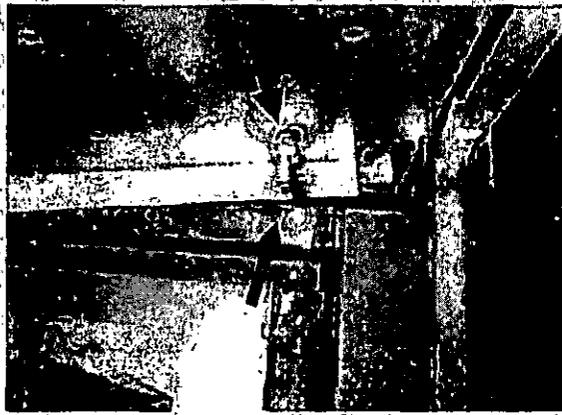


Figure M88

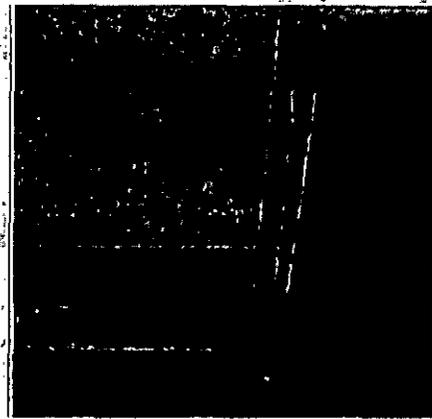


Figure M89

- (f) Leak in heating hot water piping has caused premature corrosion. Refer to Figure M90.

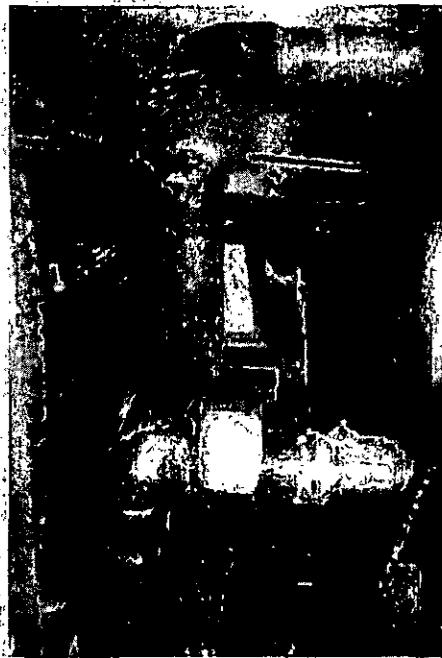


Figure M90

D. CLASSROOM 204

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB".
- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M91. The fire stopping application shown does not meet UL standards.



Figure M91

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M91.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M91. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M91.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.
- (j) Unit not installed over heating hot water core drilled hole. Pipes are bent under unit ventilator to penetration. Pipe is crimped at one point. Refer to Figure M92.

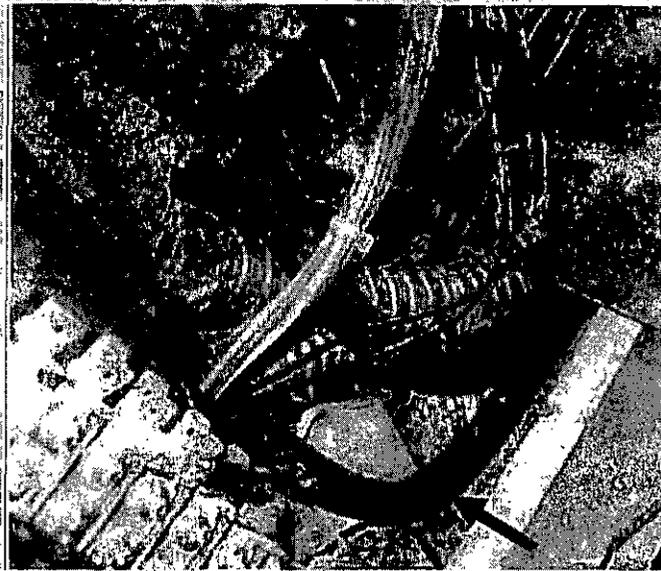


Figure M92

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M93.

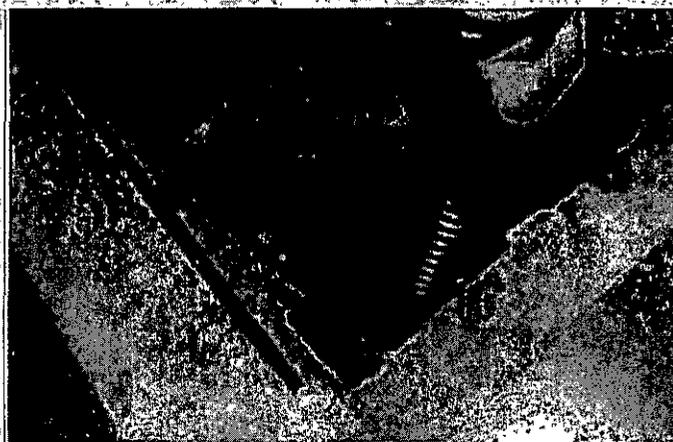


Figure M93

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M94. The fire stopping application shown does not meet UL standards.

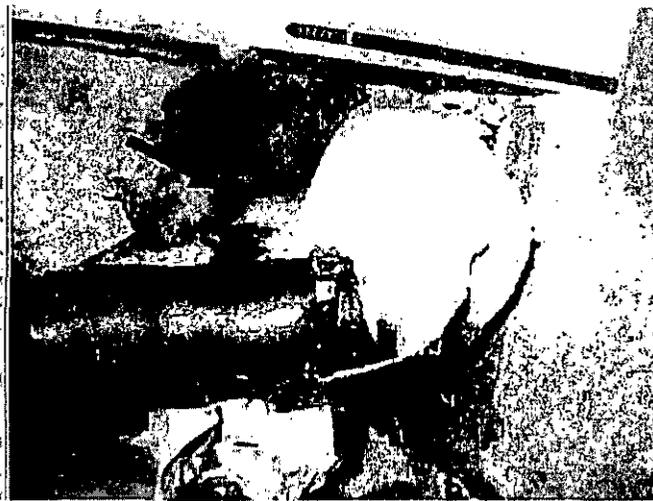


Figure M94

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M95.



Figure M95

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M95. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M95.

- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M96.



Figure M96

- (j) Chilled water control valve does not have adequate clearance from manual vent for removal. Refer to Figure M97.



Figure M97

3. Fire Smoke Damper (FSD)

The following is a list of deficiencies in the installation of the fire smoke damper:

- (a) The fire smoke damper has exposed wires and electrical tape in air stream. Refer to Figure M98.

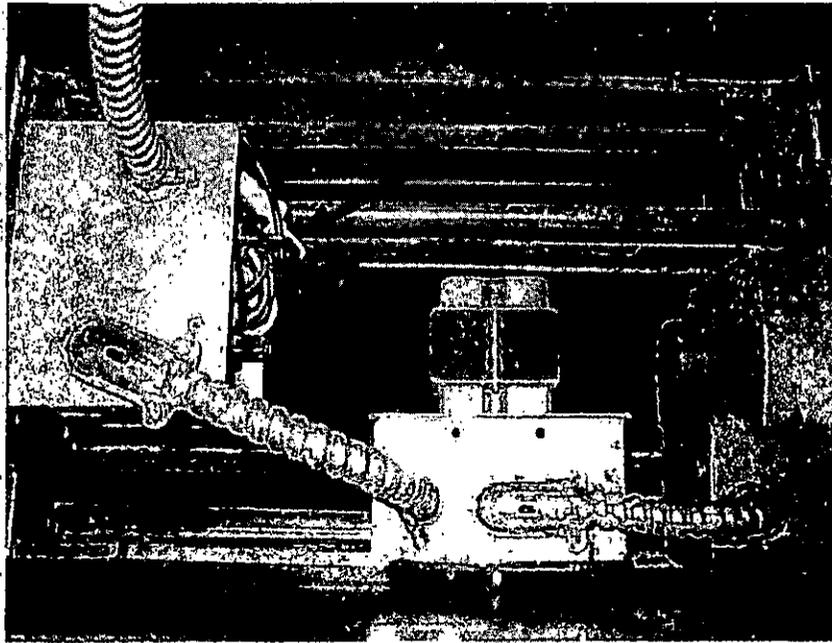


Figure M98

E. CLASSROOM 205

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M99.



Figure M99

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M100. The fire stopping application shown does not meet UL standards.



Figure M100

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M101.



Figure M101

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M101. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M101.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M102.



Figure M102

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M103. The fire stopping application shown does not meet UL standards.



Figure M103

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M104.



Figure M104

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M104. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M104.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M105.



Figure M105

F. GUIDANCE OFFICE 213

1. Fan Coil (FC-A) EAST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M106. The fire stopping application shown does not meet UL standards.



Figure M106

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M107.



Figure M107

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M107. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M107.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.

2. Fan Coil (FC-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M108. The fire stopping application shown does not meet UL standards.

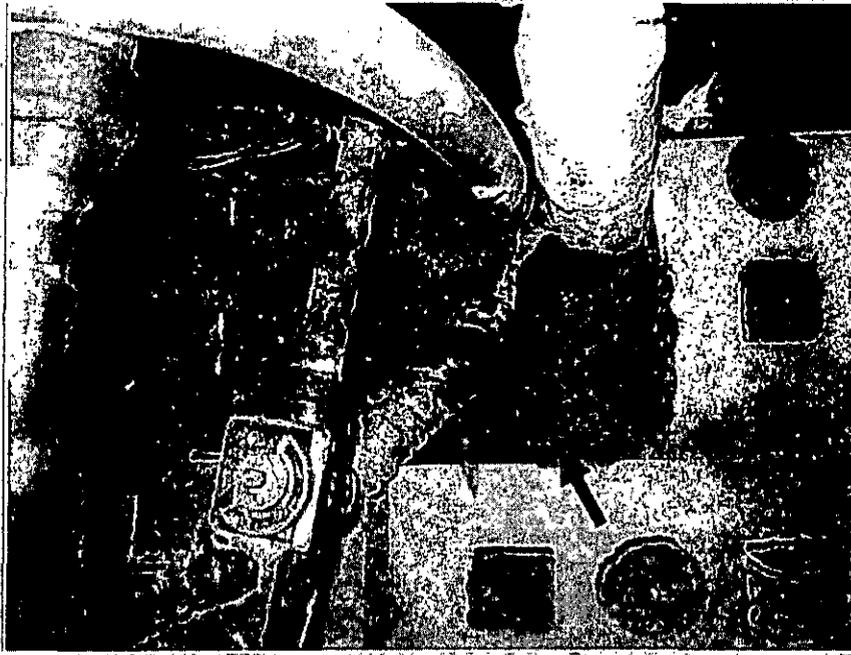


Figure M108

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M109.



Figure M109

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M109. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M109.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual. Refer to Figure M110.



Figure M110:

- (i) Leaking fittings have caused premature corrosion of the system. Refer to Figure M109.



Figure M111

3. Transfer duct

The following is a list of deficiencies in the installation of the transfer duct:

- (a) Transfer grilles not installed. Refer to Figure M112.

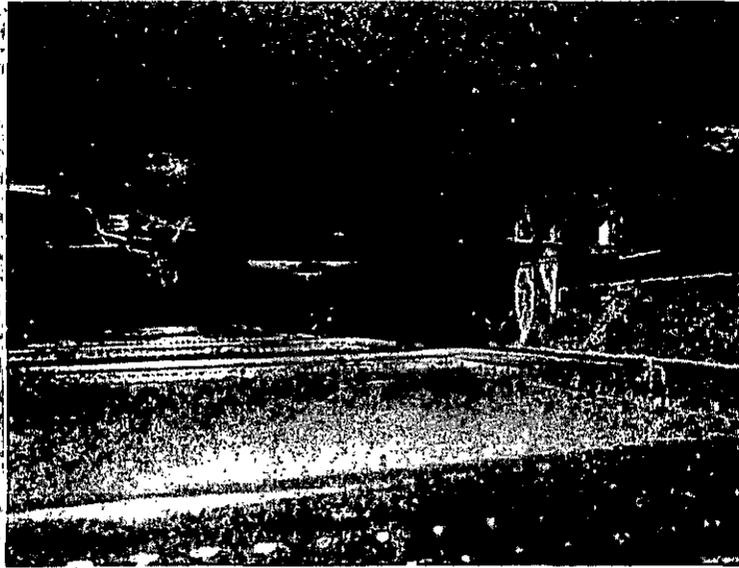


Figure M112

G. LIBRARY READING ROOM 214

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M113.



Figure M113

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M114. The fire stopping application shown does not meet UL standards.



Figure M114

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M115.



Figure M115

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M115. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M115.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.
- (k) Unit is not assembled properly or damaged. Refer to Figure M116.



Figure M116.

H.. MAIN OFFICE ROOM 217

1. Unit Ventilator (UV-C)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M113.

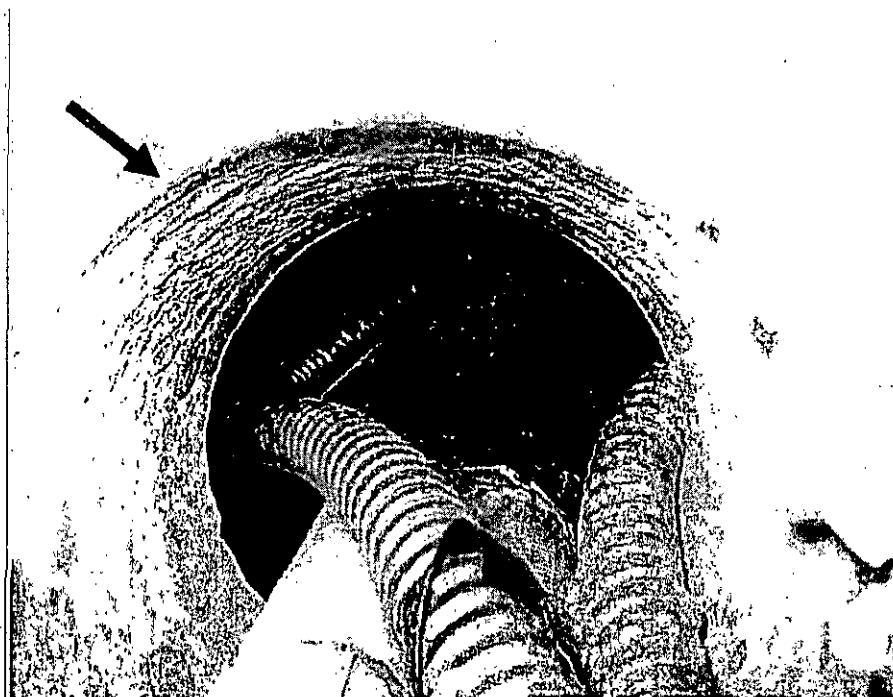


Figure M117

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M114. The fire stopping application shown does not meet UL standards.



Figure M118

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M115.



Figure M119

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M115. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M115.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

1. VICE PRINCIPAL'S OFFICE 217A

1. Fan Coil (FC-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan-coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawing M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M120. The fire stopping application shown does not meet UL standards.

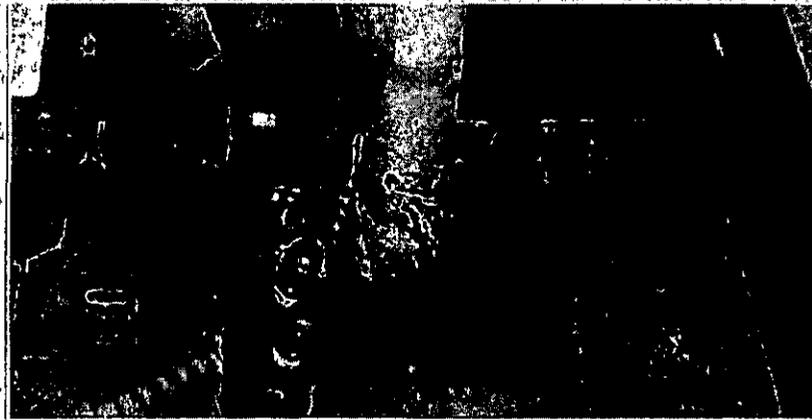


Figure M120.

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M121.



Figure M121

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M121. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M121.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.

2. Fan Coil (FC-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.

- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M122. The fire stopping application shown does not meet UL standards.

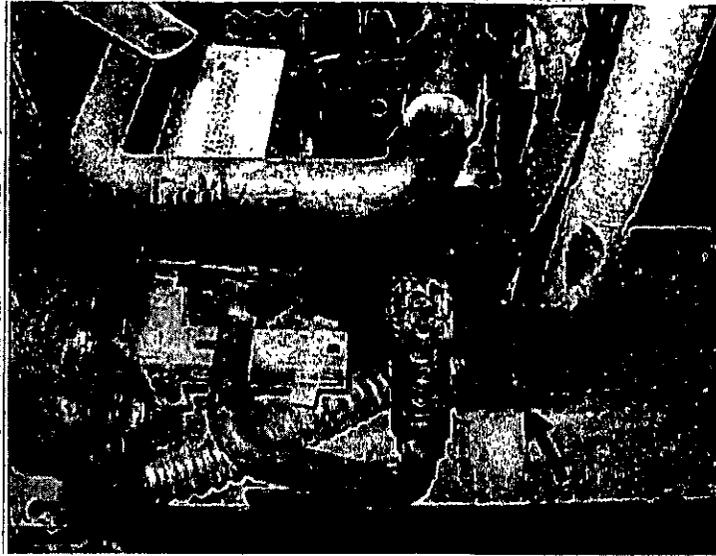


Figure M122

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M123.



Figure M123

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M123. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M123.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.
- (i) Pipe sweating has caused premature corrosion of the system. Refer to Figure M124.



Figure M124

LIBRARY:218

1. UNIT VENTILATOR (UV-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M125.



Figure M125

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M126.



Figure M126



Figure M127

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M127.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M127. Refer to Figure M27 for sketch of condensate drain construction issued to contractor. Actual installation includes funnel at end of drain line.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M127.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M128.

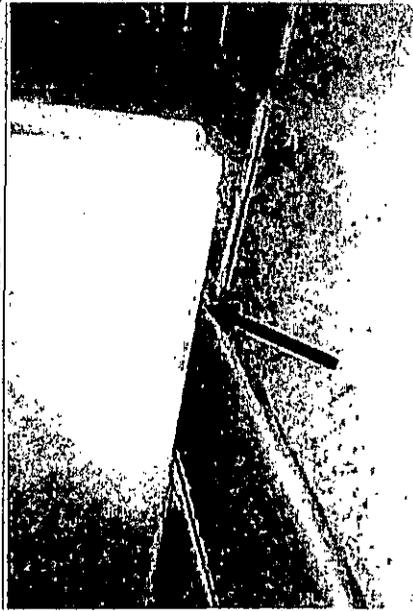


Figure M128

2. Unit Ventilator (UV-B) CENTER UNIT

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M129.



Figure M129

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M130. The fire stopping application shown does not meet UL standards.



Figure M130.

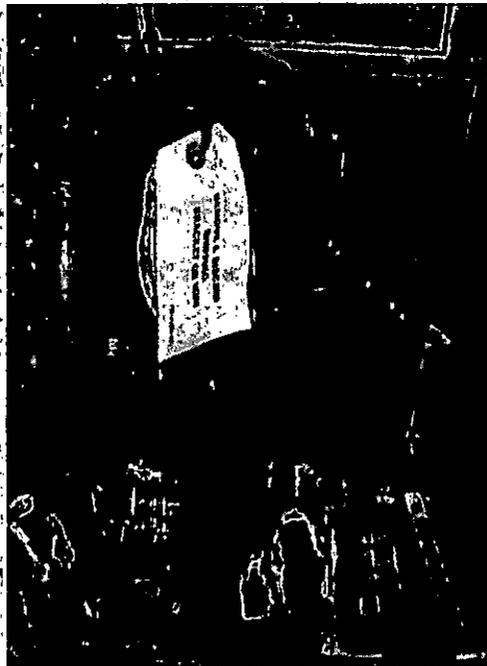


Figure M131

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M131.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M131. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M131.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M132.

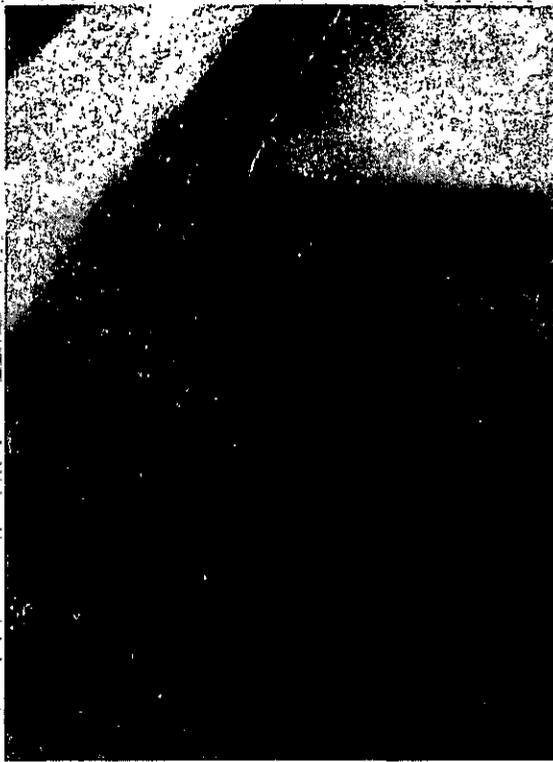


Figure M132

- (j) Unit is damaged. Refer to Figure M133.

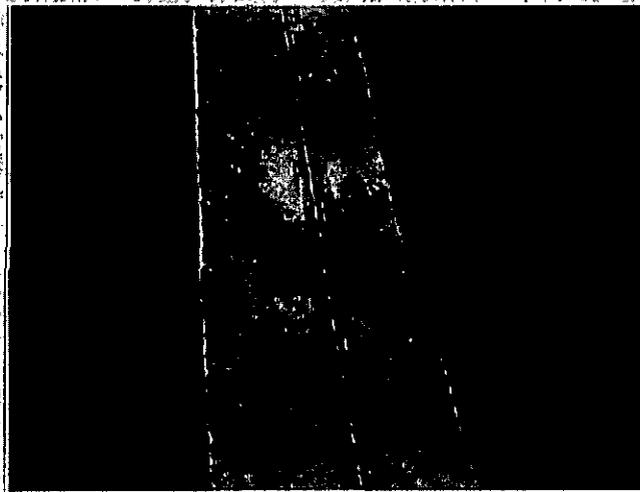


Figure M133

3. Unit Ventilator (UV-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M134.



Figure M134

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M135. The fire stopping application shown does not meet UL standards.



Figure M135

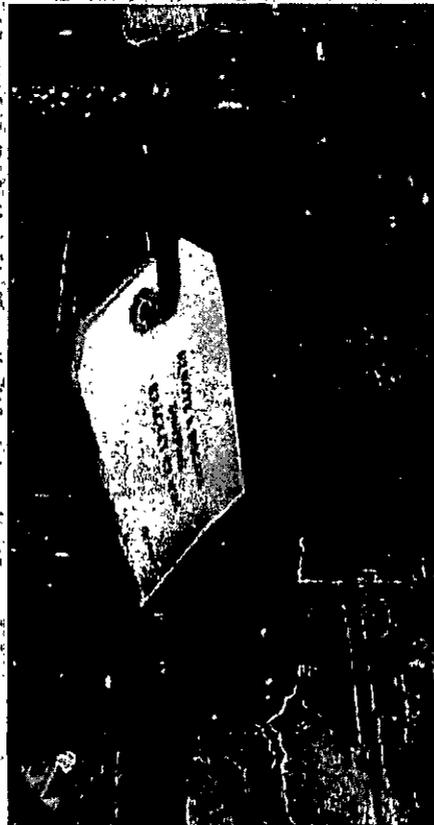


Figure M136

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M136. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M136.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Unit ventilator is not secured to wall as per Trane installation manual.

K. FACULTY ROOM 222

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M137.

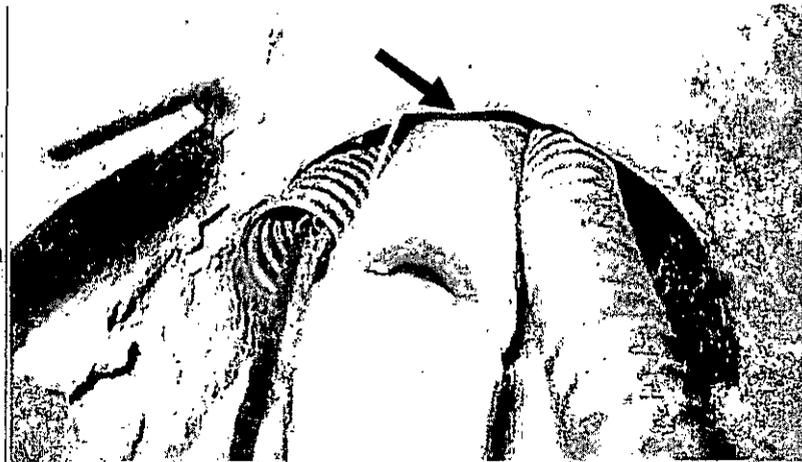


Figure M137

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M138. The fire stopping application shown does not meet UL standards.

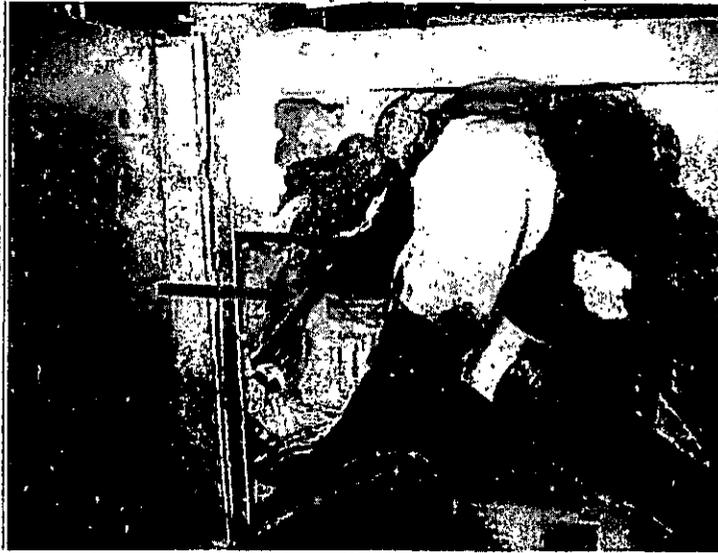


Figure M138

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M139.



Figure M139

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M139. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.

- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M139.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.
- (j) Unit is not assembled properly or damaged. Refer to Figure M140.



Figure M140

L. FINANCE 223

1. Fan Coil (FC-A) EAST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M141.

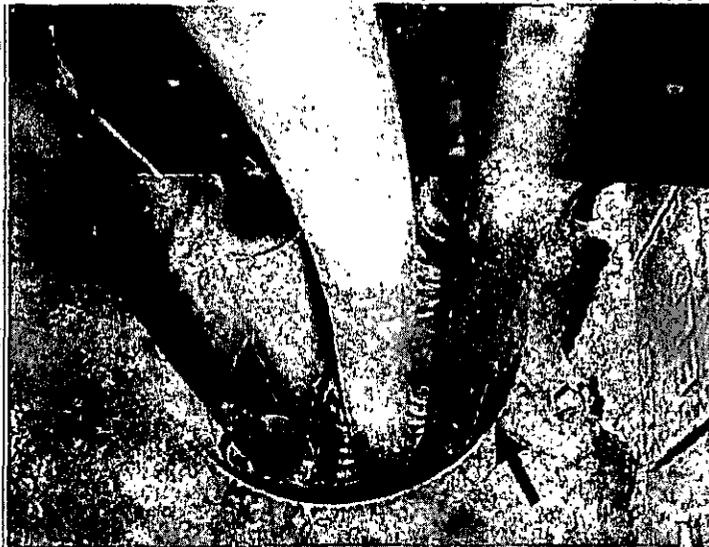


Figure M141

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M142.

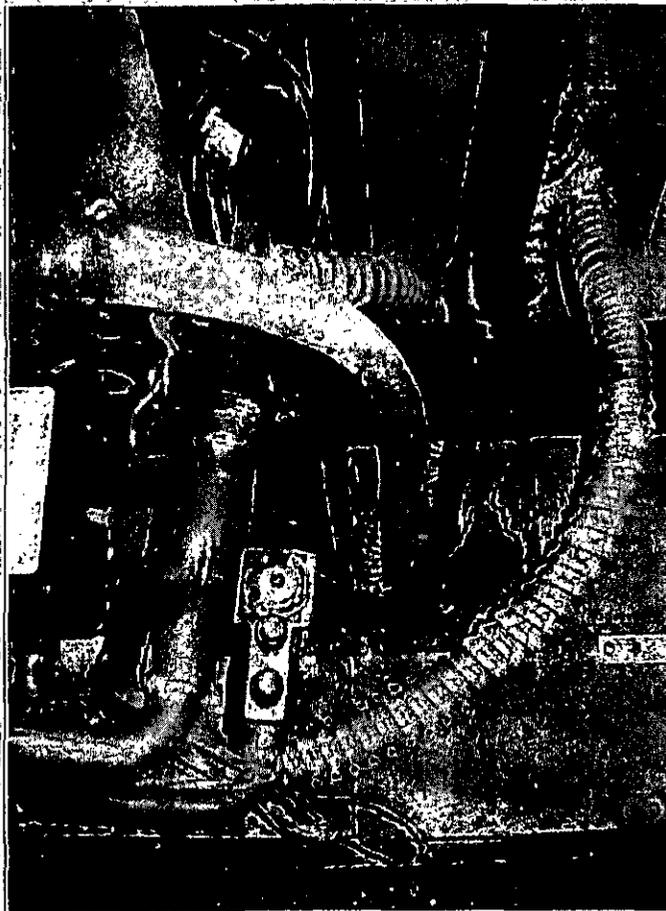


Figure M142

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M142. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M142.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.

2. Fan Coil (FC-A) WEST UNIT

The following is a list of deficiencies in the installation and manufacturing of the fan coil units:

- (a) Fan coil unit not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the chilled water pipe, heating hot water piping, and condensate drain piping penetration as per contract drawings, M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M143.

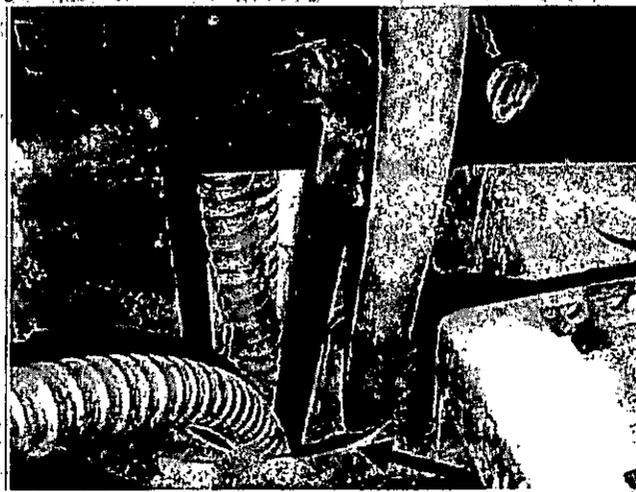


Figure M143

- (c) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M144.



Figure M144

- (d) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M144. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (e) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M144.
- (f) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer, "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (g) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (h) Fan coil unit is not secured to wall as per Trane installation manual.
- (i) Leaking fittings have caused premature corrosion of the system. Refer to Figure M145.



Figure M145

M: PRINCIPAL'S OFFICE 224

1. Unit Ventilator (UV-C)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M146.



Figure M146

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M147. The fire stopping application shown does not meet UL standards.



Figure M147

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M148.



Figure M148

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M148. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M148.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.
- (j) Existing wall damaged location of unit installation. Refer to Figure M149 and Figure M150.



Figure M149



Figure M150

2. Exhaust Top Register

The following is a list of deficiencies in the installation of the exhaust top register:

- (a) Existing wall damaged during installation of register. Refer to Figure M151.
- (b) Register missing at duct termination. Refer to Figure M151.

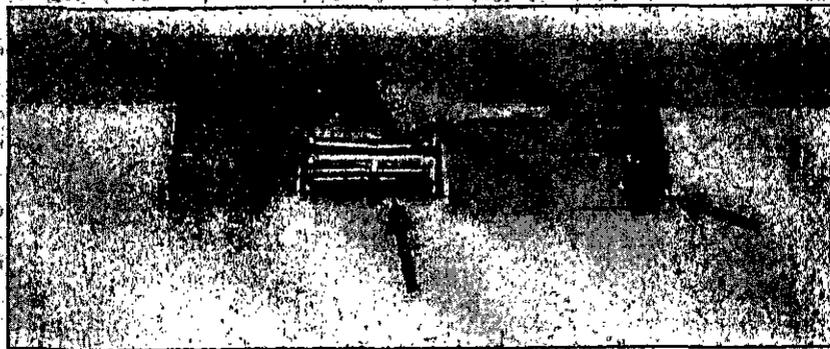


Figure M151

N. ASSISTANT PRINCIPAL'S OFFICE 225

1. Unit Ventilator (UV-C)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M159.

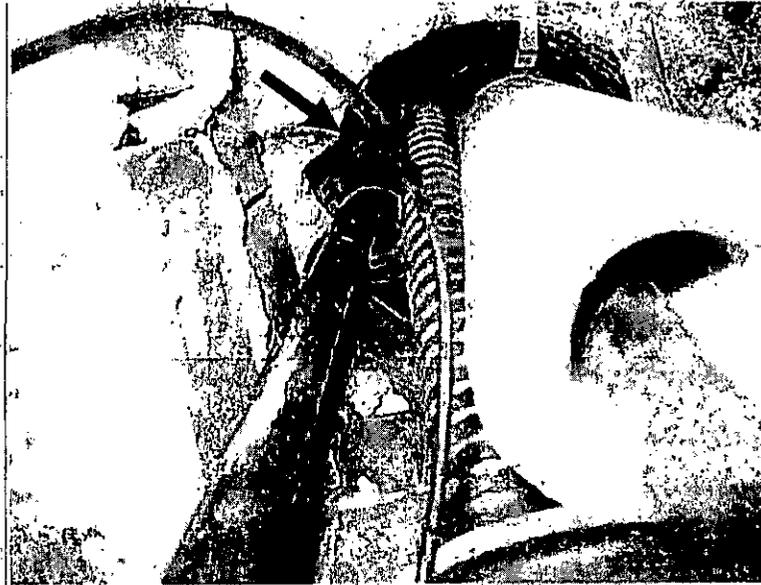


Figure M152

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M153. The fire stopping application shown does not meet UL standards.



Figure M153

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M154.



Figure M154

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M154. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M154.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.
- (j) Existing wall damaged location of unit installation. Refer to Figure M155.

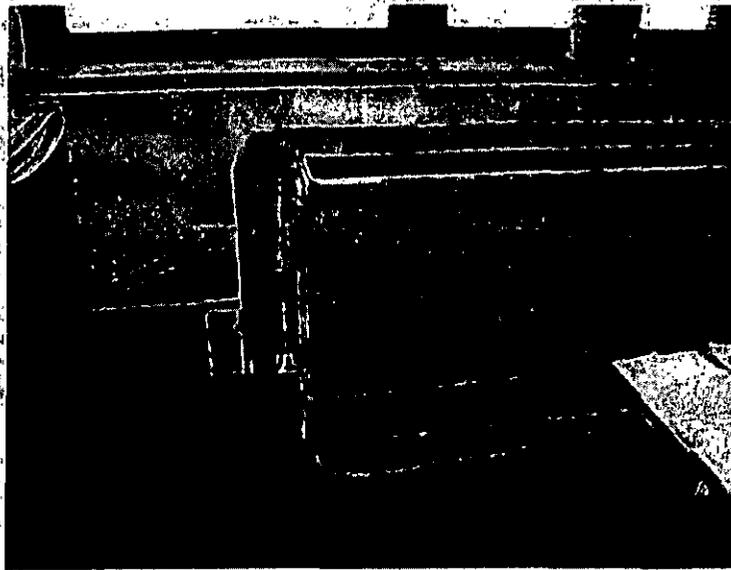


Figure M155

2. Exhaust Top Register

The following is a list of deficiencies in the installation of the exhaust top register:

- (a) Existing wall damaged during installation of register. Refer to Figure M156.
- (b) Register missing at duct termination. Refer to Figure M156.

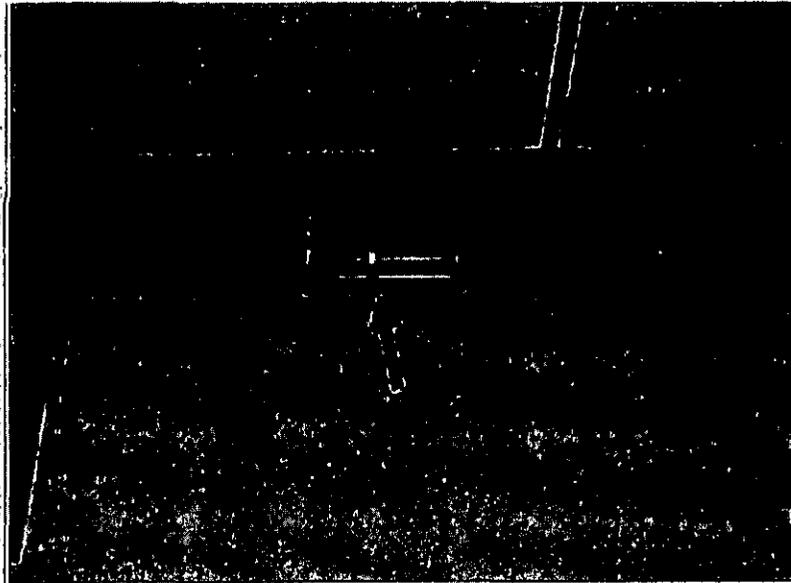


Figure M156

O. CLASSROOM 226 (BIOLOGY LABORATORY)

1. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

(a) Not applicable.

(b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M158.



Figure M158

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M159. The fire stopping application shown does not meet UL standards.



Figure M159

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M160.

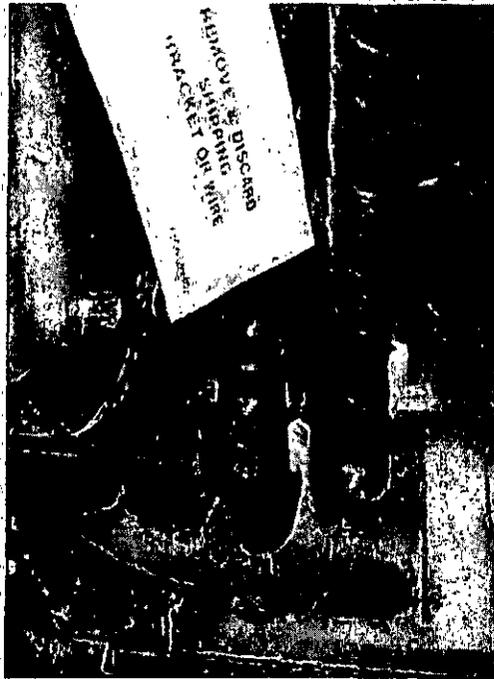


Figure M160

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M160. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M160.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.
- (k) Unit is not assembled properly. Refer to Figure M161, Figure M162, and Figure M163.



Figure M161

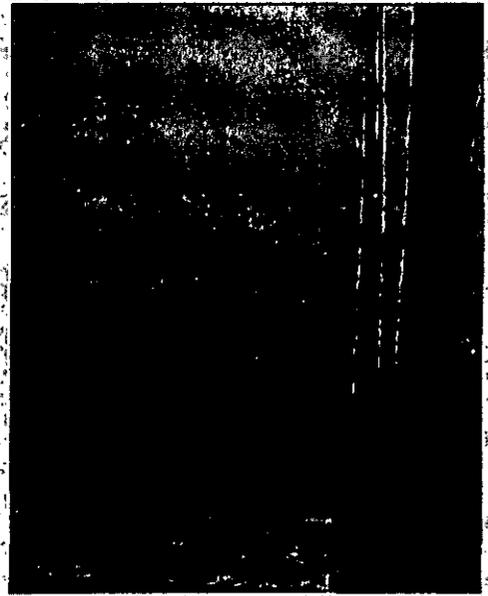


Figure M162



Figure M163.

2: Unit Ventilator (UV-B) West Unit

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

(b) Not applicable.

(c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M165.

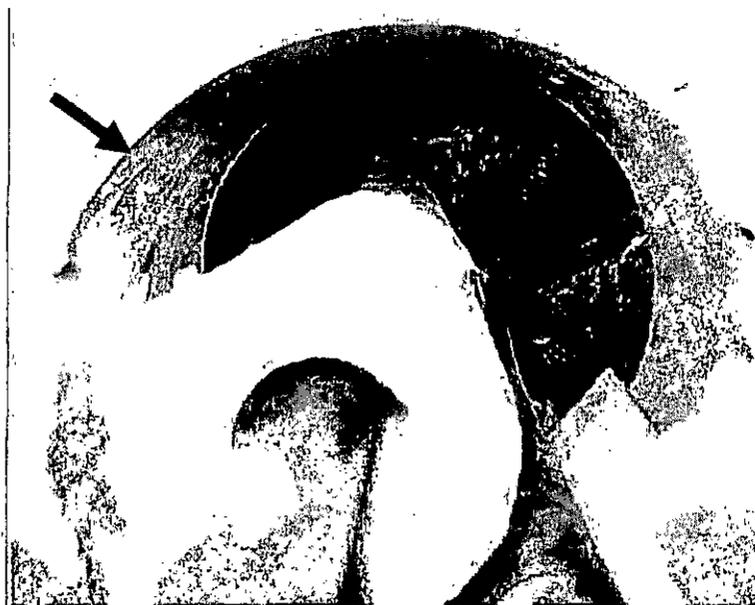


Figure M165

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M166. The fire stopping application shown does not meet UL standards.



Figure M166

- (e) Condensate drain line is not insulated as per specification section 15850-2:01. Refer to Figure M167.



Figure M167

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M167. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M167.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M168.

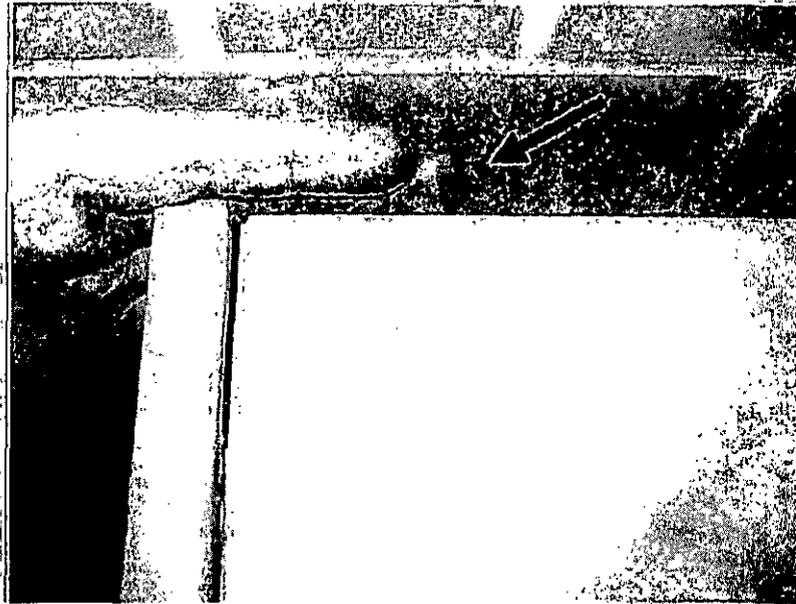


Figure M168

- (k) Unit ventilator does not have insulation removed for return air sampling chamber. Refer to Figure M170 and Figure M170.

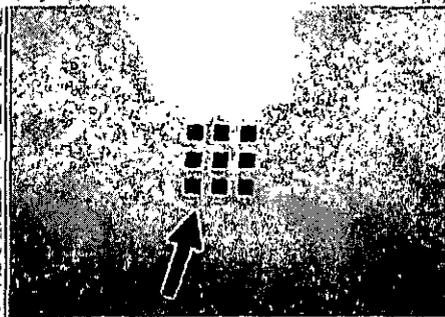


Figure M169

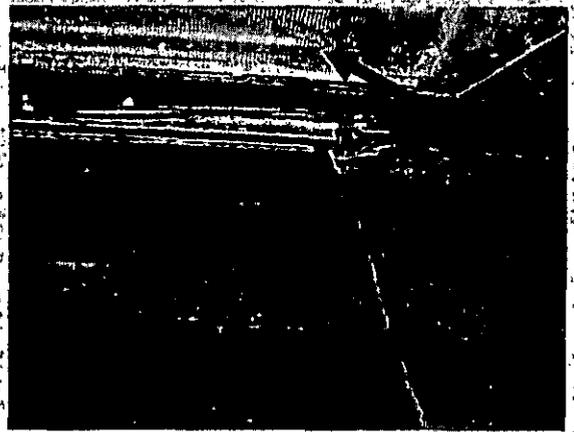


Figure M170

3. Unit Ventilator (UV-B) East Unit

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

(b) Not applicable.

(c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M172.

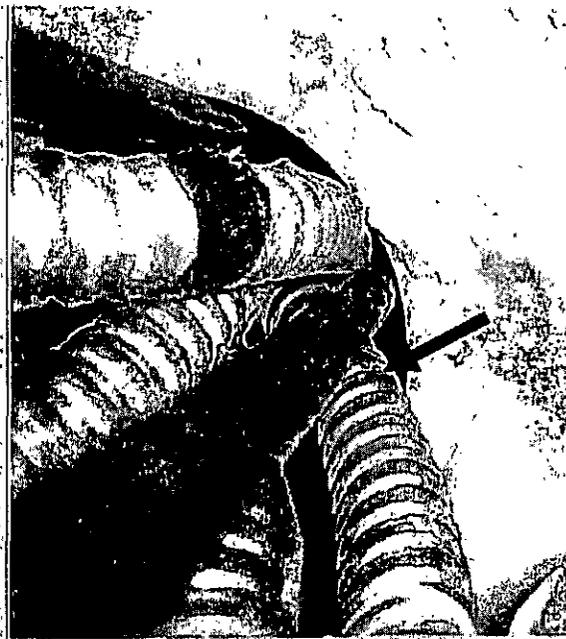


Figure M172

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M173. The fire stopping application shown does not meet UL standards.



Figure M173

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M174.

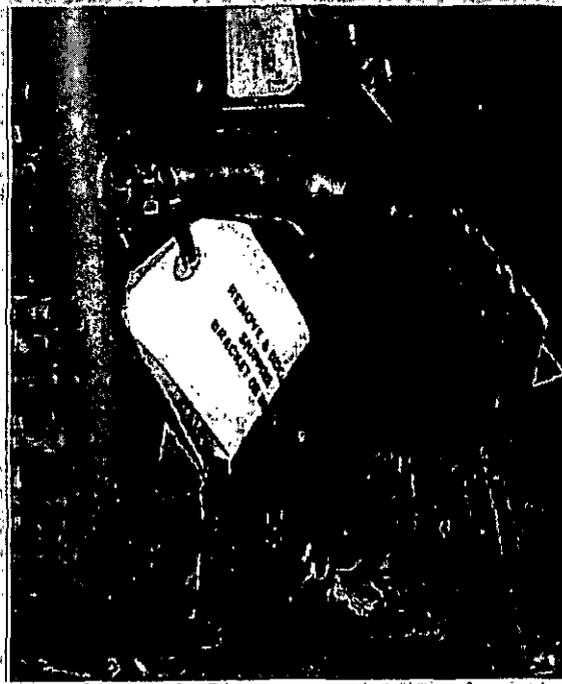


Figure M174

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M174. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M174.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

THIRD FLOOR

A. CLASSROOM 300

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M175.

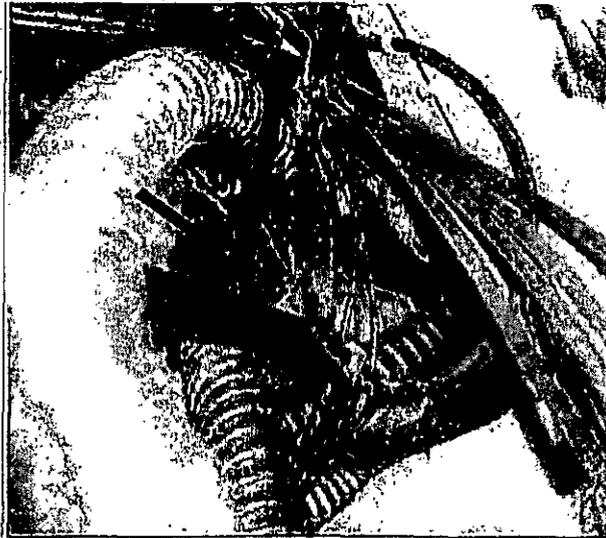


Figure M175

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M176. The fire stopping application shown does not meet UL standards.



Figure M176

- (d) Condensate drain line is not insulated as per specification section 15850-2:01. Refer to Figure M176.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M176. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.

- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M176.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M177.



Figure M177

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M178. The fire stopping application shown does not meet UL standards.



Figure M178

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M178.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M178. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M178.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M179.

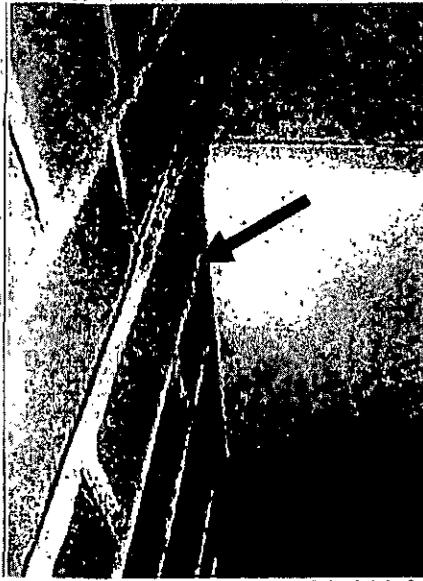


Figure M179

B. CLASSROOM 301

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M180.



Figure M180

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M181. The fire stopping application shown does not meet UL standards.

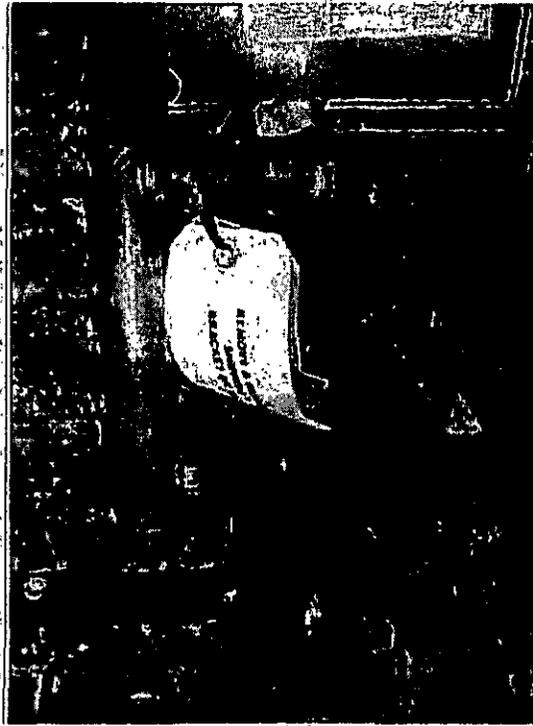


Figure M181

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M181.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M181. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M181.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M182.



Figure M182

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M183. The fire stopping application shown does not meet UL standards.

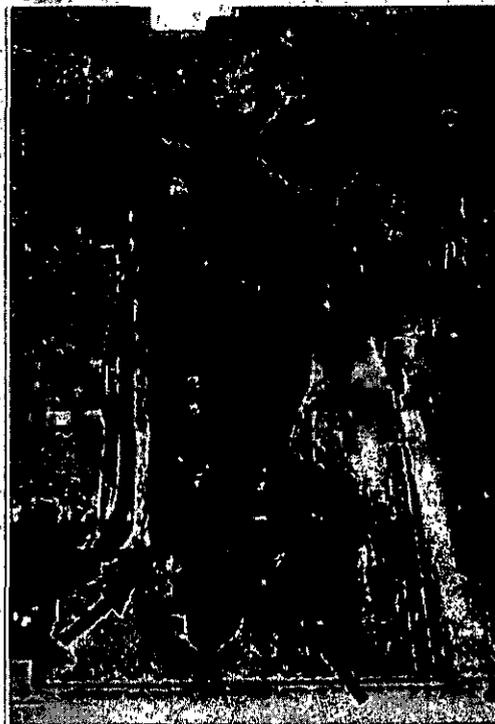


Figure M183

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M183.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M183. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M183.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

C. CLASSROOM 302

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M184.

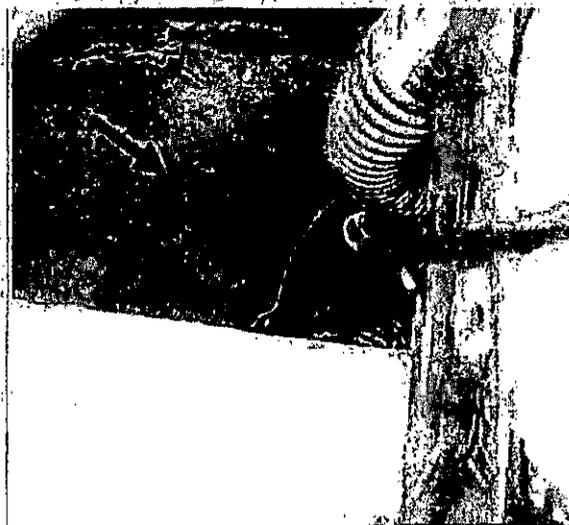


Figure M184

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M185. The fire stopping application shown does not meet UL standards.



Figure M185

- (d) Condensate drain line is not insulated as per specification section 15850-2.01.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M185.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail: "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M186.

- (c) Leak in heating hot water piping has caused premature corrosion. Refer to Figure M186.

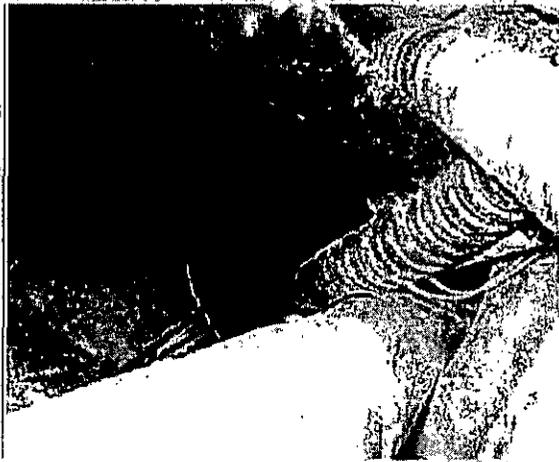


Figure M186.

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M187. The fire stopping application shown does not meet UL standards.



Figure M187

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M187.

- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M187. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M187.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

D. CLASSROOM 303

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.
- (b) Not applicable.
- (c) Not applicable.
- (d) Not applicable.
- (e) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (f) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M188:



Figure M188

- (g) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M189. The fire stopping application shown does not meet UL standards.



Figure M189



Figure M190

- (h) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M190.
- (i) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M190. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (j) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M190.
- (k) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (l) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (m) Core drill cut through steel channel. Structural analysis may need to be performed to insure structural integrity. Refer to Figure M191.



Figure M191

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.

- (b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M194.



Figure M194

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M195. The fire stopping application shown does not meet UL standards.



Figure M195



Figure M195

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M195.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M195. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M195.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

E. CLASSROOM 304

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.

- (b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (c) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M197.

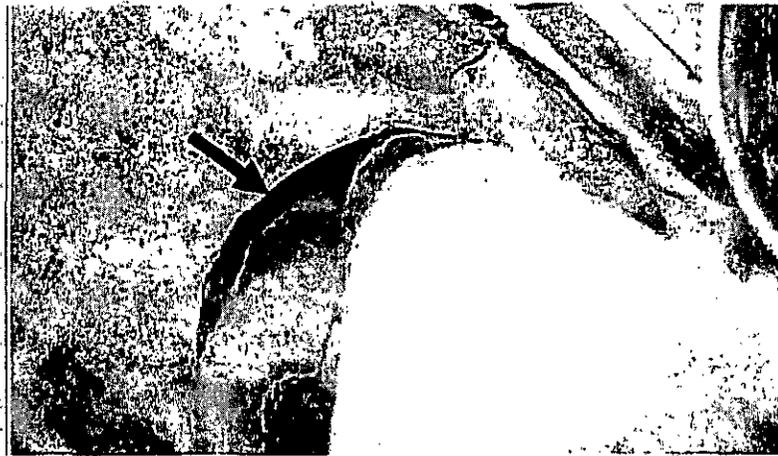


Figure M197

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M198. The fire stopping application shown does not meet UL standards.



Figure M199



Figure M200

- (e) Condensate drain line is not insulated as per specification section 15850-2:01. Refer to Figure M200.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M200. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2:01. Refer to Figure M200.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".

- (i) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (j) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.
- (b) Not applicable.
- (c) Not applicable.
- (d) Not applicable.
- (e) Not applicable.
- (f) Not applicable.
- (g) Not applicable.
- (h) Not applicable.
- (i) Not applicable.
- (j) Not applicable.
- (k) Not applicable

- (l) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (m) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M201.

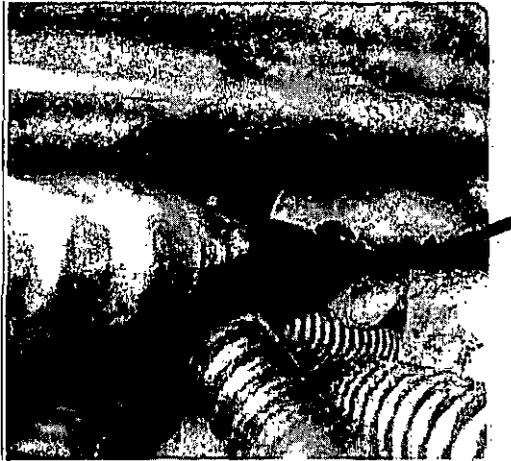


Figure M202

- (n) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13' detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M203. The fire stopping application shown does not meet UL standards.



Figure M203

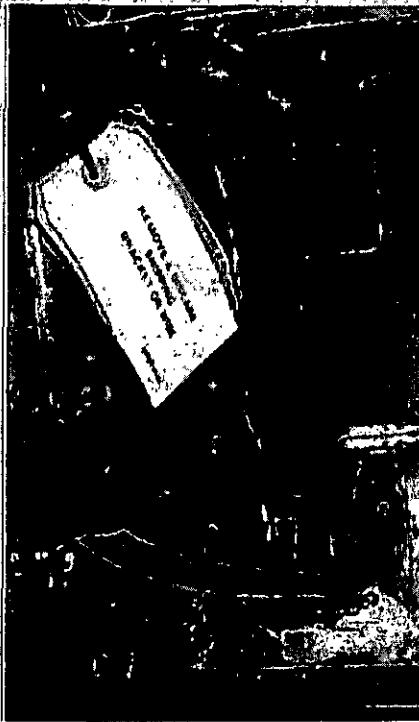


Figure M204

- (o) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M204.
- (p) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M204. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (q) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M204.
- (r) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (s) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (t) Unit ventilator is not secured to wall as per Trane installation manual.
- (u) Core drill cut through electrical conduit. Refer to Figure M205.



Figure M205

- (v) Chilled water manual air vent leaking glycol. Refer to Figure M206.

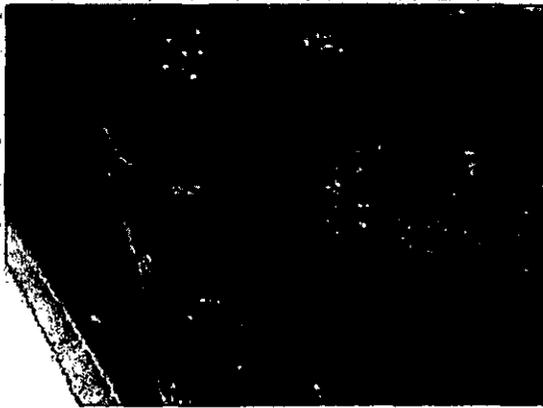


Figure M206

F: CLASSROOM 305

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M207.

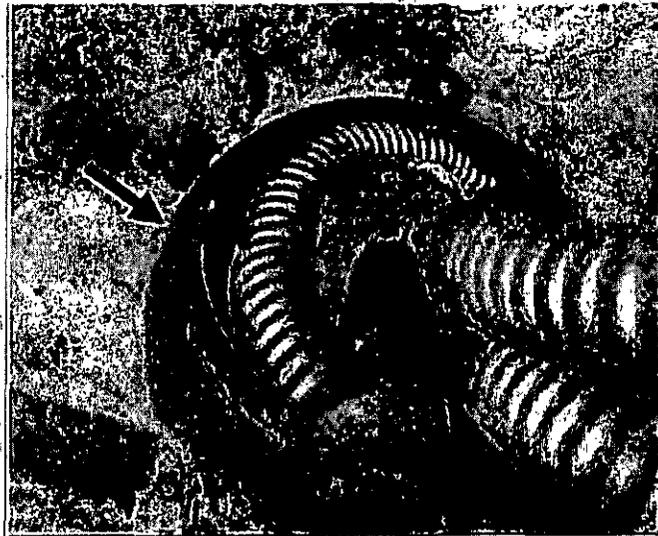


Figure M207

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M208. The fire stopping application shown does not meet UL standards.

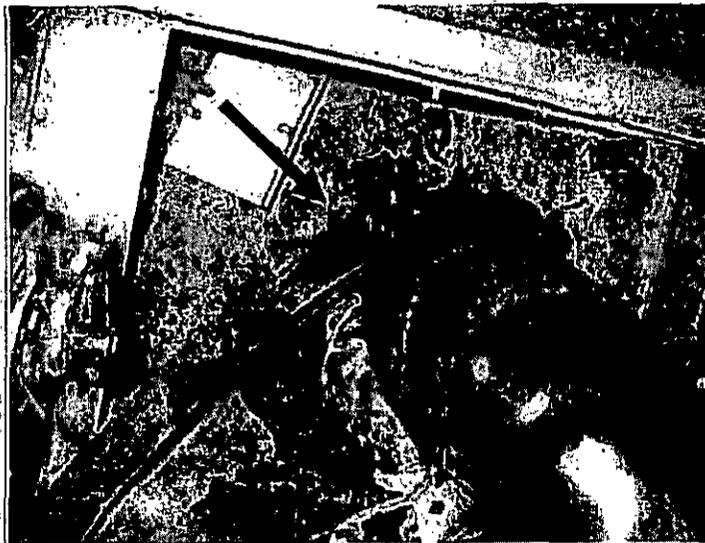


Figure M208



Figure M209

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M209.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M209. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M209.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Core drill cut through steel channel. Structural analysis may need to be performed to insure structural integrity. Refer to Figure M210.



Figure M210

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M211.

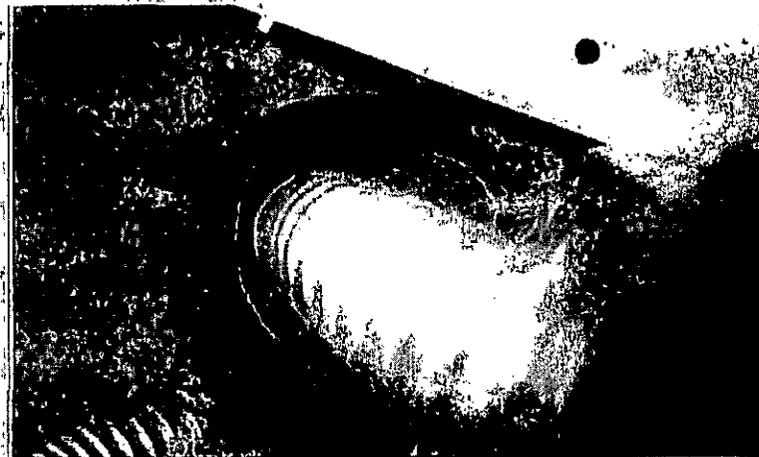


Figure M211

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M212. The fire stopping application shown does not meet UL standards.

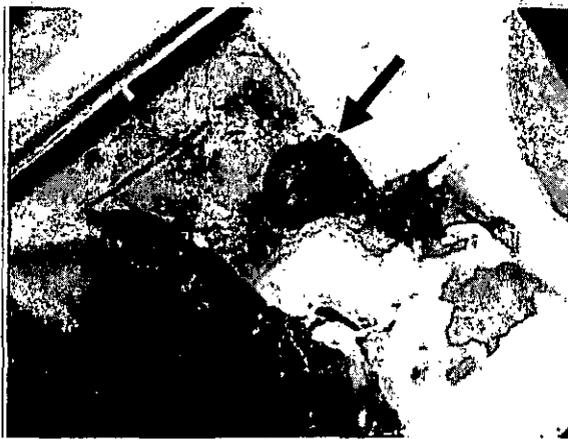


Figure M212



Figure M213

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M213.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M213. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M213.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

G. CLASSROOM 306

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M207.



Figure M214

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M215. The fire stopping application shown does not meet UL standards.



Figure M215

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M215.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M215. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M215.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-B-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M216.



Figure M216.

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure.M217. The fire stopping application shown does not meet UL standards.

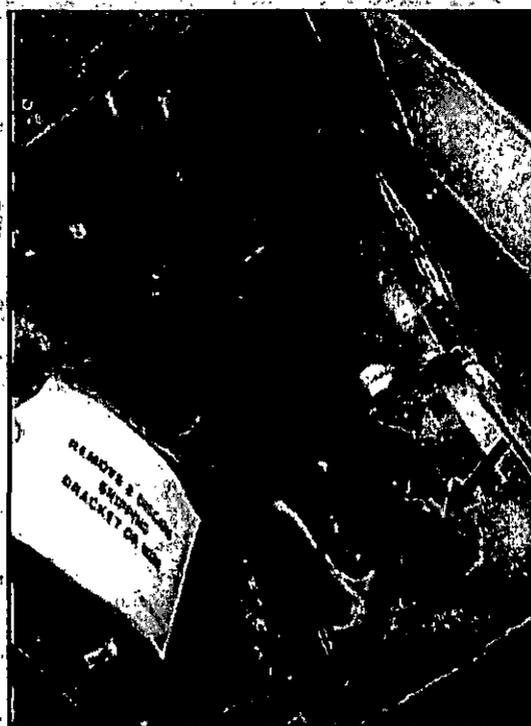


Figure M217.

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M217.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M217. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M217.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

H. CLASSROOM 307

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M218.



Figure M218

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M27. The fire stopping application shown does not meet UL standards.



Figure M219

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M219.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M215. Refer to Figure M219 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M219.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M220.

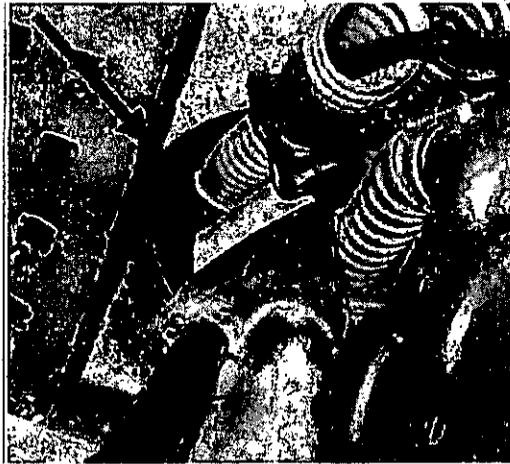


Figure M220

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M221. The fire stopping application shown does not meet UL standards.



Figure M221

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M221.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M221. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M221.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

I. CLASSROOM 308

1. Unit Ventilator (UV-B)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M265.

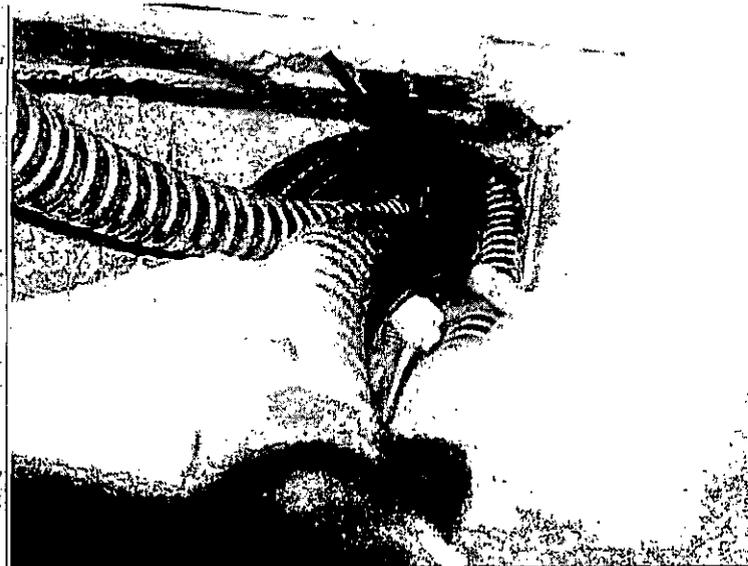


Figure M222

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE

SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards.



Figure M223

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M266.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M215. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M266.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M224.



Figure M224

- (j) Core drill cut through steel channel. Structural analysis may need to be performed to insure structural integrity. Refer to Figure M225.

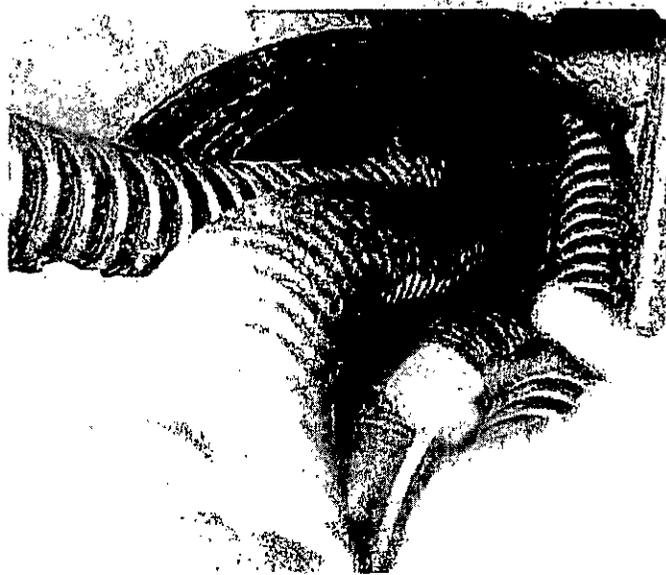


Figure M225

(k) Unit is not assembled properly or damaged. Refer to Figure M226.



Figure M226

2. Unit Ventilator (UV-B-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M227.

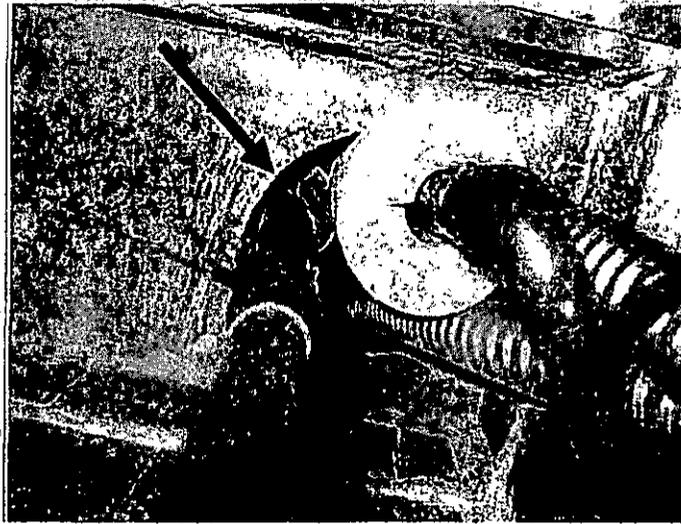


Figure M227

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M229. The fire stopping application shown does not meet UL standards.



Figure M228

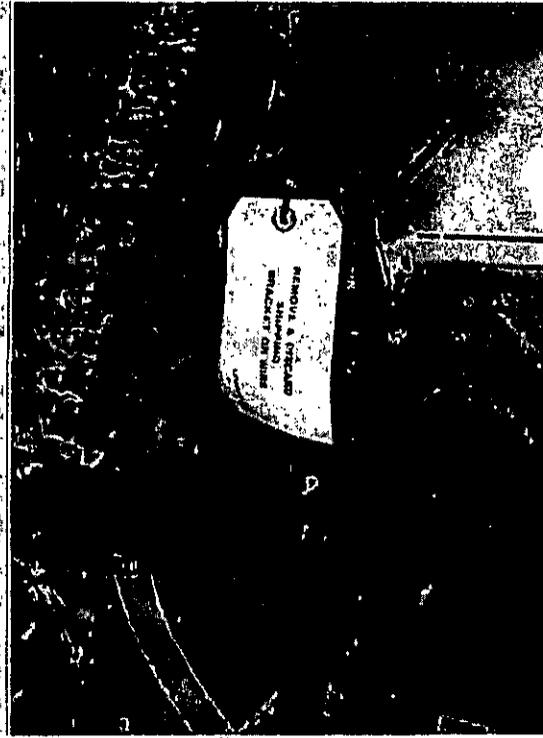


Figure M229

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M229.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M229. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M229.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

J. CLASSROOM 311

1. Unit Ventilator (UV-C-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.

- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M230.



Figure M230

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M231.

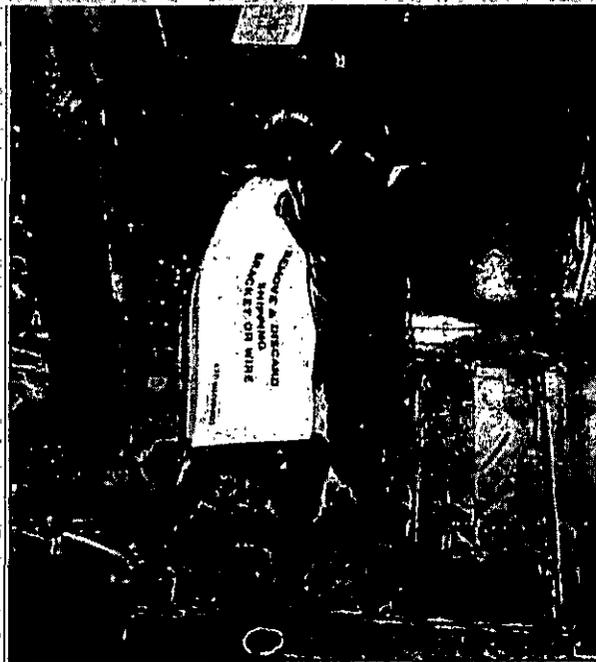


Figure M231



Figure M232

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M234.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M234. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M235.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer: "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

K. ROOM 314 PUBLIC ROOM

1. Unit Ventilator (UV-C)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M233.



Figure M233

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M234.



Figure M234



Figure M235

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M234.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M234. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M235.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

L. CLASSROOM 310

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB".
- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M237 and Figure M238.

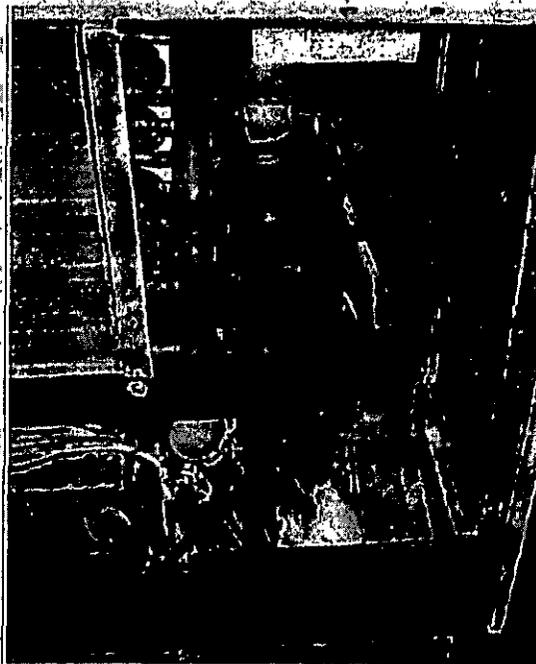


Figure M236

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M236.



Figure M237



Figure M238

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M237. Refer to Figure M27 for sketch of condensate drain construction issued to contractor. Actual installation includes funnel at end of drain line.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M237.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD. INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M239.



Figure M239

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M240. The fire stopping application shown does not meet UL standards.



Figure M240

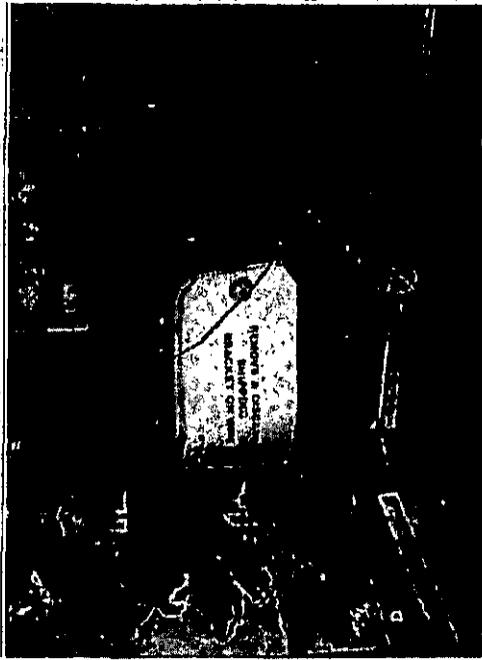


Figure M241

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M241.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M241. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M241.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M242.

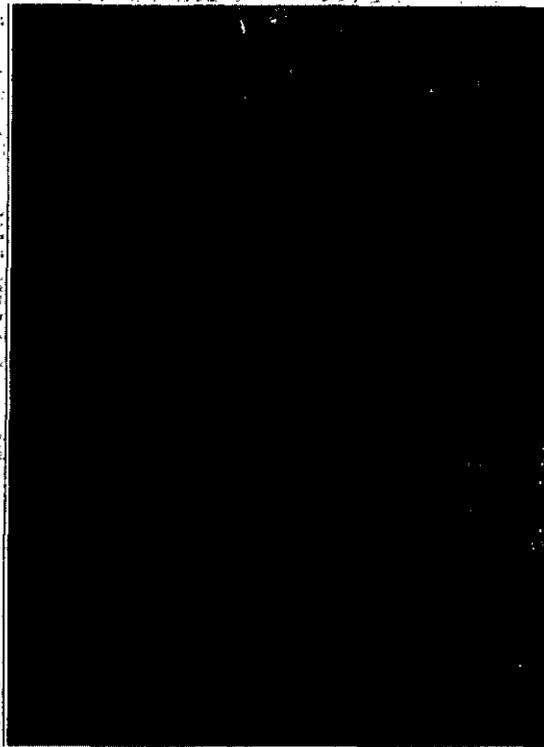


Figure M242

M. PHYSICS CLASSROOM 317

1. Unit Ventilator (UV-A)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M243.

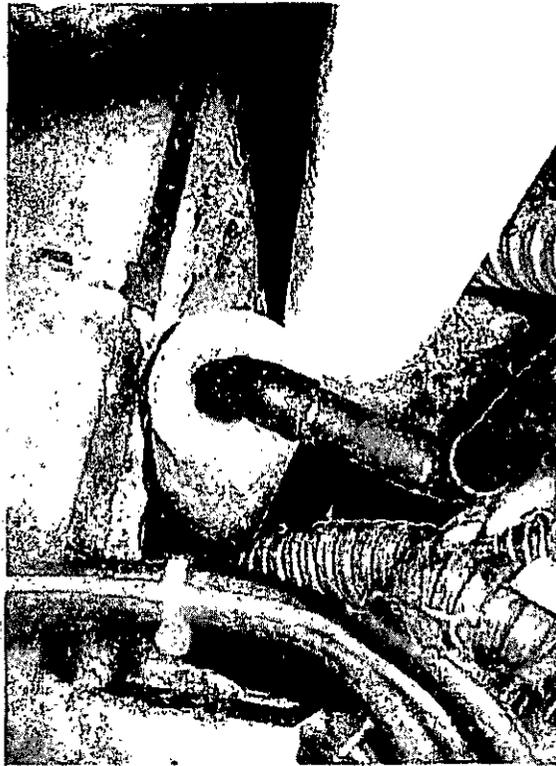


Figure M243

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail, "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M245.



Figure M244



Figure M245

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M244.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M244. Refer to Figure M27 for sketch of condensate drain construction issued to contractor. Actual installation includes funnel at end of drain line.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M244.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.

2. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M246.



Figure M246

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M247. The fire stopping application shown does not meet UL standards.



Figure M247

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M247.

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M247. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M247.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M247.

N. CHEMISTRY LABORATORY 319

1. Unit Ventilator (UV-A-1)

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (b) Fire stopping is not provided on the heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M248.



Figure M248

- (c) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". The fire stopping application shown does not meet UL standards. Refer to Figure M250.



Figure M249



Figure M250

- (d) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M248.
- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M248. Refer to Figure M27 for sketch of condensate drain construction issued to contractor. Actual installation includes funnel at end of drain line.
- (f) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M248.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual.
- (j) Unit is not assembled properly or damaged. Refer to Figure M250.

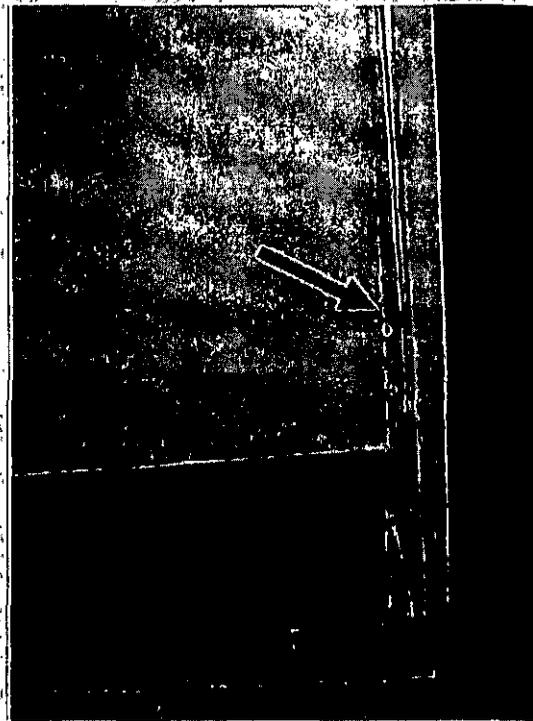


Figure M250

2. Unit Ventilator (UV-B) EAST UNIT

The following is a list of deficiencies in the installation and manufacturing of the classroom unit ventilators:

- (a) Not applicable.

- (b) Unit ventilator not provided with nameplate as per specification section 15000-1.24-A.
- (c) Fire stopping is not provided on the heating hot-water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M252.



Figure M252

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M254. The fire stopping application shown does not meet UL standards.



Figure M253

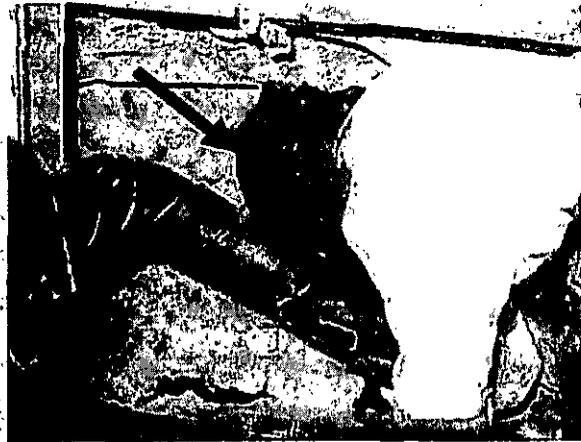


Figure M254

- (e) Condensate drain line is not insulated as per specification section 15850-2.01. Refer to Figure M253.
- (f) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M253. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (g) Chilled water supply and return lines are sweating profusely through insulation due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M253.
- (h) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD INSULATE PIPING".



Figure M257

- (d) Fire stopping is not provided on the chilled water pipe and condensate drain piping penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB". Refer to Figure M258. The fire stopping application shown does not meet UL standards.



Figure M258



Figure M259

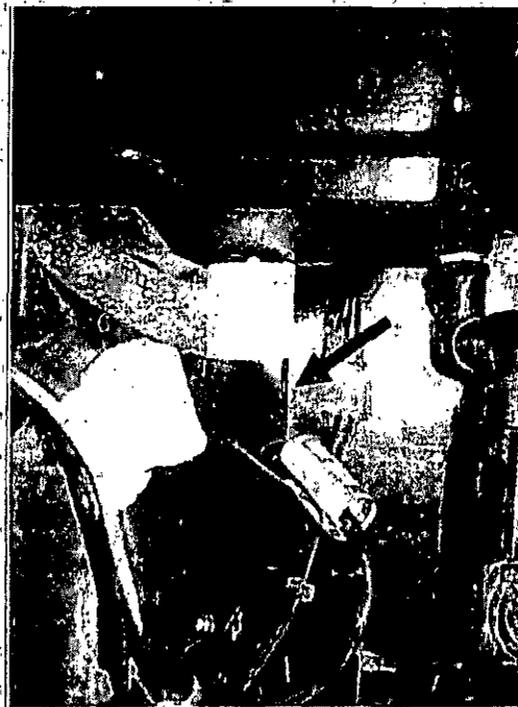


Figure M260

- (e) The condensate drain line is not constructed per sketch issued to contractor. Refer to Figure M260. Refer to Figure M27 for sketch of condensate drain construction issued to contractor.
- (f) Chilled water supply and return lines are sweating profusely through insulation, due to the lines not being insulated as per specification section 15850-2.01. Refer to Figure M259.
- (g) Submittal number 19 returned to contractor APPROVED AS NOTED contains the following notes from the engineer "9. CONTRACTOR TO FIELD: INSULATE PIPING".
- (h) The return air sampling chamber may provide an inaccurate space temperature when unit is not in operation.
- (i) Unit ventilator is not secured to wall as per Trane installation manual. Refer to Figure M261.

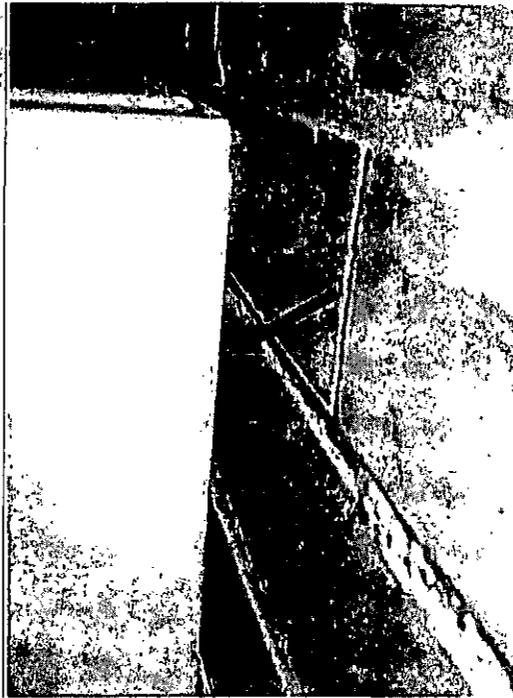


Figure M261

- (j) Unit ventilator piping and coil damaged. Refer to Figure M262, Figure M263, and Figure M264.



Figure M262



Figure M263

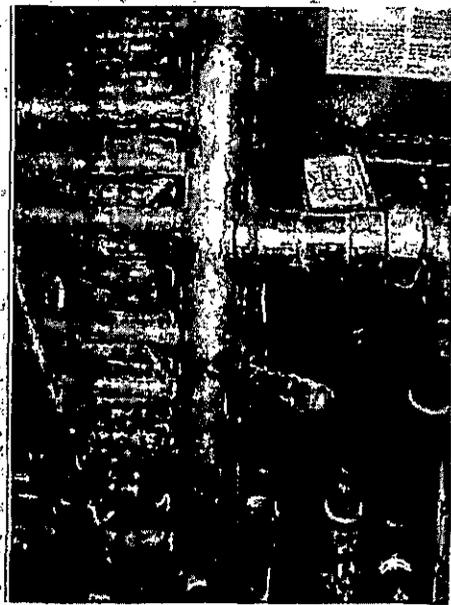


Figure M264

4. Laboratory exhaust hood

The following is a list of deficiencies in the installation of the laboratory exhaust hood installation:

- (a) Fume hood exhaust duct not constructed per specification section 15840-4. 304 stainless steel as.

GYM

A. AIR CONDITION SUPPLY AND RETURN DUCTWORK

1. Return Ductwork

The following is a list of deficiencies in the installation of the return ductwork:

- (a) Engineer states in the modified Sheetmetal Dwg # S.M.-1B (Submittal number 2, modified by engineer 8/24/2005 and returned to contractor 8/26/2005) that the return registers in the return ductwork for AC-2 shall have a "MIN 12" DUCT COLLAR HEIGHT FOR REGISTERS". Modified Sheetmetal Dwg # S.M.-1B (Revised by sheetmetal contractor 2/26/2006 and Stamped by engineer "EXCEPTIONS AS NOTED" on 5/2/2006) shows a collar on the return registers. Return registers installed in duct is mounted directly to the duct (no collar). Refer to Figure M265 and Figure M266.



Figure M265



Figure M266

- (b) Installed ductwork is not consistent with submitted Sheetmetal Dwg # S.M.-1A (Revised by sheetmetal contractor 2/26/2006 and Stamped by engineer "EXCEPTIONS AS NOTED" on 5/2/2006). Ductwork turn and transition are not consistent with SMACNA standards or ASHREA standards. Transition/turn combination increases losses as well as noises levels. Refer to Figure M267 and Figure M268.



Figure M267

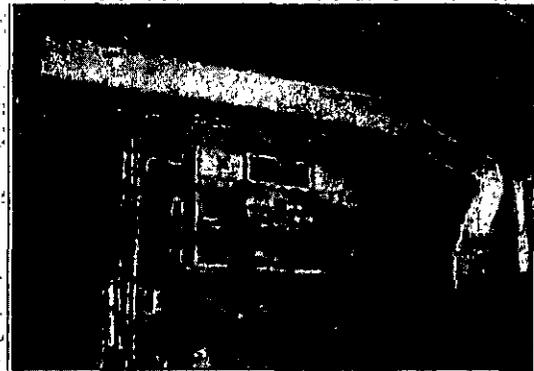


Figure M268

- (c) The return ductwork for AC-1 is missing the required volume damper. The damper is shown on contract drawing M2.03. The damper is also shown on the sheetmetal Dwg # S.M.-1A (Revised by sheetmetal contractor 2/26/2006 and Stamped by engineer "EXCEPTIONS AS NOTED" on 5/2/2006). The lack of a volume damper will cause more air to flow through this return register increasing the noise level considerably. Refer to Figure M269 and Figure M270.

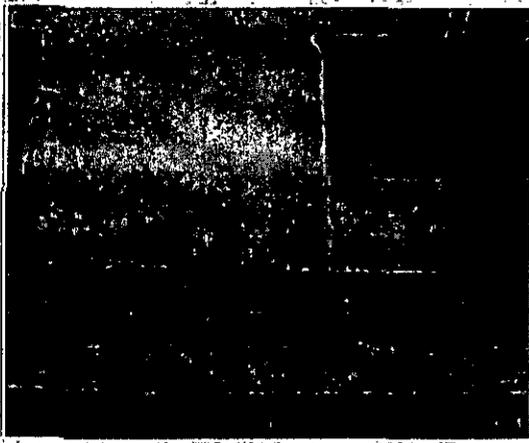


Figure M269

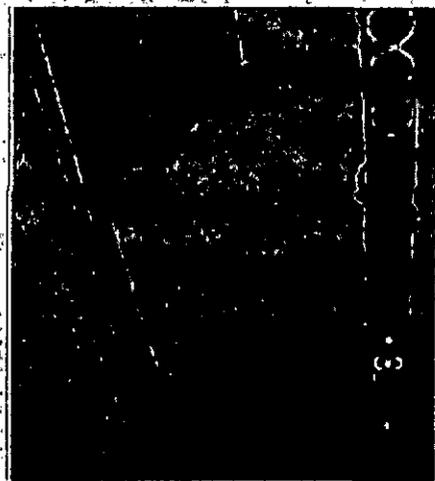


Figure M270

ROOF

B. THIRD FLOOR ROOF

2. General exhaust fan (GX-1)

The following is a list of deficiencies in the installation of the general exhaust fan (GX-1):

- (a) Exhaust fan is not provided with motorized damper as per specification section 15760-2.01-D. Submittal from SRS includes motorized discharge shutter. Gravity shutter installed.



Figure M271.

- (b) The fan inlet flexible duct connector is misaligned eliminating its ability to isolate vibration from the ductwork. Refer to Figure M272.



Figure M272

- (c) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M273 and Figure M274.

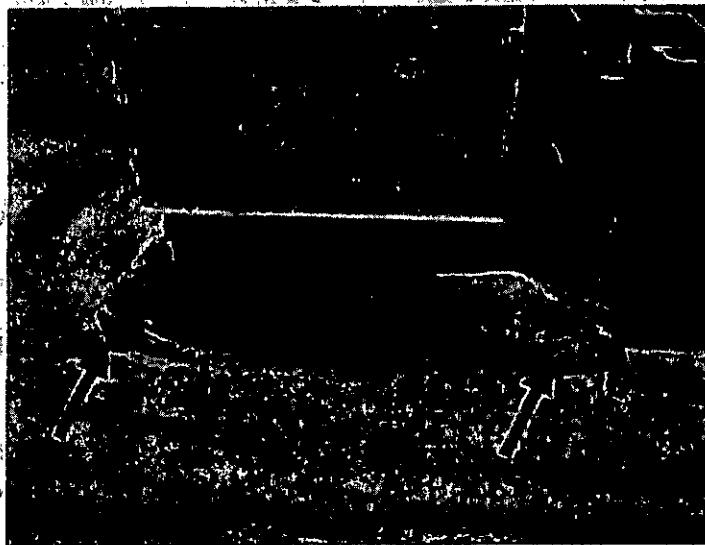


Figure M273

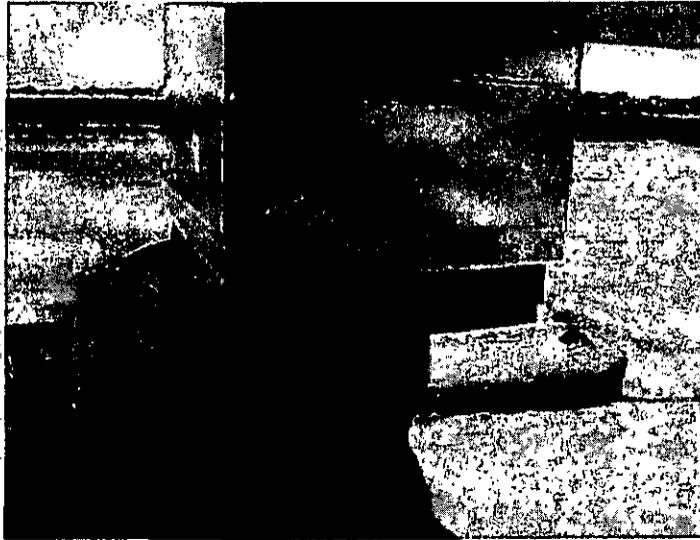


Figure M274

- (d) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized. Refer to Figure M275, Figure M276, and Figure M277.

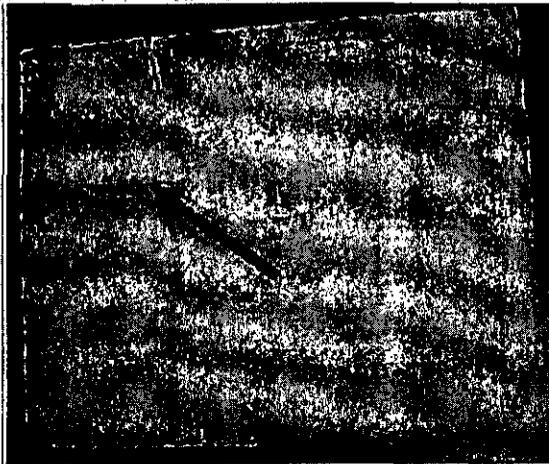


Figure M275

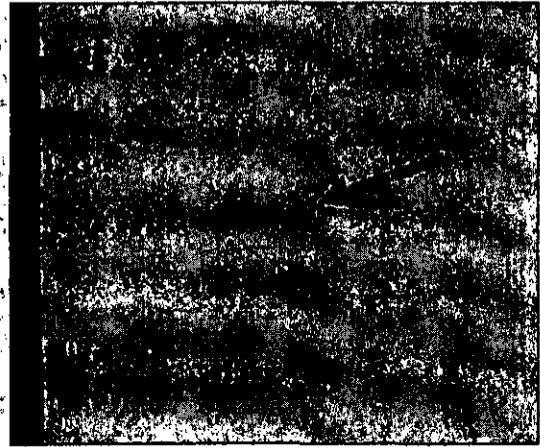


Figure M276

- (e) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.
- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
 - Fan wheel diameter is 40". Three fan wheel diameters is 120".

- Installed length between elbow and the fan inlet is ~60" half the required 120". Refer to Figure M277.
- Ample roof space is available to have installed the fan 120" from the elbow.

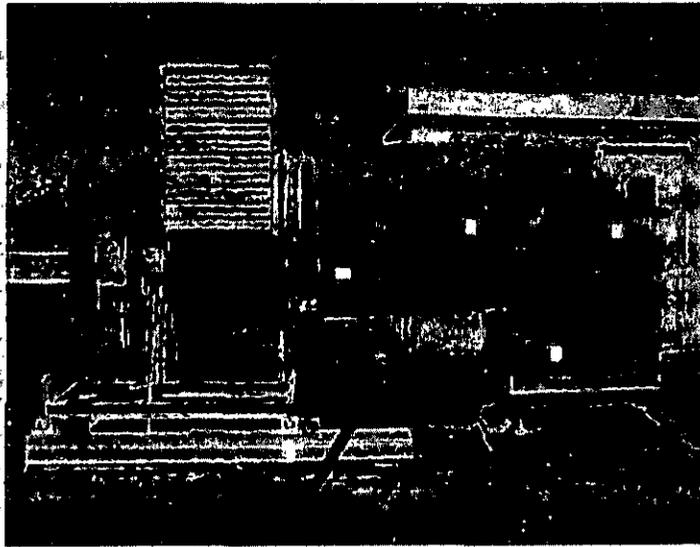


Figure M277

- (f) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on GX-1 is poor and causes a high entry loss. Refer to Figure M278 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.



Figure M278

Fan Inlet Connections

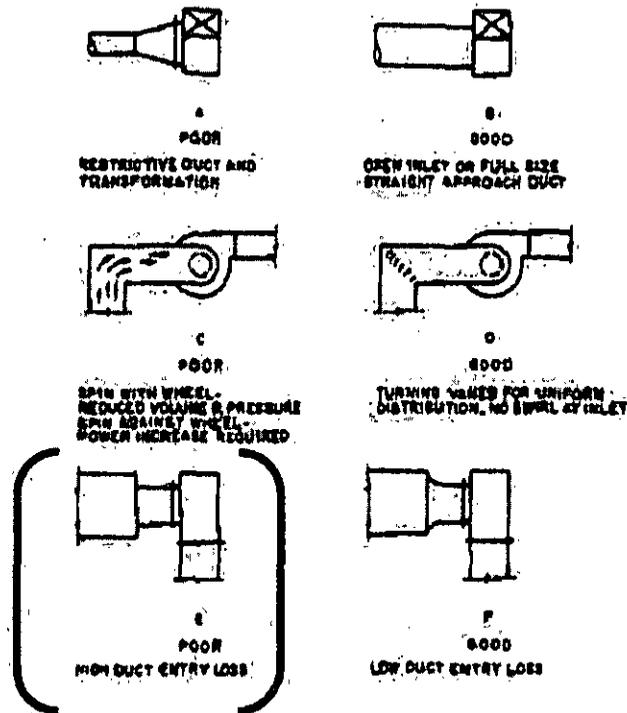


Figure M279

- (g) Housed spring isolators are fully compressed. Refer to Figure M280. Leveling nut must be turned counter clockwise to compress spring. This will lift the isolation base to provide clearance. The extra weigh caused by the unsupported cantilevering duct could be contributing to the spring isolators over compression. Refer to Figure M281.

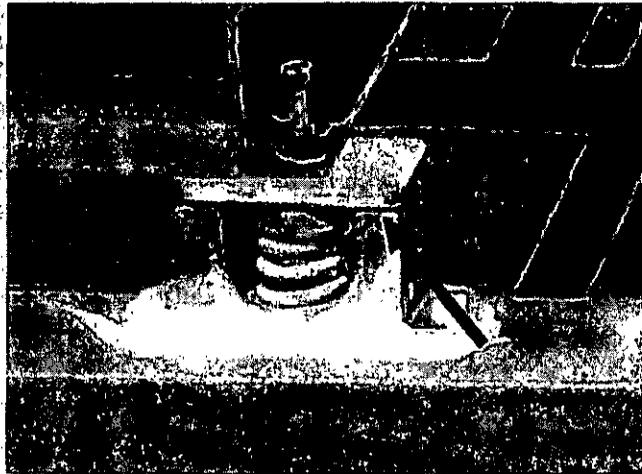


Figure M280

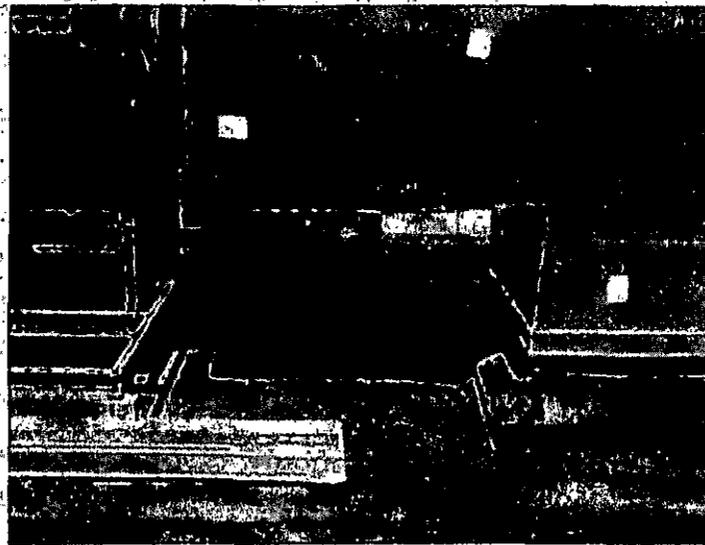


Figure M281

- (h) Sound attenuator is not installed in the ductwork located below the penetration through the roof as required per "SOUND TRAP SCHEDULE" located on contract drawing M2.11. The required sound trap is also shown "ROOF UTILITY SET FAN-DETAIL" located on contract drawing M2.12. Figure M282 shows the inside of the duct without sound trap.

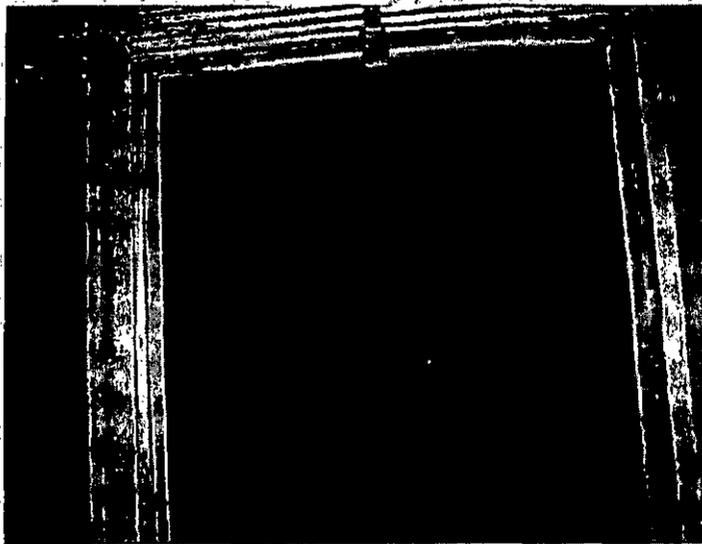


Figure M282

- (i) The access door located in the ductwork below the penetration through the roof does not comply with Reference Standard 13, Chapter 3, Section 3.4.2 of the New York City Building Code. "2-3.4.2 Service openings shall be identified with letters having a minimum height of one-half in. (12.7 mm) to indicate the location of the fire protection device(s) within." Refer to Figure M283.



Figure M283

3. General exhaust fan (GX-2)

The following is a list of deficiencies in the installation of the general exhaust fan (GX-2):

- (a) Exhaust fan is not provided with motorized damper as per specification section 15760-2.01-D. Submittal from SRS includes motorized discharge shutter. Gravity shutter installed.
- (b) The fan inlet flexible duct connector is misaligned eliminating its ability to isolate vibration from the ductwork. Refer to Figure M284.
- (c) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on GX-2 is poor and causes a high entry loss. Refer to Figure M284 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.



Figure M284

- (d) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M285.



Figure M285

- (e) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized. Refer to Figure M286, Figure M287, and Figure M288.

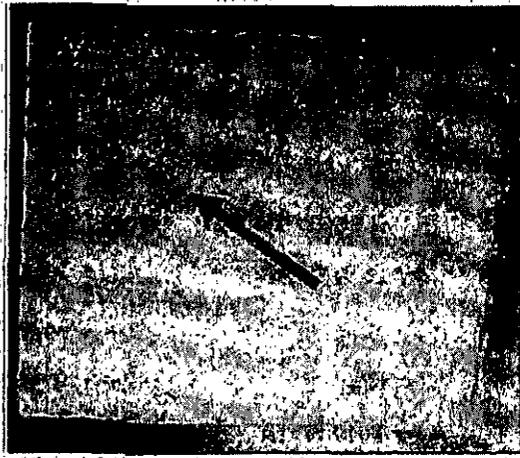


Figure M286

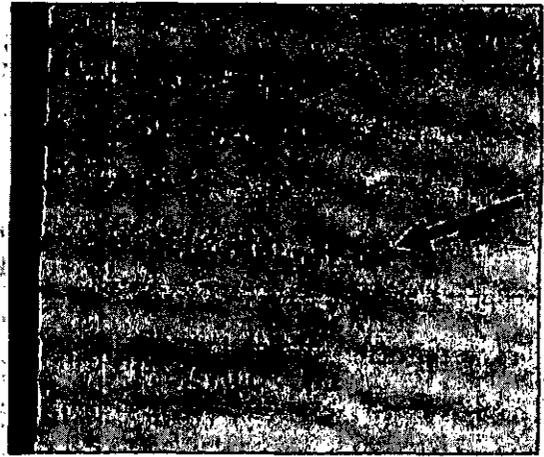


Figure M287

- (f) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.
- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
 - Fan wheel diameter is 26". Three fan wheel diameters is 78"
 - Installed length between elbow and the fan inlet is ~32" less than half the required 78". Refer to Figure M288.
 - Ample space is available to have installed the fan 78" from the elbow.

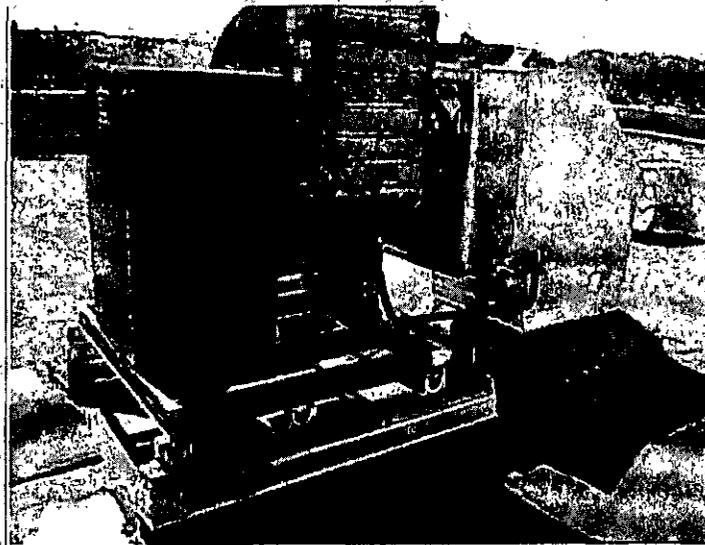


Figure M288

- (g) Duct support is not in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13. Refer to Figure M289.

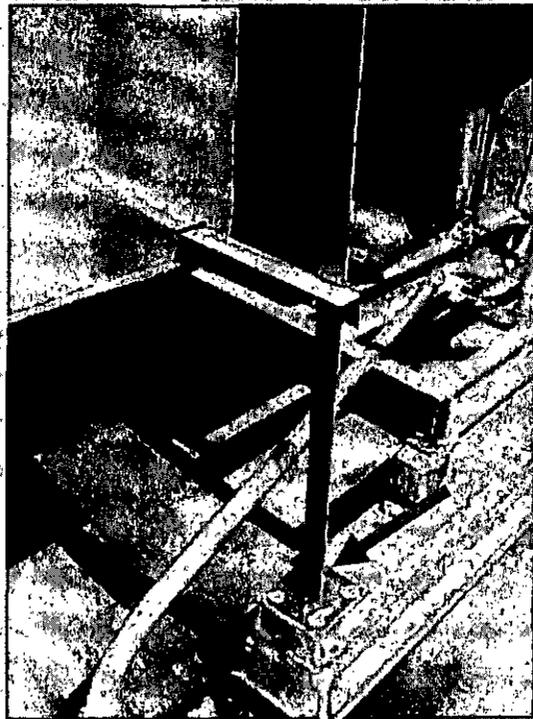


Figure M289

(h) The housing on GX-2 is damaged. Refer to Figure M290 and Figure M291.

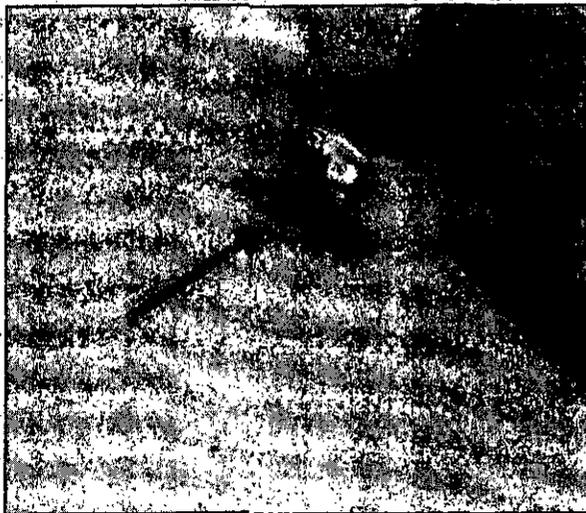


Figure M290

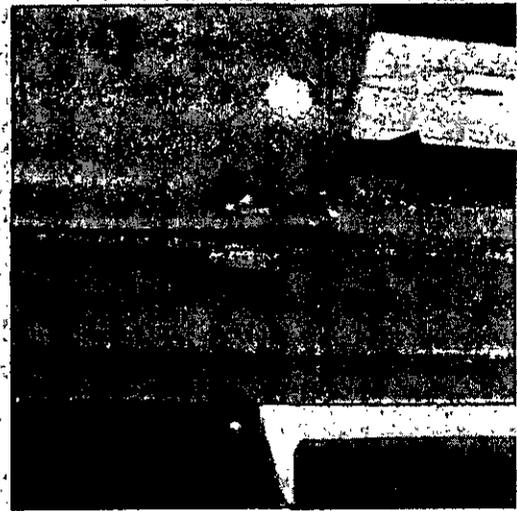


Figure M291

4. General exhaust fan (LE-1)

The following is a list of deficiencies in the installation of the general lab exhaust fan (LE-1):

- (a) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on LE-1 is poor and causes a high entry loss. Refer to Figure M292 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.

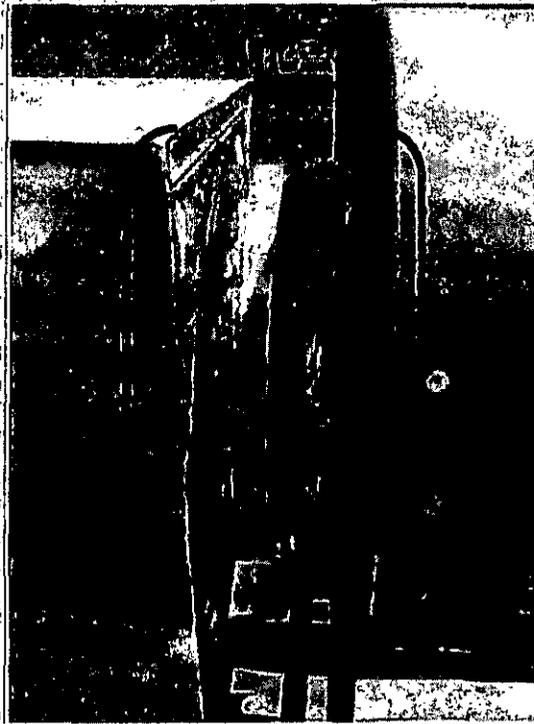


Figure M292

- (b) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M293.

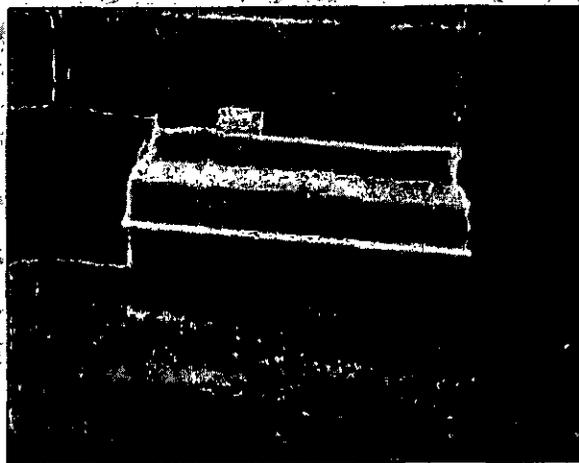


Figure M293

(c) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.

- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
- Fan wheel diameter is 20". Three fan wheel diameters is 60"
- Installed length between elbow and the fan inlet is 48" less than the required 60". Refer to Figure M294.
- Ample space is available to have installed the fan 60" from the elbow.

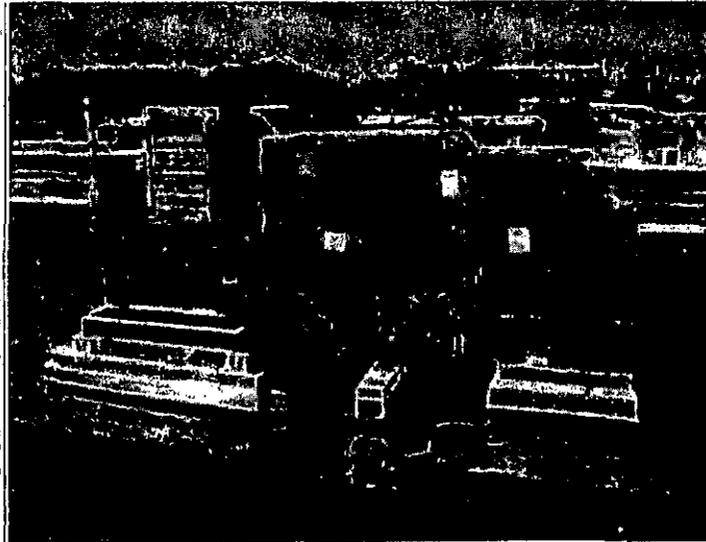


Figure M294.

- (d) Duct support is not in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13. Refer to Figure M295.
- (e) Dissimilar metals used on roof supports are causing premature corrosion and failure. Bare steel plate is sandwiched between galvanized steel support and aluminum curb. Refer to Figure M295.

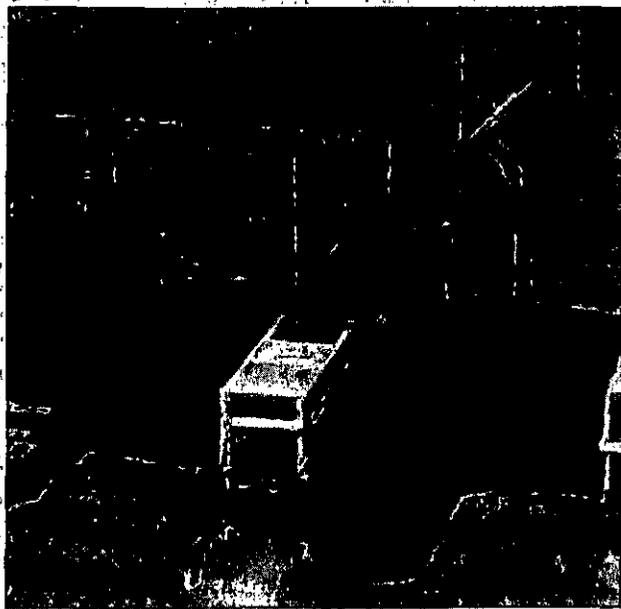


Figure M295

- (f) Missing and loose bolts on fan housing. Refer to Figure M296.



Figure M296

- (g) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized. Refer to Figure M294, Figure M297, and Figure M298.



Figure M297

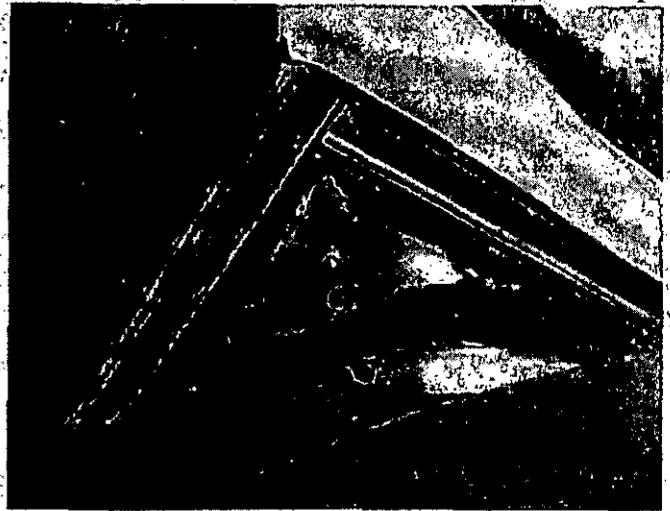


Figure M298

- (h) Careless use of sealant. Refer to Figure M297, and Figure M298.
- (i) Sound attenuator is not installed in the ductwork located below the penetration through the roof as required per "SOUND TRAP SCHEDULE" located on contract drawing M2.11. The required sound trap is also shown "ROOF UTILITY SET FAN DETAIL" located on contract drawing M2.12. Figure M303 shows the inside of the duct without sound trap.

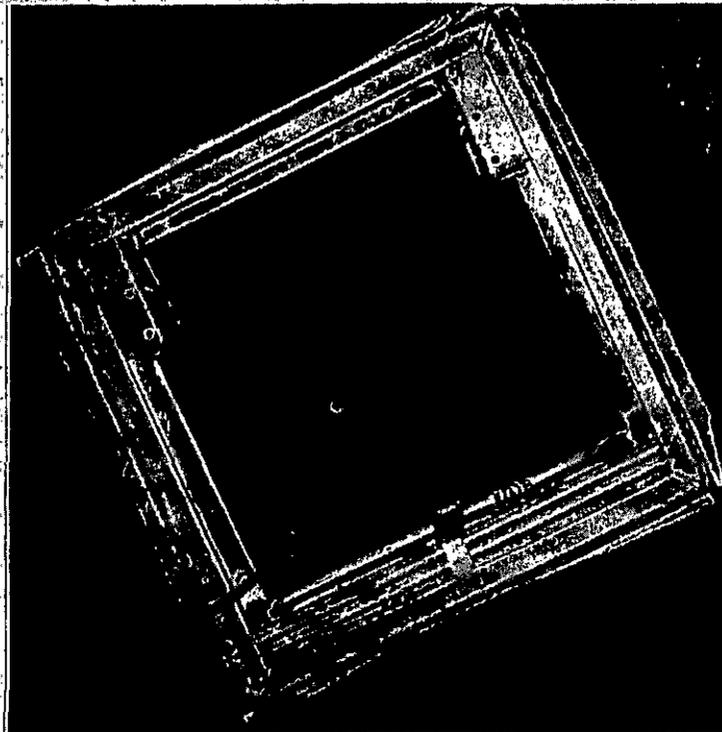


Figure M299

5. General exhaust fan (LE-2)

The following is a list of deficiencies in the installation of the general lab exhaust fan (LE-2):

- (a) The fan inlet flexible duct connector is misaligned eliminating its ability to isolate vibration from the ductwork. Refer to Figure M300.



Figure M300

- (b) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on LE-2 is poor and causes a high entry loss. Refer to Figure M301 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.

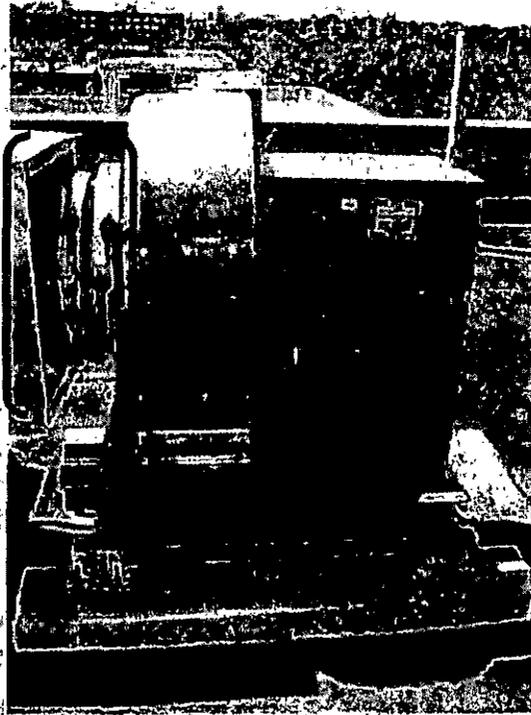


Figure M301

- (c) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M302.

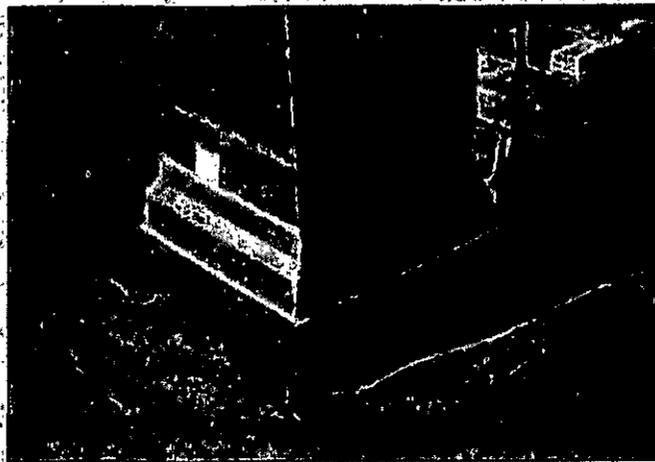


Figure M302

(d) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.

- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
- Fan wheel diameter is 16". Three fan wheel diameters is 48"
- Installed length between elbow and the fan inlet is -36" less than the required 48". Refer to Figure M294.
- Ample space is available to have installed the fan 48" from the elbow.

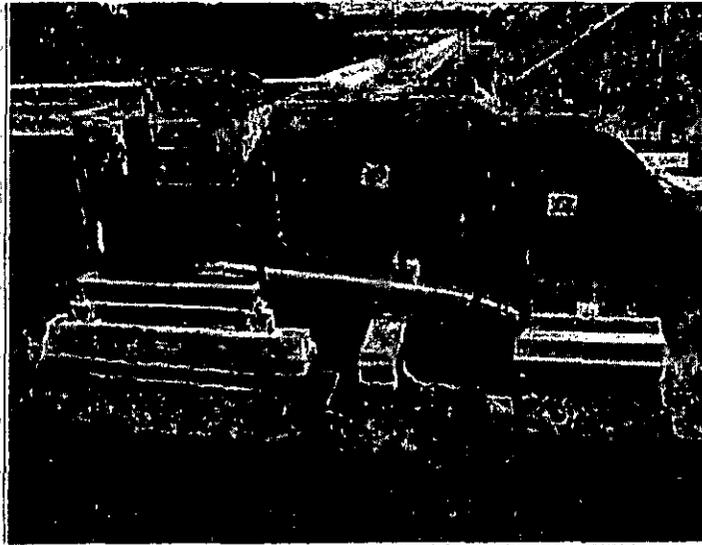


Figure M303

- (e) Duct support is not in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13. Refer to Figure M295.
- (f) Electrical conduit traveling inside duct interferes with fire damper operation.
- (g) Dissimilar metals used on roof supports are causing premature corrosion and failure. Bare steel plate is sandwiched between galvanized steel support and aluminum curb. Refer to Figure M295.

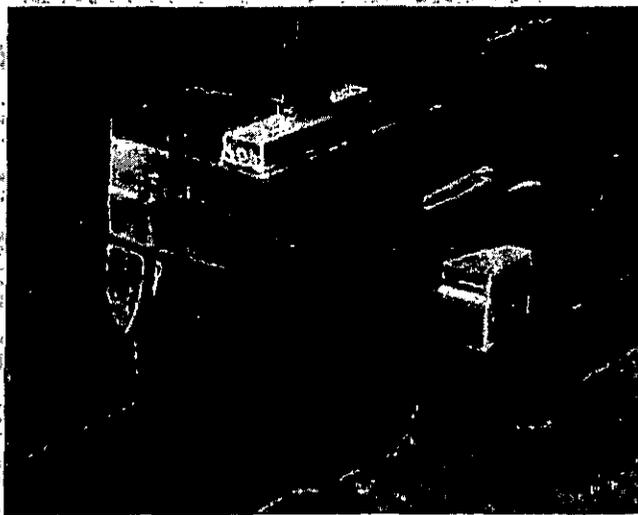


Figure M304

- (h) Missing and loose bolts on fan housing. Refer to Figure M305 and Figure M306.



Figure M305



Figure M306

- (i) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized. Refer to Figure M303, and Figure M300.
- (j) Careless use of sealant. Refer to Figure M307.



Figure M307

- (k) Damaged fan housing. Refer to Figure M308.



Figure M308

- (l) Fire damper is not accessible because duct access door cannot be removed from drywall access door. Refer to Figure M309.

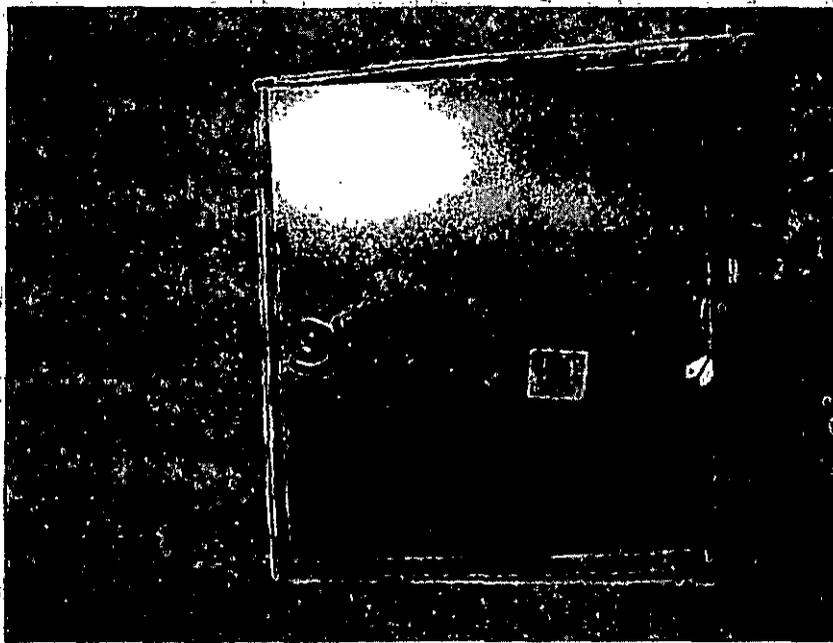


Figure M309

6. Kitchen exhaust fan (KX-1)

The following is a list of deficiencies in the installation of the general lab exhaust fan (KX-1):

- (a) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on KX-1 is poor and causes a high entry loss. Refer to Figure M310 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12. This inlet condition on a kitchen exhaust fan will cause grease build-up and is not recommended.



Figure M310.

- (b) Duct support is not installed in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13. Refer to Figure M311 through Figure M314.
- (c) Dissimilar metals used on roof supports are causing premature corrosion and failure. Bare steel plate is sandwiched between galvanized steel support and aluminum curb. Refer to Figure M314.



Figure M311



Figure M312

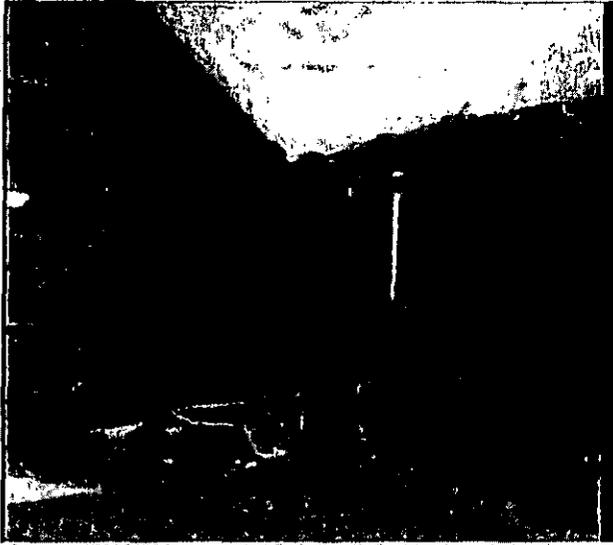


Figure M313

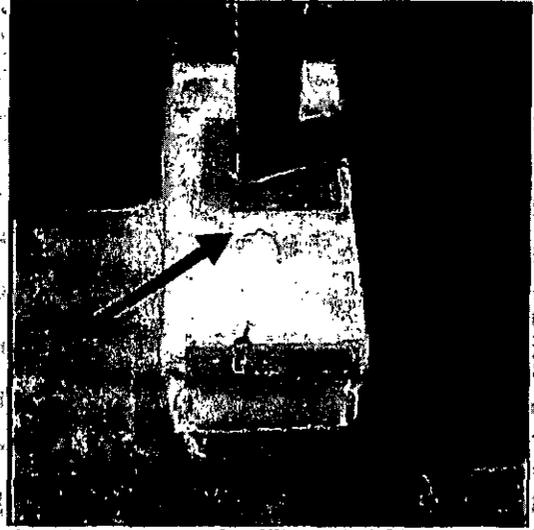


Figure M314

- (a) Kitchen exhaust ductwork is not constructed per specification section 15840-4 which requires 10 gauge black iron with continuously welded seams and continuously welded joint connections in accordance with NFPA 96. NFPA 96 allows for 4 types of kitchen exhaust duct connections; Telescoping joint, Bell-type joint, Flange with edge weld, and Flange with filled weld (all of these connection types provide minimal extrusion into the duct). The installed ductwork is not joined with any of these methods. The installed ductwork is butt-welded with an internally welded flange. Refer to Figure M315 and Figure M316. Butt welded connections are not permitted according to NFPA 96. NFPA 96 is a reference standard of the New York City Building Code.
- (b) The inside of the kitchen exhaust duct exhibits significant amount of rust for a two year old installation. Refer to Figure M315 and Figure M316. This rust is due to not protecting the steel during construction. Photos supplied by the architect that were taken during construction show standing rain water in ductwork segments. The iron kitchen exhaust ductwork incased in water saturated insulation is in danger of debilitating corrosion.



Figure M315

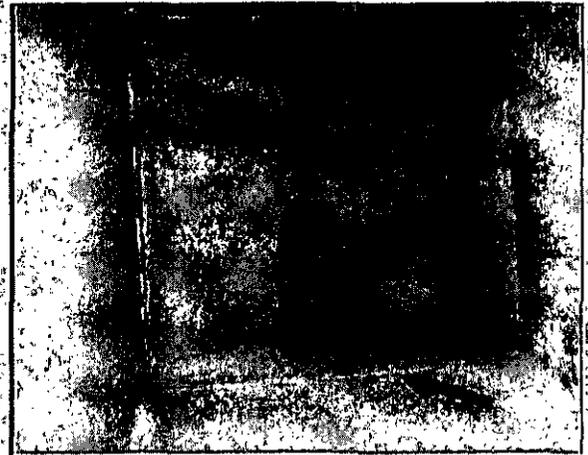


Figure M316

- (c) Ductwork is not supported in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13. The "DUCT SUPPORT ON ROOF" detail states maximum support spacing 4 feet on center. Installed supports are roughly 8 feet on center. Refer to Figure M317.

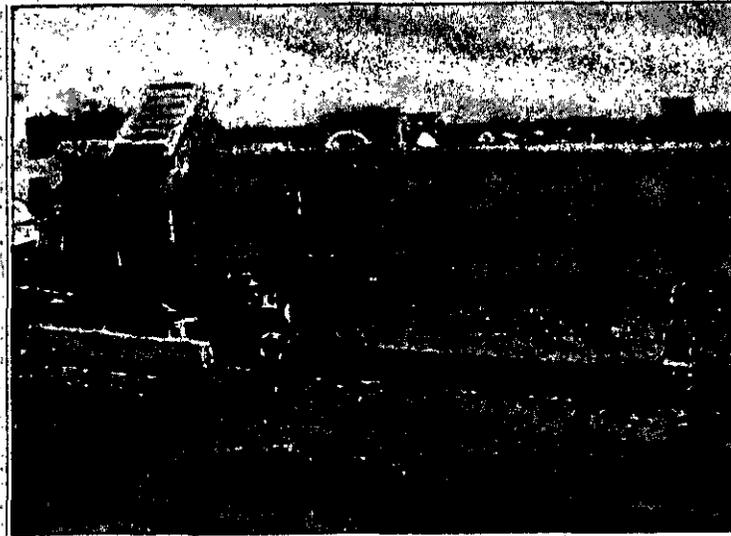


Figure M317

- (d) Kitchen exhaust ductwork access door is not constructed per specification section 15840-2.04-A which requires double wall access doors located every 15' and at each change in direction. Access doors installed are single wall and in some places up to 24' in separation. Refer to Figure M318.

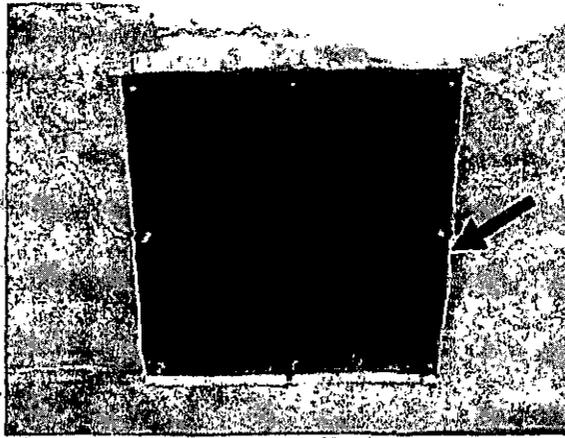


Figure M318

- (e) Kitchen exhaust ductwork access door is not constructed per specification section 15840-2.11-C which states that in no case shall access doors require the removal of nuts, bolts, screws, wing nuts, wedges, or any other screws or loose device. Access doors require the removal of (8) nuts on bolts that the heads are not accessible unless the insulation is removed. Refer to Figure M319.

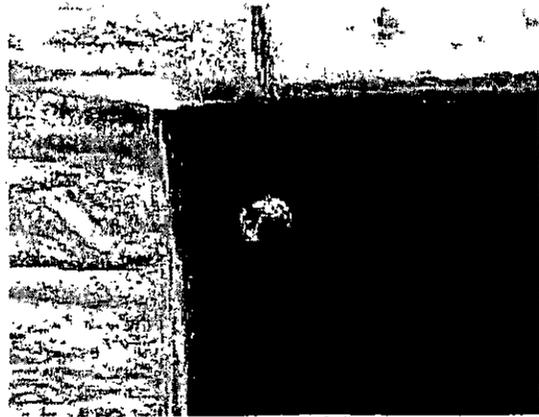


Figure M319

- (f) The submitted and approved FlexClad-400 outdoor duct insulation cover is not installed per manufactures instructions. The insulation is soaked throughout the length of the duct. Refer to Figure M320, through Figure M324. Figure M322 depicts factory recommended installation.
- (g) Insulation is not per specification section 15850-2.08-H. Specification calls for 2" calcium silicate insulation on all kitchen hood exhaust ductwork. 2" FSK rigid board insulation installed.

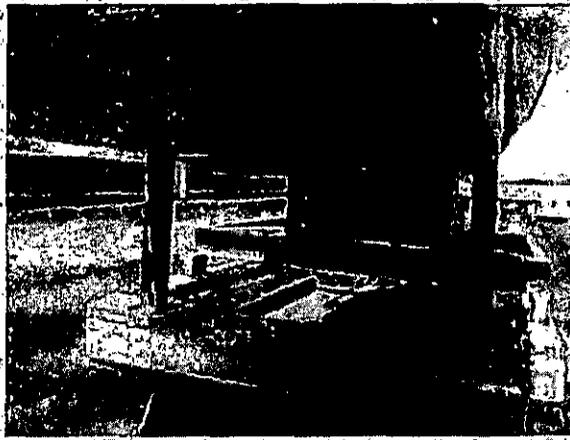


Figure M320



Figure M321

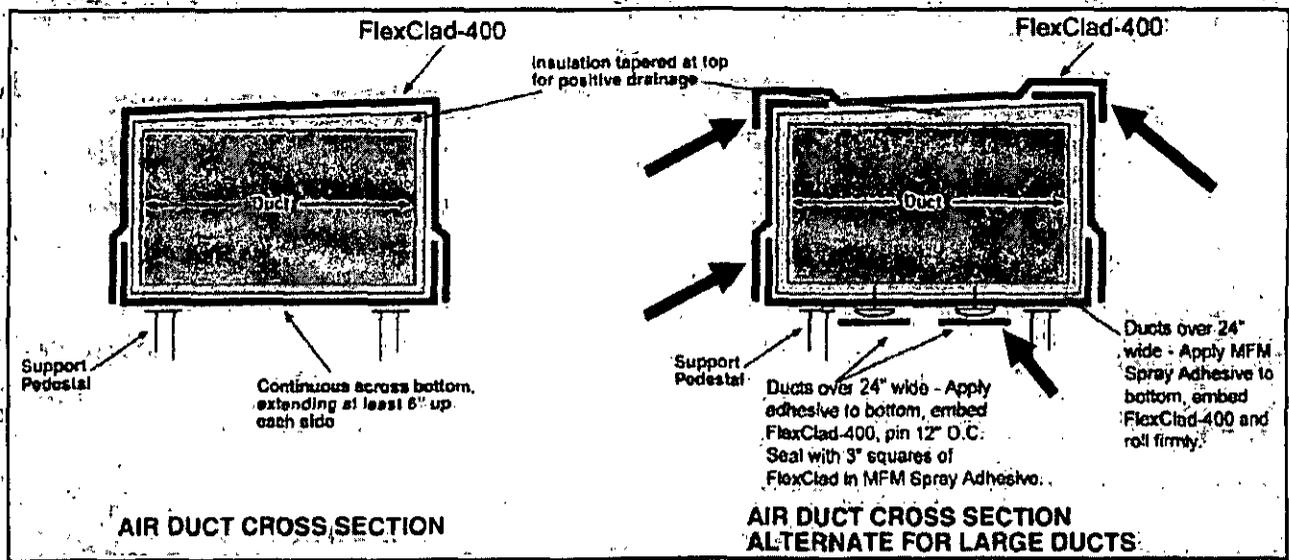


Figure M322



Figure M323



Figure M324

- (h) The iron kitchen exhaust ductwork incased in water saturated insulation is in danger of debilitating corrosion.
- (i) Kitchen exhaust ductwork should slope toward exhaust hood as per specification section 15840-2.04-A. Ductwork installed slopes toward exhaust fan. Refer to Figure M325.

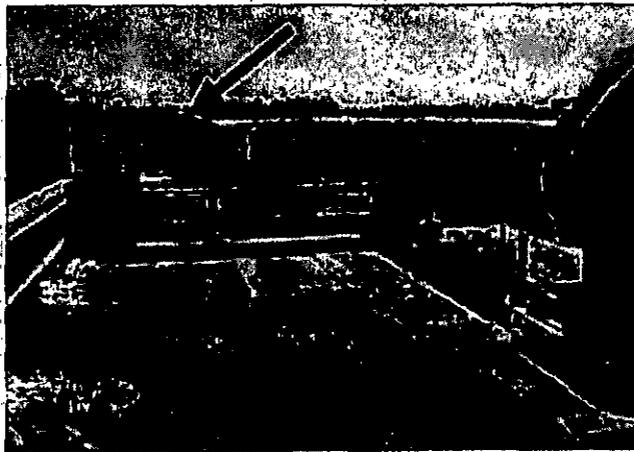


Figure M325

- (j) Fan motor cover not properly installed. Refer to Figure M326.



Figure M326

- (k) Vertical duct supports are not constructed as per detail "SUPPORTS FROM WALL" on contract drawing M2.14.
- (l) Kitchen exhaust switch shown on contract drawing M2.02 is not installed. Custodian must manually turn fan on in the morning and off at night via disconnect on the third floor.

C. MALL ROOF

1. Gym roof top ac unit (AC-2)

The following is a list of deficiencies in the installation of the gym roof top ac unit (AC-2).

- (a) Outdoor ductwork associated with AC-2 is not consistent with Sheetmetal Dwg # S.M.-1A (Revised by sheetmetal contractor 2/26/2006 and Stamped by engineer "EXCEPTIONS AS NOTED" on 5/2/2006) The dimensions do not match the shop drawing. Refer to Figure M327 through Figure M330.

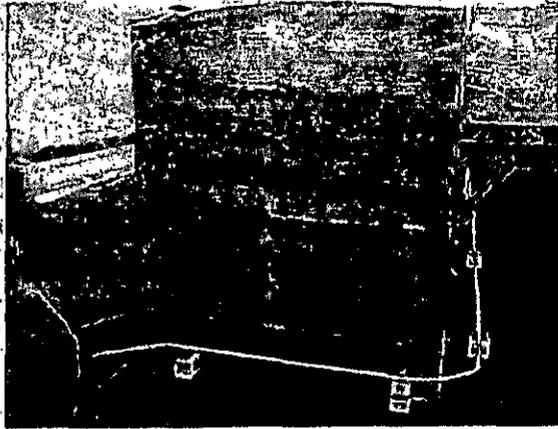


Figure M327

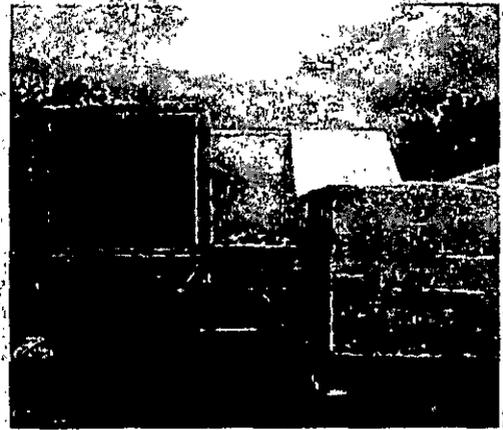


Figure M328

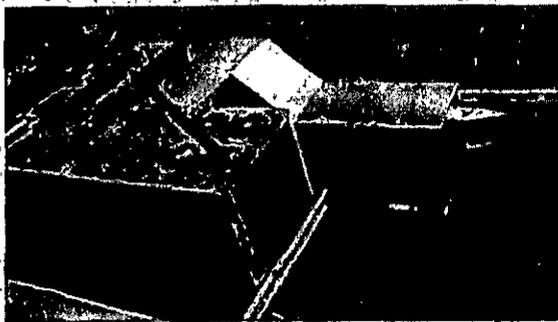


Figure M329

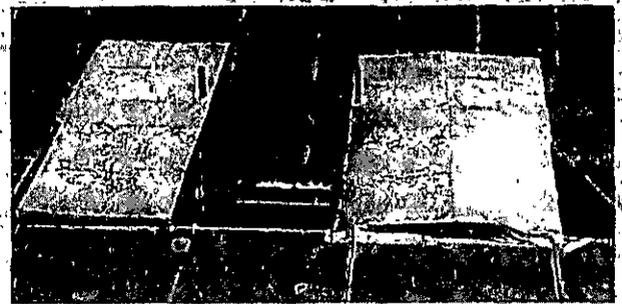


Figure M330

- (b) Service platform for unit is not complete. Refer to Figure M331.

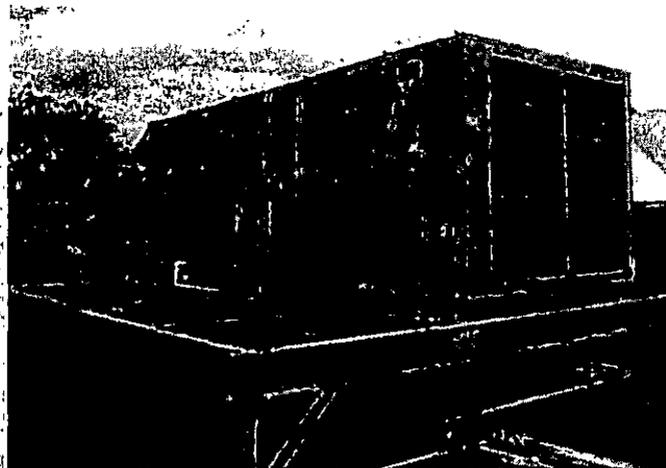


Figure M331

- (c) Ductwork connection to unit is without flexible connection as required by contract drawing M2.03. Refer to Figure M332.

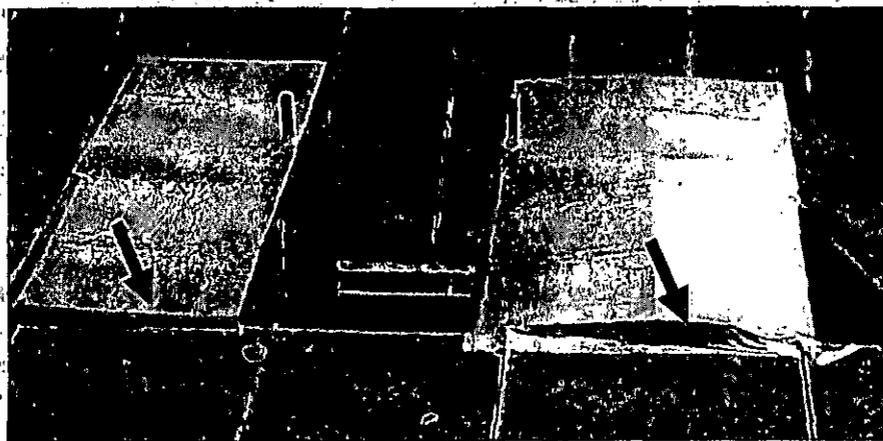


Figure M332

- (d) The submitted and approved FlexClad-400 outdoor duct insulation cover is not installed per manufactures instructions. The insulation is soaked throughout the length of the duct. Refer to Figure M333 through Figure M337. Figure M337 depicts factory recommended installation.

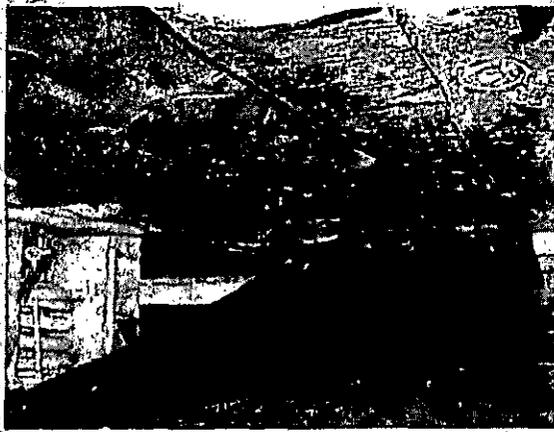


Figure M333

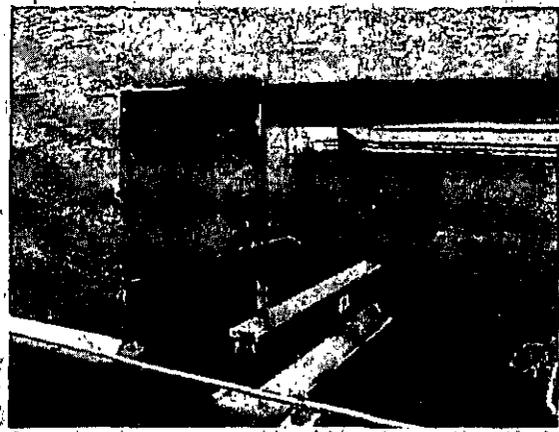


Figure M334

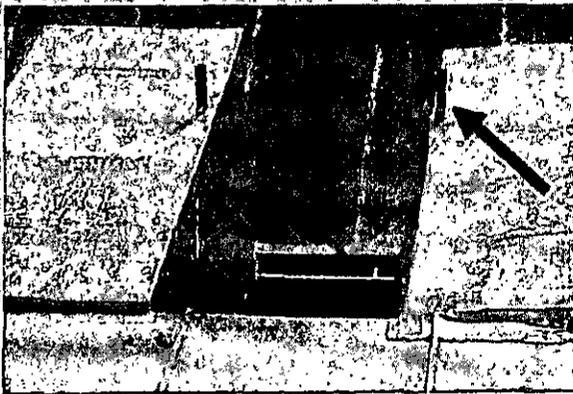


Figure M335

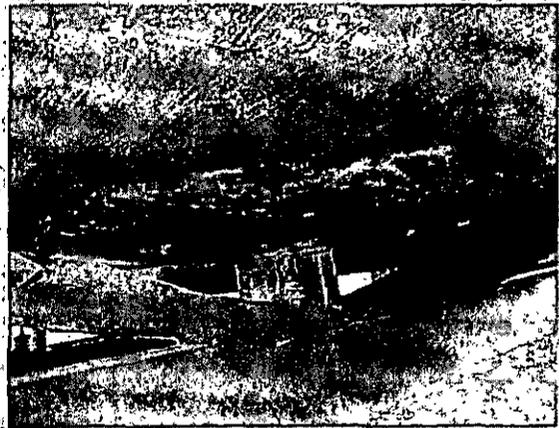


Figure M336

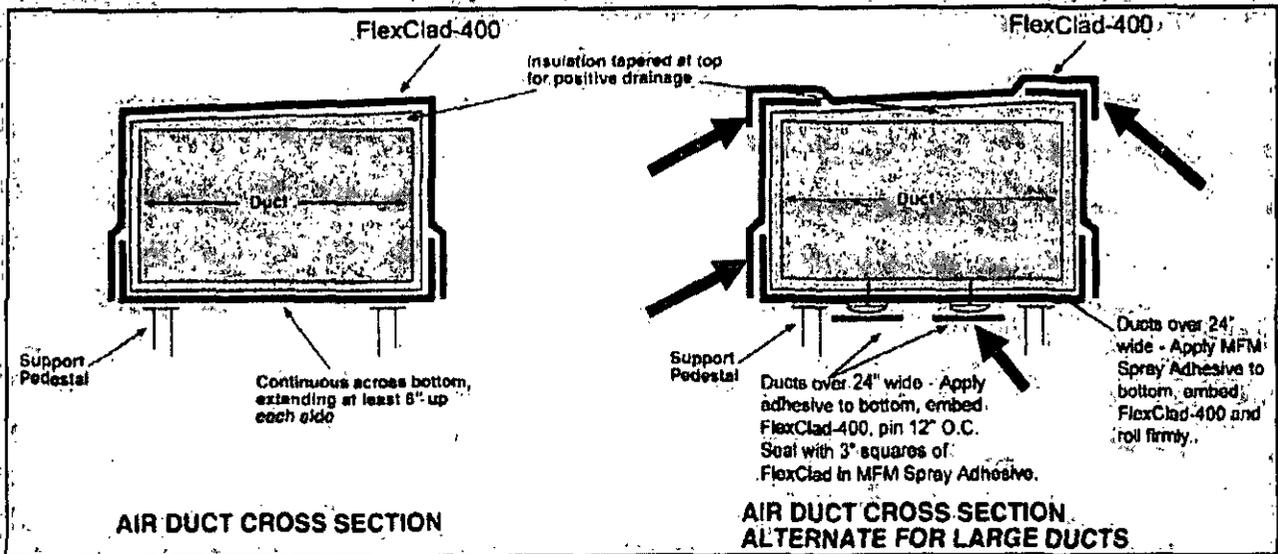


Figure M337

- (e) The natural gas line exposed on the roof should have been installed under the roof according to P2.02. Refer to Figure M338 and Figure M339.



Figure M338

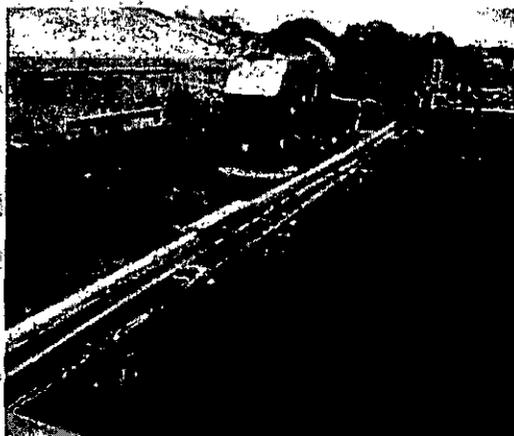


Figure M339

- (f) The gas line installed transitions from a 3" line to a 2" line approximately 25' from AC-2. According to the contract drawing P2.02 the transition to unit connection size should occur at the unit. Refer to Figure M340.
- (g) Gas line is heavily corroded. Refer to Figure M340.



Figure M340

- (h) Unit spring vibration isolators are not secured properly.

2. Exhaust fan (EF-5)

The following is a list of deficiencies in the installation of the exhaust fan (EF-5):

- (a) Exhaust fan is not provided with motorized damper as per specification section 15760-2.01-D. Submittal from SRS includes motorized discharge shutter. Gravity shutter installed.
- (b) The fan inlet flexible duct connector is misaligned eliminating its ability to isolate vibration from the ductwork. Refer to Figure M341.



Figure M341

- (c) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M342.

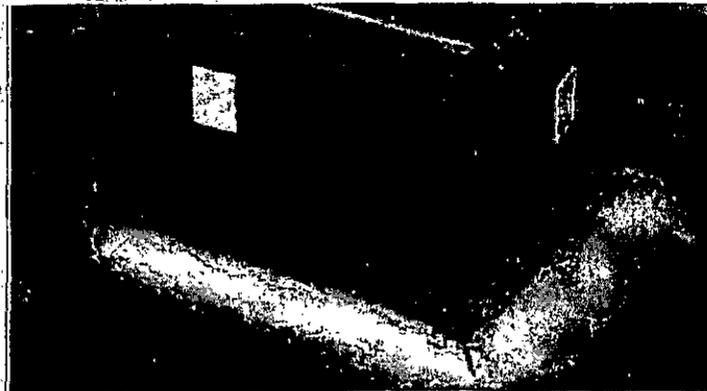


Figure M342

- (d) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized.
- (e) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.

- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
- Fan wheel diameter is 27". Three fan wheel diameters is 81"
- Installed length between elbow and the fan inlet is 42" which is less than the required 81". Refer to Figure M343.
- Ample roof space is available to have installed the fan 81" from the elbow.

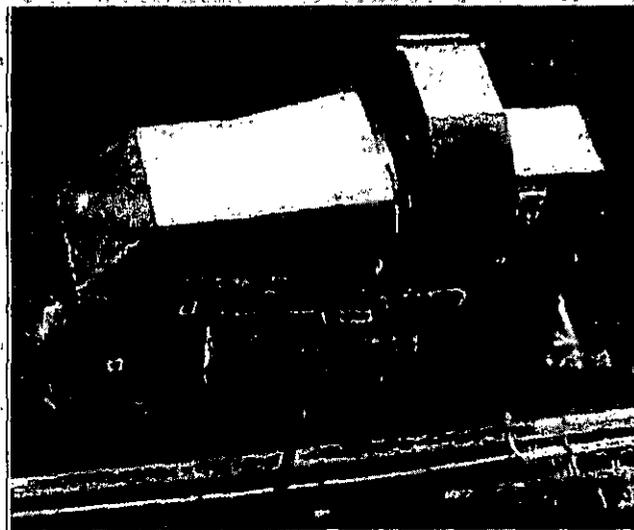


Figure M343

- (f) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on EF-5 is poor and causes a high entry loss. Refer to Figure M344 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.



Figure M344

- (g) Ductwork associated with EF-5 is not supported. Cantilevering ductwork causes tension on the fan inlet flexible duct connector. Refer to Figure M345.

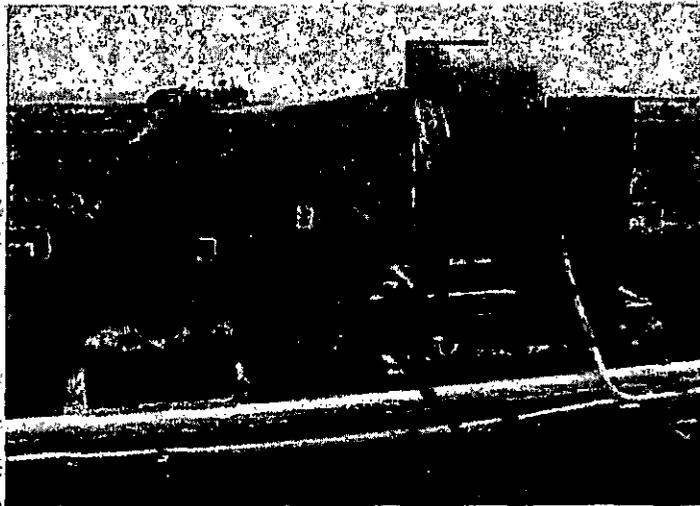


Figure M345

D. STAGE ROOF

1. Exhaust fan (EF-3)

The following is a list of deficiencies in the installation of the exhaust fan (EF-3):

- (a) Exhaust fan is not provided with motorized damper as per specification section 15760-2.01-D. Submittal from SRS includes motorized discharge shutter. Gravity shutter installed.

- (b) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M346.

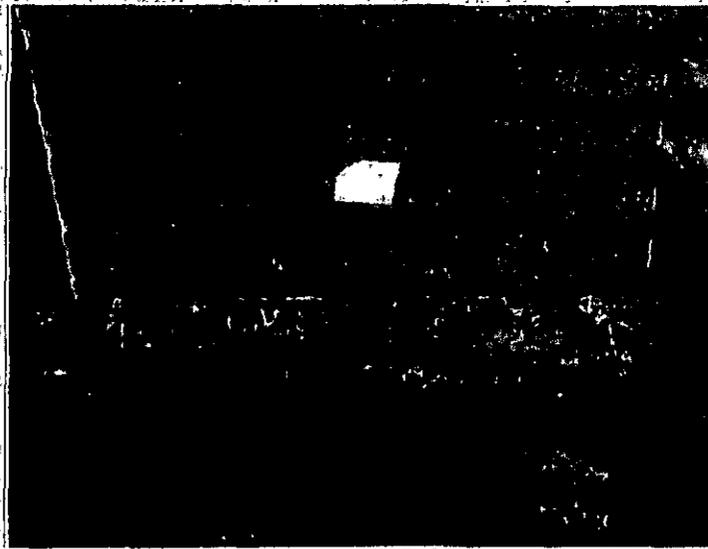


Figure M346.

- (c) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized.
- (d) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices.
- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
 - Fan wheel diameter is 30". Three fan wheel diameters is 90"
 - Installed length between elbow and the fan inlet is ~27" which is less than 1/3 the required 90". Refer to Figure M347.
 - Ample roof space is available to have installed the fan 81" from the elbow.

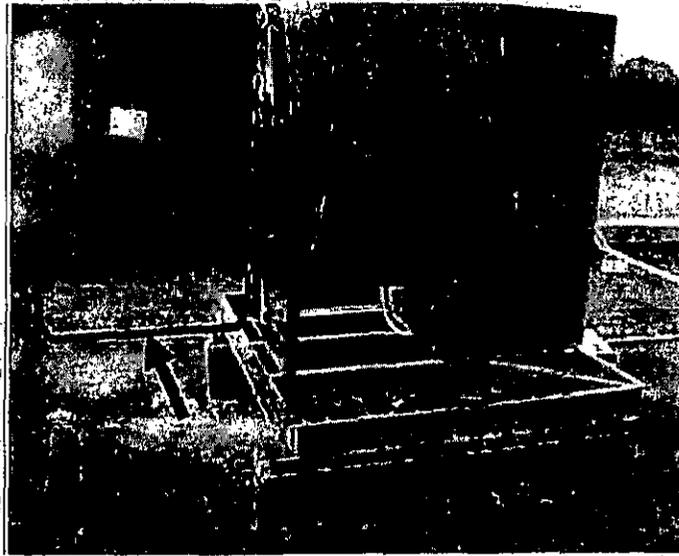


Figure M347

- (e) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on EF-3 is poor and causes a high entry loss. Refer to Figure M348 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.



Figure M348

- (f) Ductwork associated with EF-3 is not supported. Cantilevering ductwork causes tension on the fan inlet flexible duct connector. Refer to Figure M349.



Figure M349

2. Exhaust fan (EF-4)

The following is a list of deficiencies in the installation of the exhaust fan (EF-4):

- (a) Exhaust fan is not provided with motorized damper as per specification section 15760-2.01-D. Submittal from SRS includes motorized discharge shutter. Gravity shutter installed.
- (b) Roof duct penetration is not constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13. Refer to Figure M346.

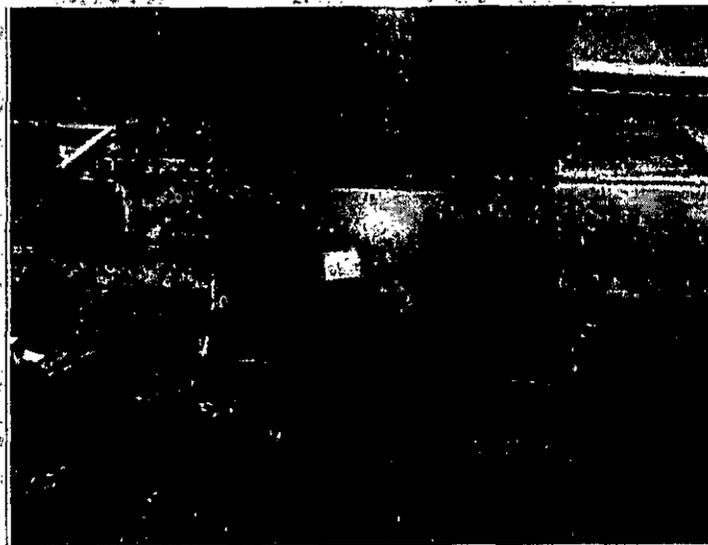


Figure M350

- (c) Ductwork not constructed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards as required by specification section 15840-1.03-B. Ductwork not constructed per specification section 15840-2.01-G and section 15840-2.05-C which requires aluminum ductwork for air ducts exposed to weather and not insulated. Ductwork installed is galvanized.
- (d) Specification section 15760-3.02-A states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices:
- Cook installation, operation, and maintenance manual states that "For ducted inlets, allow at least 3 fan wheel diameters between duct turns or elbows and the fan inlet."
 - Fan wheel diameter is 30". Three fan wheel diameters is 90"
 - Installed length between elbow and the fan inlet is ~27" which is less than 1/3 the required 90". Refer to Figure M347.
 - Ample roof space is available to have installed the fan 81" from the elbow.

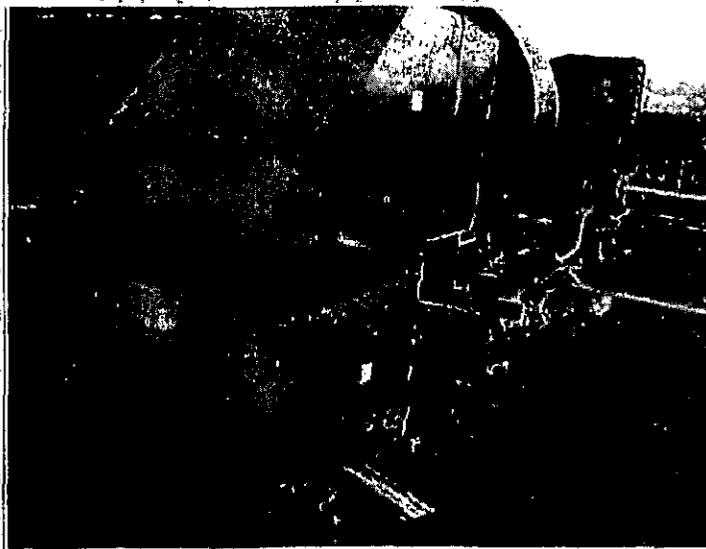


Figure M351

- (e) ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) standards state that the inlet connection on EF-3 is poor and causes a high entry loss. Refer to Figure M348 and Figure M279. This inlet condition is not consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.



Figure M352

- (f) Ductwork associated with EF-3 is not supported. Cantilevering ductwork causes tension on the fan inlet flexible duct connector. Refer to Figure M349.

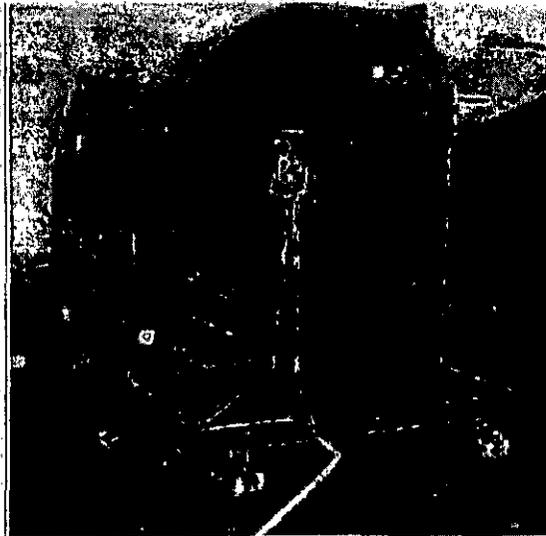


Figure M353

E. LOCKER ROOF

1. Gym roof top ac unit (AC-1)

The following is a list of deficiencies in the installation of the gym roof top ac unit (AC-1).

- (a) Service platform for unit is not complete.
- (b) Ductwork connection to unit is without flexible connection as required by contract drawing M2.03. Refer to Figure M354 and Figure M355.

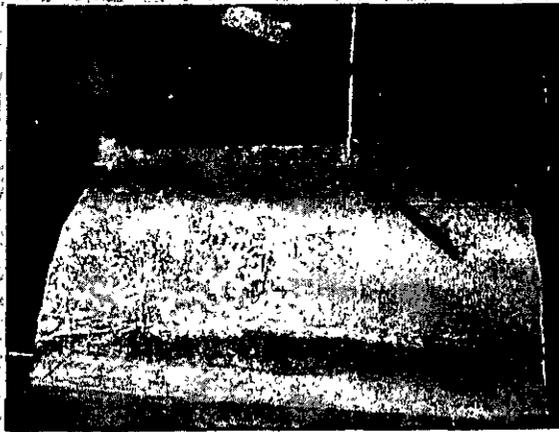


Figure M354

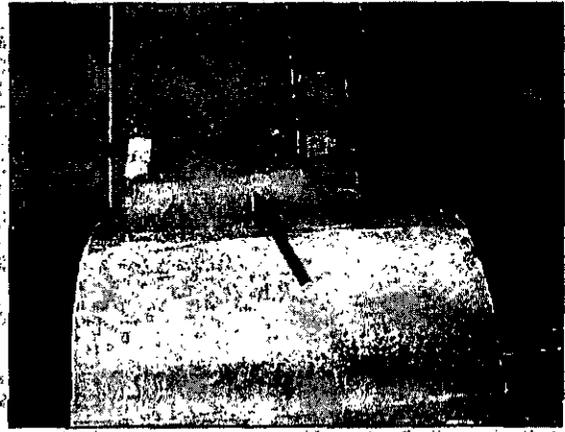


Figure M355

- (c) The submitted and approved FlexClad-400 outdoor duct insulation cover is not installed per manufactures instructions. Refer to Figure M356 through Figure M358. Figure M358 depicts factory recommended installation:



Figure M356

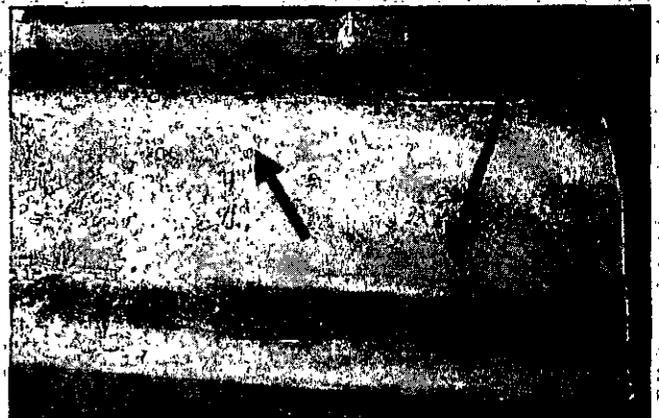


Figure M357

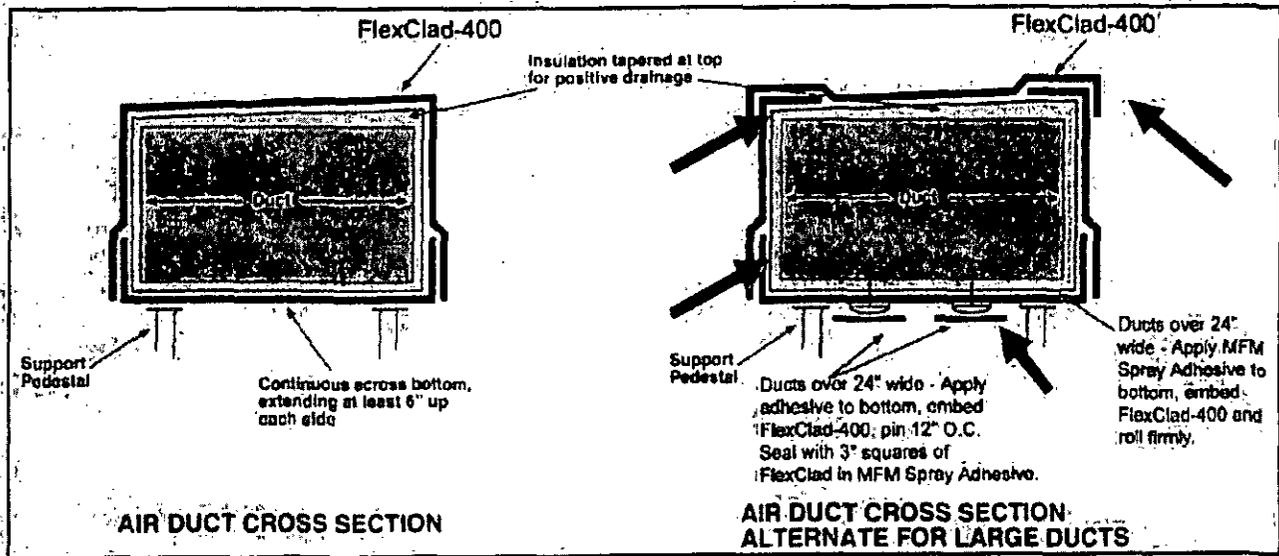


Figure M358

- (d) Metal strip missing off unit door. Refer to Figure M359. Refer to Figure M360 for example of missing strip.



Figure M359

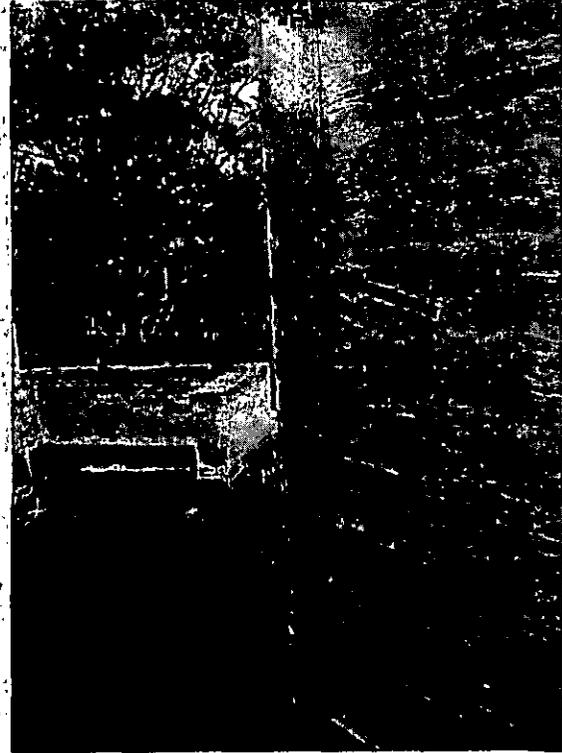


Figure M360

- (e) Unit spring vibration isolators are not secured properly.

BASEMENT CRAWL SPACE

A. Piping and Equipment

1. Condensate pump (CP-1 and 2)

The following is a list of deficiencies in the installation of the Condensate pump (CP-1 and 2).

- (a) Condensate pumps are not installed condensate drains are pipes directly into sanitary sewer. Condensate pumps are not installed in location shown on contract drawing M2.00. Refer to Figure M361.

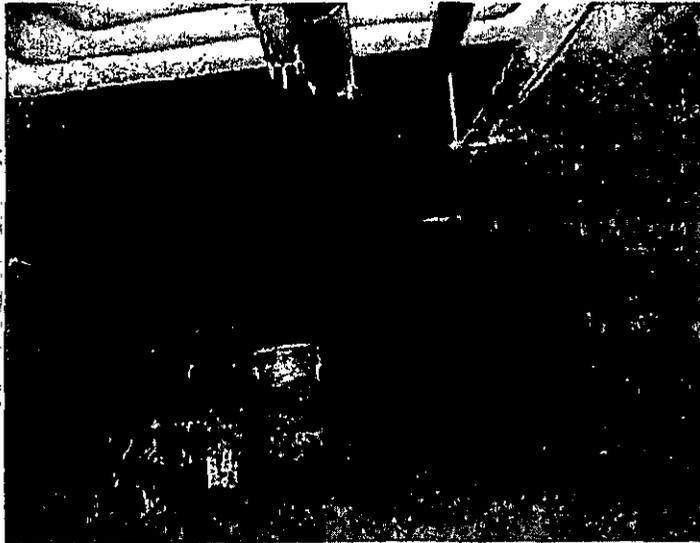


Figure M361

- (b) Unit ventilator coil condensate pipes in crawl space are not insulated as per specification section 15850-A. Refer to Figure M362.

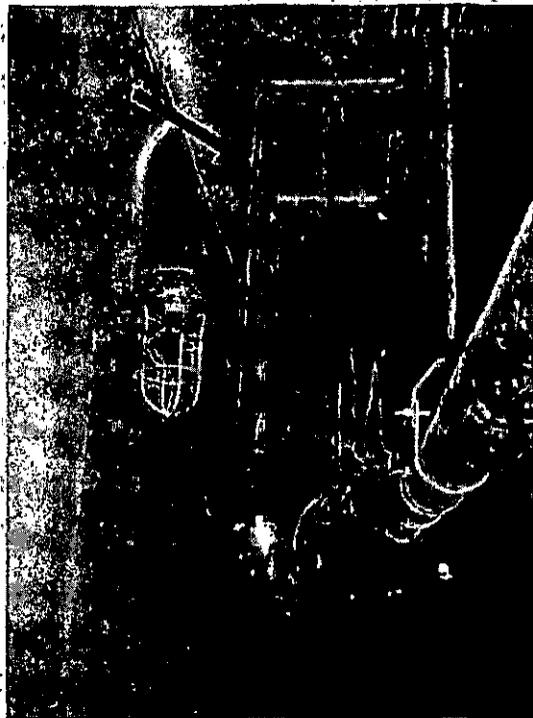


Figure M362

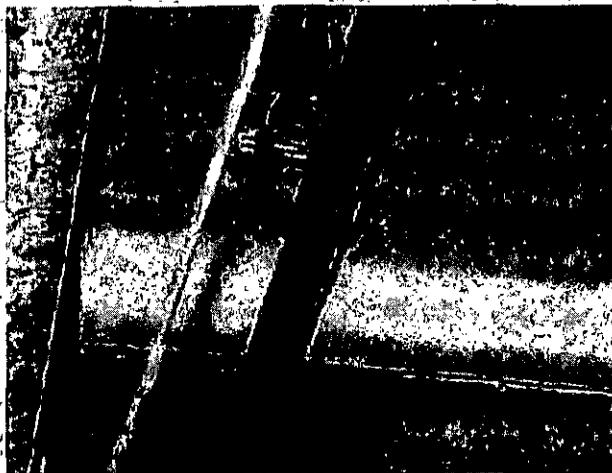


Figure M363

OUTDOOR AIR COOLED CHILLER

A. Air cooled chiller

1. Chiller piping

The following is a list of deficiencies in the installation of the Chiller piping.

- (a) Ball isolation valves associated with the chilled water glycol fill unit are not per specification section 15830-2:06-B. Refer to Figure M364.

- Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
- Valves installed are ProMax.
- Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM" "EXCEPT WHERE FLANGED VALVE ENDS ARE USED; USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".

- (b) Lack of dielectric fitting between brass valve and steel pipe has caused premature corrosion. Refer to Figure M364.



Figure M364

- (c) Pressure gauge is not per specification section 15801-2.02-A, C, G, and J. Refer to Figure M365.
- (d) Lack of dielectric fitting between brass valve and steel pipe has caused premature corrosion. Refer to Figure M365.



Figure M365

- (e) Lack of dielectric fitting between brass valve and steel pipe has caused premature corrosion. Refer to Figure M366.
- (f) Ball isolation valves associated with the chilled water glycol fill unit are not per specification section 15830-2.06-B. Refer to Figure M366.
- Specification section 15830-2.06-B calls for bronze body, chrome plated bronze ball, Teflon seats, stainless steel stem, and seals threaded ends.
 - Valves installed are Milwaukee.
 - Submitted by contractor (submittal number 57 on 10-11-05, Revised 12-23-05) NIBCO S-580-70 solder end, bronze body, brass ball, bronze stem. Rejected by engineer stating: "BALL VALVES ARE TO BE BRONZE BALL WITH CHROME PLATING, STAINLESS STEEL STEM." "EXCEPT WHERE FLANGED VALVE ENDS ARE USED, USE THREADED END VALVES - SOLDER END VALVES ARE NOT ACCEPTABLE".

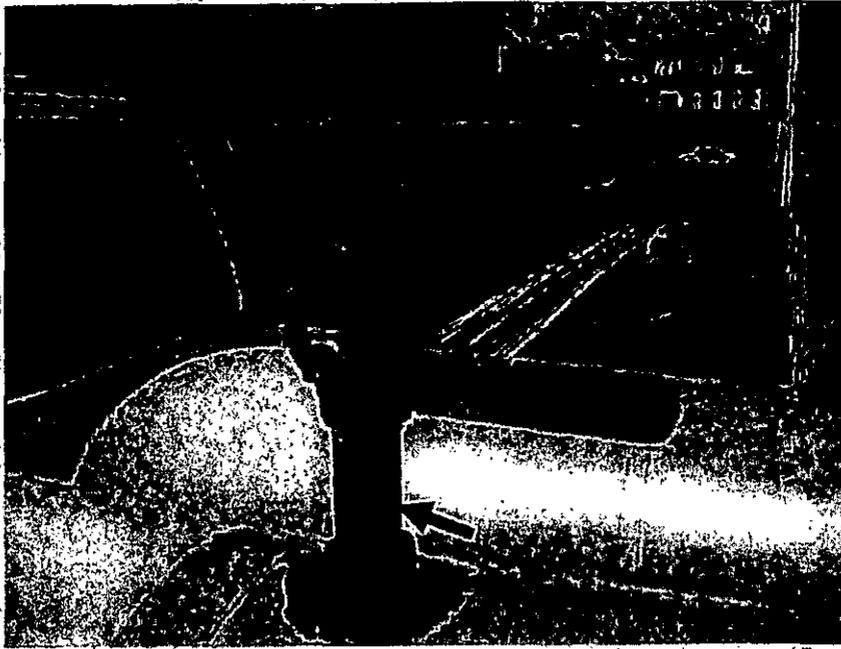


Figure M366

- (g) Chiller is not bolted to steel channels. Refer to Figure M366.
- (h) Specification section 15681-2.03-A requires vibration isolation on chiller.

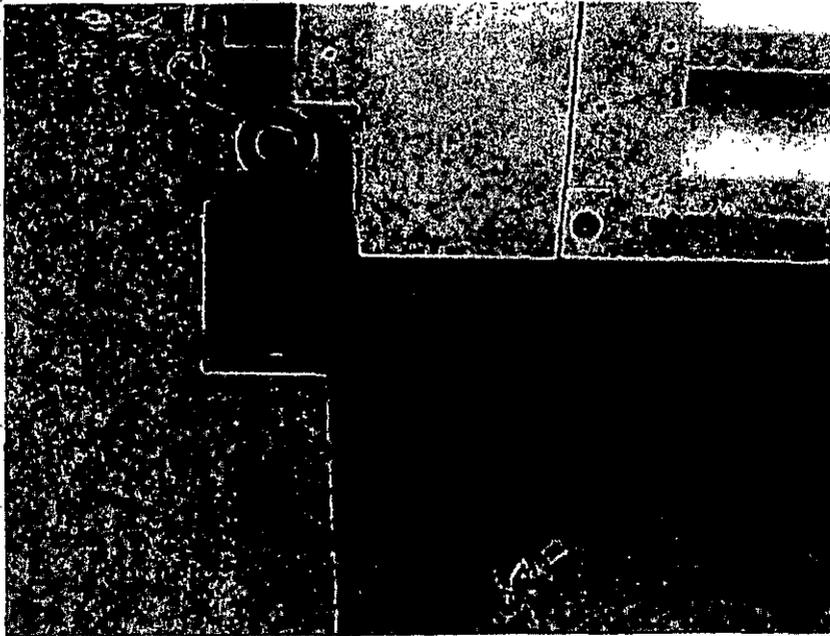


Figure M367

FACADE

A. Exterior louver

1. UV and FCU intake louvers

The following is a list of deficiencies in the installation of the UV and FCU intake louvers.

- (a) Louver (Aiolite T608) submitted by contractor in submittal number 108 is not what is installed (Aiolite T6482). Refer to Figure M368. This submittal was rejected by the architect.



Figure M368

- The Aiolite T608 louver (submitted louver) is rated at 28% free area at 78" w x 10" h. UV-A has an upper limit outdoor air flow rate of 870 cubic feet per minute. At this flow rate the face velocity of the louver is 572 feet per minute. Based on tests performed by the manufacturer utilizing AMCA water penetration test standards the beginning point of water penetration with respect to velocity is at 774 feet per minute. The submitted louver is 202 feet per minute below the point of water penetration.

- The Airolite T6482 louver (installed louver) is rated at 32% free area at 78" w x 10" h. UV-A has an upper limit outdoor air flow rate of 870 cubic feet per minute. At this flow rate the face velocity of the louver is 503 feet per minute. Based on tests performed by the manufacturer utilizing AMCA water penetration test standards the beginning point of water penetration with respect to velocity is at 668 feet per minute. The installed louver is 165 feet per minute below the point of water penetration.
- The flow rate used to calculate the velocity can increase under certain conditions. The improper balancing of the exhaust system (proper system balancing has not been performed on this project) will cause certain rooms to become too negative increasing the flow rate and subsequently the velocity through the louver. Prevailing winds during severe weather conditions can also increase the velocity through the louver.

(b) Louver not provided with weep holes as per sketch 20. Refer to Figure M369.

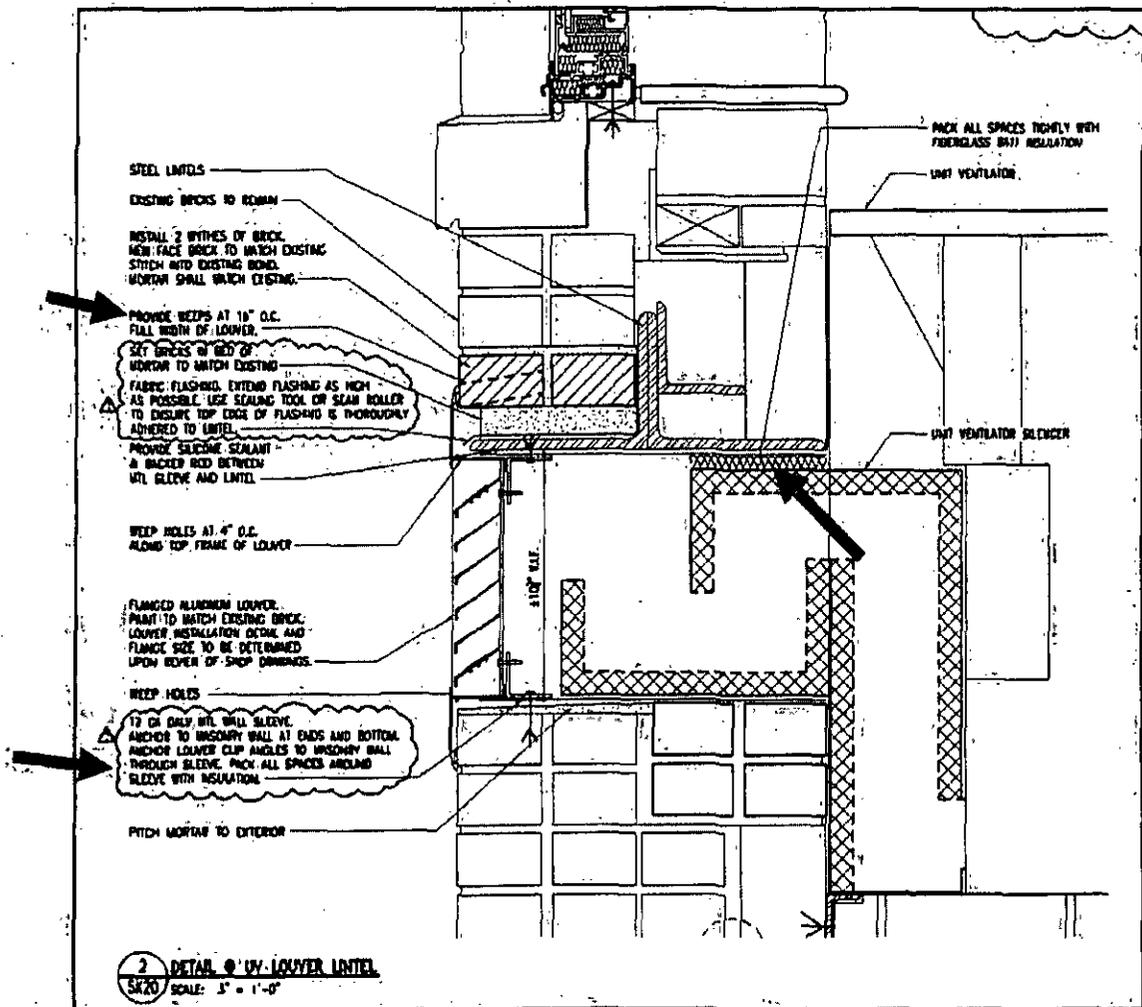


Figure M369

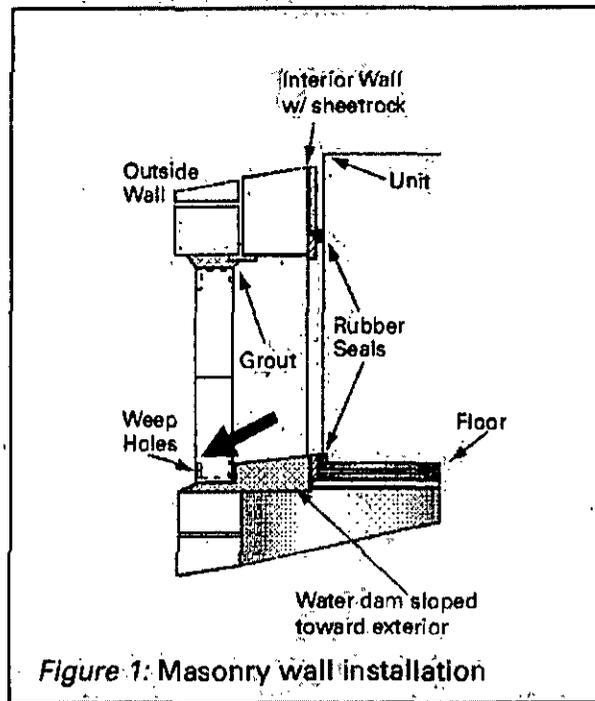


Figure-M370

2. Connection between UV or FCU and intake louvers

The following is a list of deficiencies in the installation of the connection between the UV and FCU intake louvers:

- (a) Louvers are not connected to unit ventilators and fan coil units as per sketch 20. Unit ventilators in the field are installed in an inconsistent manner. Figure M371 is of UV-B in classroom 203 with expansion foam between the sound attenuator metal sleeve. Expansion foam prevents the removal of the unit ventilator for service. Figure M372 is of UV-A in classroom 105 with mineral wool covered with aluminum tape.



Figure M371



Figure M372

- (b) Units throughout the building are not secured to the wall properly causing the seals to not function properly by stopping infiltration. Refer to Figure M373.

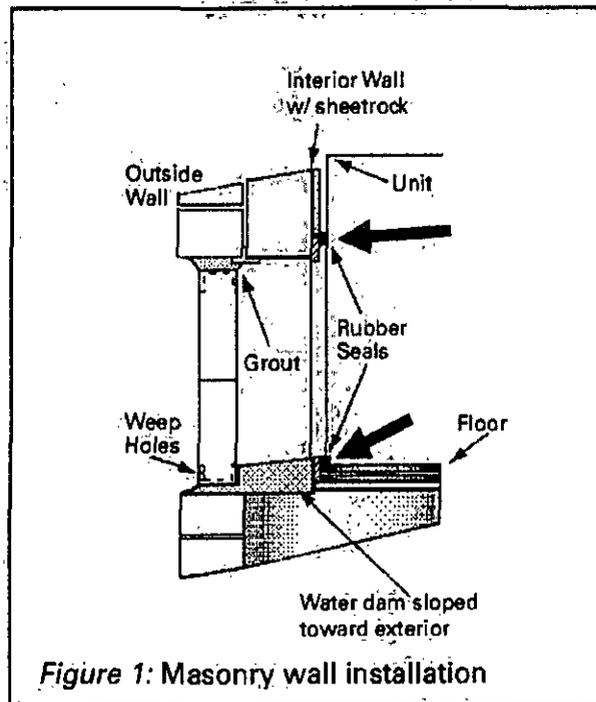


Figure M373

TESTING AND BALANCING

A. Hydronic test and balance

1. Glycol Chilled water test and balance.

The following is a list of deficiencies in the testing and balancing of the chilled water systems.

- (a) Balancing valves on the chilled water piping are set at 100% open. Units have not been balanced as per specification section 15900-3.07. Improper insulation has caused premature corrosion on the balancing valve. Refer to Figure M374.



Figure M374

- (b) Strainers on the chilled water have not been cleaned as per specification section 15900-3.05-D. Figure M375 shows a typical strainer completely filled with gravel like substance. Figure M376 shows the strainer after being cleaned with the removed debris pile adjacent to the strainer.



Figure M375

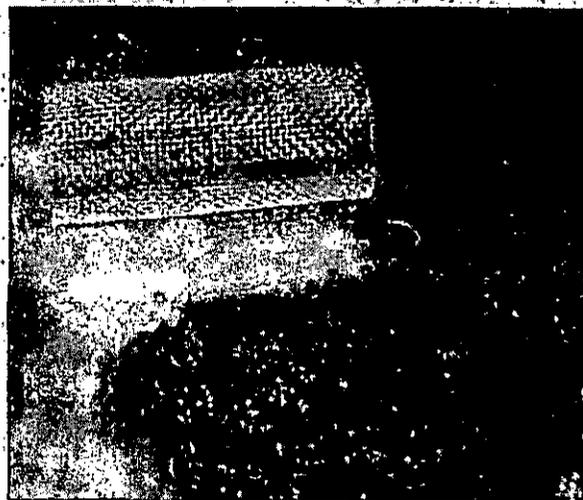


Figure M376

2. Glycol heating hot water test and balance.

The following is a list of deficiencies in the testing and balancing of the chilled water systems.

- (a) Balancing valves on the heating hot water piping are set at 100% open. Units have not been balanced as per specification section 15900-1.02. Typical for all units except two. Refer to Figure M377.

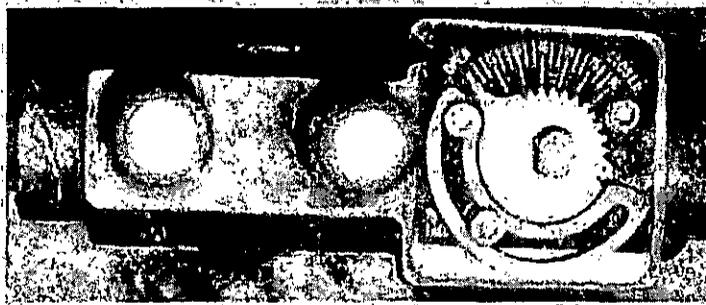


Figure M377

- (c) Strainers on the heating hot water have not been cleaned as per specification section 15900-3.05-D. Figure M378 and Figure M379 shows a typical strainer completely filled with gravel like substance:

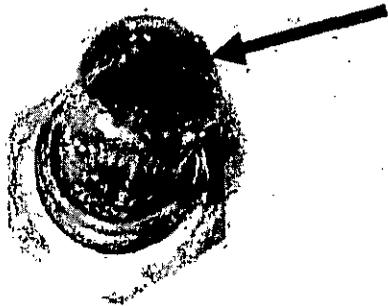


Figure M378



Figure M379

B. Air test and balance

1. Air system test and balance.

The following is a list of deficiencies in the testing and balancing of the buildings air side test and balancing.

- (a) The school notified members of the design team that the test and balance crew were not noticed at the school. The dates and times of testing and balancing were during times that classes were in session. For the test and balance crew to perform the tasks required under contract and not be noticed is improbable.

- (b) The test and balance report states that northern most 18x6 exhaust register in classroom 201 (which is required to exhaust 410 cubic feet per minute (CFM) of air flow when GX-1 is in high speed and 250 CFM when GX-1 is in low speed) was balanced to 420 CFM in high speed and 255 CFM in low speed. This is improbable because the ductwork is not attached to the register. The branch duct is missing the volume damper (device required for balancing) as required by contract drawing M2.03 and specification section 15840-2.08. Refer to Figure M380.



Figure M380

MISCELLANEOUS (Throughout the building)

A. Piping

1. Pipe Fitting Insulation

The following is a list of deficiencies in the installation of the pipe fitting insulation.

- (a) Pipe fitting insulation is not per specification section 15850-2.03 requiring: factory precut Hi-Lo Temp insulation insert covered with PVC fitting cover. Fittings in the field wrapped with mineral wool and covered with aluminum foil tape. Refer to Figure M381 through Figure M386. Figures shown are a small sampling, the deficiency occurs throughout school.
- (b) Submittal number 22 "JM/FPVC Jackets" returned by engineer "EXCEPTIONS AS NOTED" on 10/21/05. "(1) PROVIDE JACKETING ALL AROUND INSULATION FOR ALL FITTINGS IN ALL FITTINGS IN ALL HOT/COLD PIPING INCLUDING CHILLED WATER, HOT WATER, COLD WATER, DRAIN. (2) SECURE JACKETING. (3) PROVIDE ADHESIVE, VAPOR BARRIER AT ALL JOINT OF PVC JACKETING"

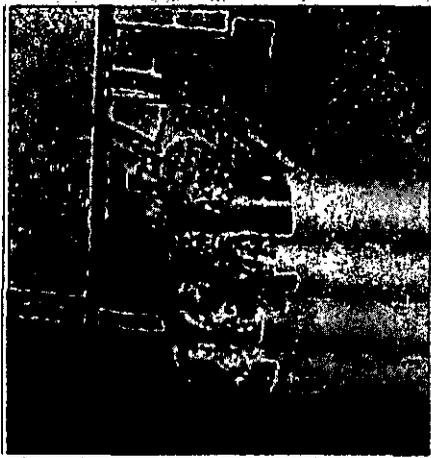


Figure M381



Figure M382

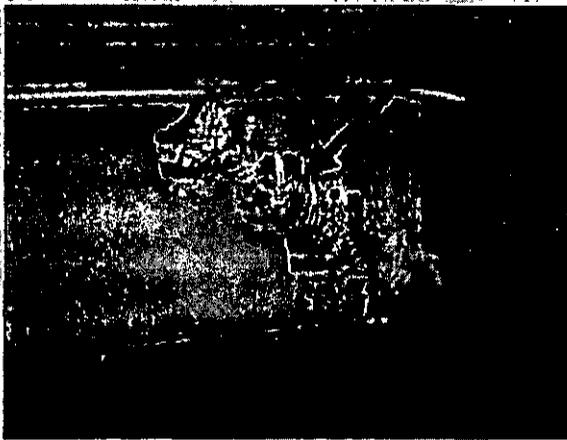


Figure M383

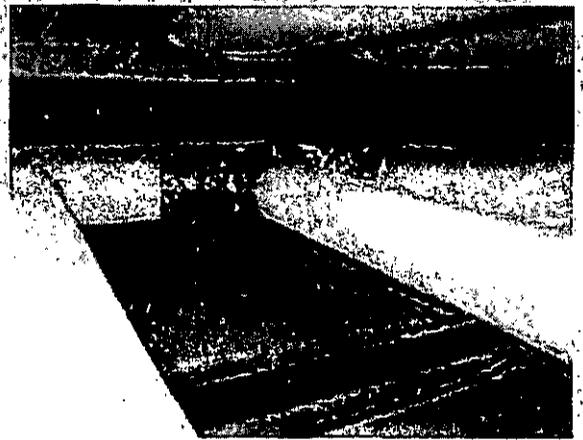


Figure M384



Figure M385

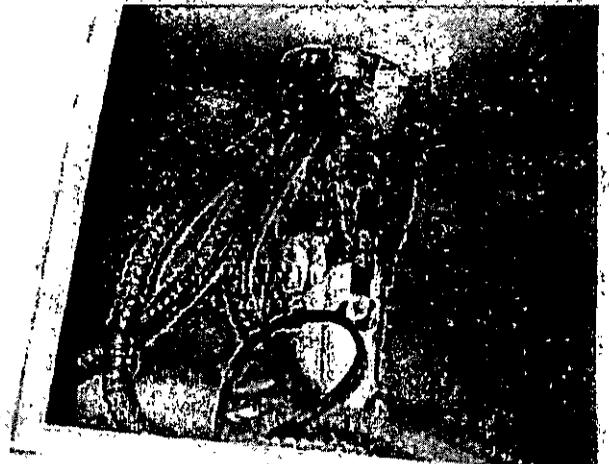


Figure M386

2. Pipe Hangers

The following is a list of deficiencies in the installation of the pipe hangers.

- (a) Pipe trapeze hanger is not installed per "TRAPEZE HANGER DETAIL" detail on contract drawing M2.14 which requires load bearing calcium silicate insulation at hanger and semi-cylindrical galvanized iron shield for hot pipes 2-1/2" & over. Refer to Figure M387 and Figure M388. Figures shown are a small sampling, the deficiency occurs throughout school.

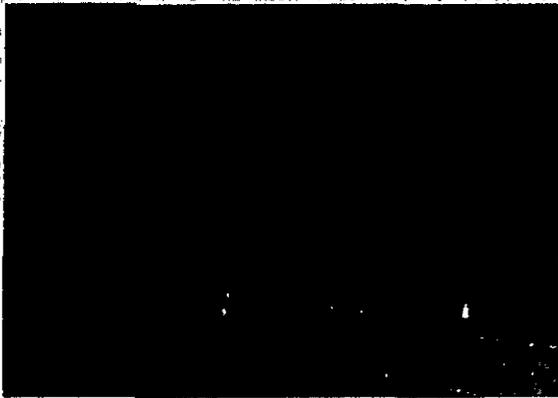


Figure M387



Figure M388

- (b) Pipe clevis hanger is not installed per "CLEVIS HANGER" detail on contract drawing M2.14 which requires load bearing calcium silicate insulation at hanger and semi-cylindrical galvanized iron shield for hot pipes 2-1/2" & over. Refer to Figure M389 and Figure M390. For pipe 4" and over, use clevis roller hanger. Refer to Figure M391 and Figure M392. Figures shown are a small sampling, the deficiency occurs throughout school.

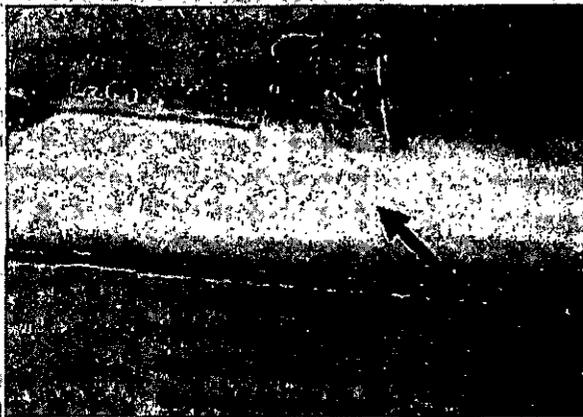


Figure M389



Figure M390



Figure M391



Figure M392

3. Construction Clean-up

The following is a list of deficiencies in the cleaning up after construction.

- (a) Brick rubble was observed throughout all hung ceilings. Construction debris was also observed on the roof. Refer to Figure M393 through Figure M396.



Figure M393



Figure M394

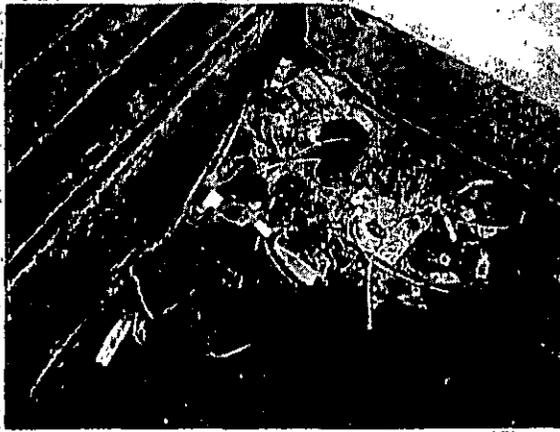


Figure M393

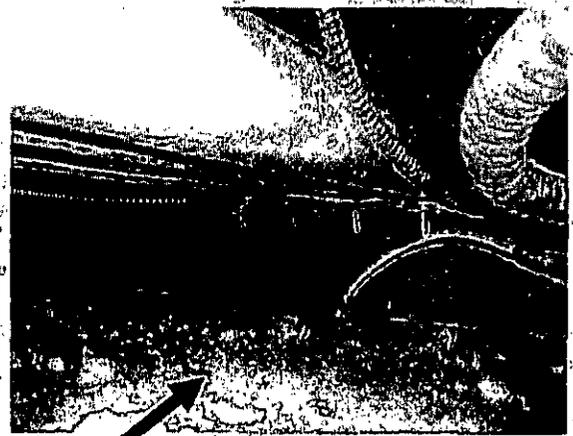


Figure M394

4. Building management system (BMS)

The following is a list of deficiencies in the building management system.

- (a) Multiple space temperature readings are much higher than possible or lower than possible.
- (b) Outside air damper position is believed to be inaccurate.
- (c) All sequence of operations should be checked and commissioned.

B. UV dampers

1. Dampers

The following is a list of deficiencies in the UV dampers

- (a) Multiple unit ventilator dampers are bent preventing them from operating properly.

ELECTRICAL

I. Ground Floor

Ground Floor consists of New Electrical Service Room, new Mechanical Room, existing Boiler Room, Mall Classroom, Multi-purpose Room, Cafeteria, Offices and various Classrooms.

The new electrical service is 4000A, 120/208V, 3Ph, 4W, underground requiring Advisory Board approval prior to installation.

We have not received any official correspondence indicating that the electrical service installation has been approved by NYC Advisory Board. However, a list indicating Advisory Board Calendar numbers was forwarded to us and a copy of that is attached to this report.

During our field survey of the electrical system, the following electrical deficiencies were observed:

A. New Electrical Service Room

1. EMT conduits with set screw connectors and couplings have been used in lieu of rigid galvanized steel conduits exposed at Electrical Room ceiling.

Electrical Specification Section 16111.3.02.A.20a and b states that rigid galvanized steel conduit shall be used in mechanical equipment spaces and EMT shall be used for branch circuit wiring installed in dry locations only (hung ceiling, hollow block wall and furred spaces).



Figure E1

1

ADVISORY BOARD CALENDAR

February 15, 2006

Calendar #	Submission #	Applicant Name and Address	Type of Request	Installation Location	Status	Fee
46968	06A0095	Robert B. Samuels Inc. 48 West 25th Street New York NY 10010	Requested approval for the electric service equipment proposed to be installed	Paramount Group 745 5th Avenue, Main Floor New York NY	Ok, but	\$650.00
Are the ATS's in the generator room.						
46969	06A0088	Elmac Electric, Inc. .61-20 Cooper Avenue Glendale NY 11385	Requested approval for the electric service equipment proposed to be installed	Monsignor McClancy H.S. 71-06 31st Avenue East Elmhurst NY	Approved	\$650.00
46970	06A0096	The Electric Connection Inc. 410 West 127th Street New York NY 10027	Requested approval for the electric service equipment proposed to be installed	New Yorker Hotel New York NY	Hold	\$650.00
1) Submission not in proper Advisory Board format. 2) Bus sizes not provided.						
46971	06A0097	BRG Electric, Inc. 88-26 Winchester Blvd. Queens Village NY 11427	Requested approval for the electric service equipment proposed to be installed	114-02 15th Avenue College Point NY	Approved	\$650.00
46972	406A0100	Olympic Electrical Wiring Corp. 133 50th Street Brooklyn NY 11232	Requested approval for the electric service equipment proposed to be installed	103-105 Norfolk Street New York NY	Approved	\$650.00

2. Incoming underground electrical service conduits are not PVC coated rigid steel conduits as mentioned in Specification Section 2.01.A.3.
3. A row of 4" EMT conduits have not been strapped to the Kindorf supports at multiple locations making this electrical installation unsafe.

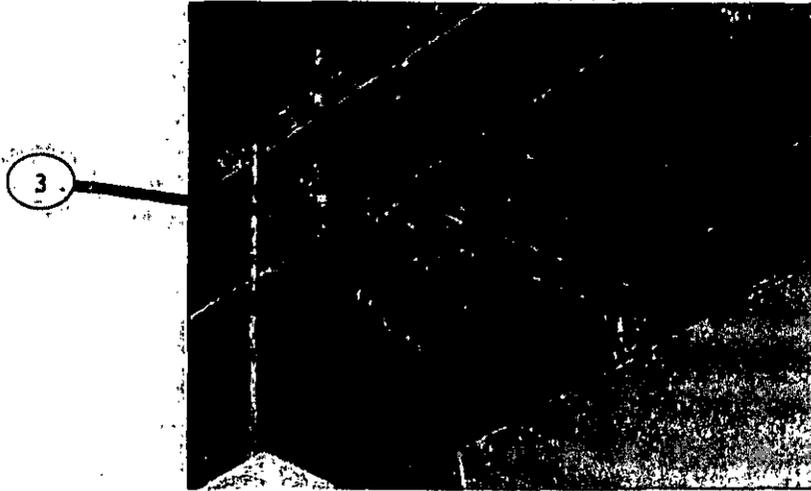


Figure E2

National Electrical Code (NEC) Section 358.30.A&B calls for all conduits to be securely fastened so that they will not move due to the weight of the cable.

4. Kindorf supporting the conduits is not leveled at multiple locations.
5. Kindorf supporting the 8" x 8" wiring trough is not leveled, creating no contact at some places and extra heavy weight at other places.

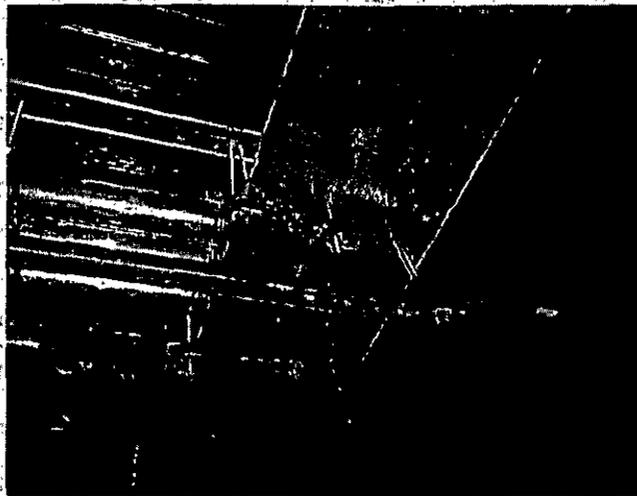


Figure E3

6. 2" empty conduit stub up at southeast corner of the room has been left abandoned 12" above the floor without any cap or cover.



Figure E4

7. Two (2) 3/4" conduit penetration to north wall has not been patched and firestopped. This may result in having fire spread from one room to another and cause severe damage to the building infrastructure.

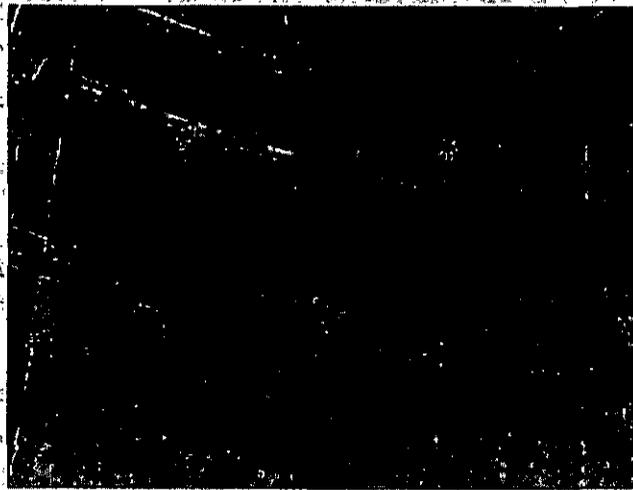


Figure E5

Electrical Specification Section 16111-3.02.20.c.1 states that "Where wiring, conduits, cable trays, wireways, and other electrical raceways pass through fire partitions, fire walls, or floors, install an approved firestop that provides an effective barrier against the spread of fire, smoke and gasses. Firestop material (heat activated putty and a high temperature fiber material) shall be packed tight and shall completely fill clearances between raceways and openings. It shall be applied concurrently with the installation of the wiring. The firestop fittings shall have a U.L. classified hourly rating equal to the fire rating of the floor or wall."

8. 3/4" LB conduit with its cover at southwest corner is buried partially inside sheetrock soffit, thus making it inaccessible for any maintenance work.

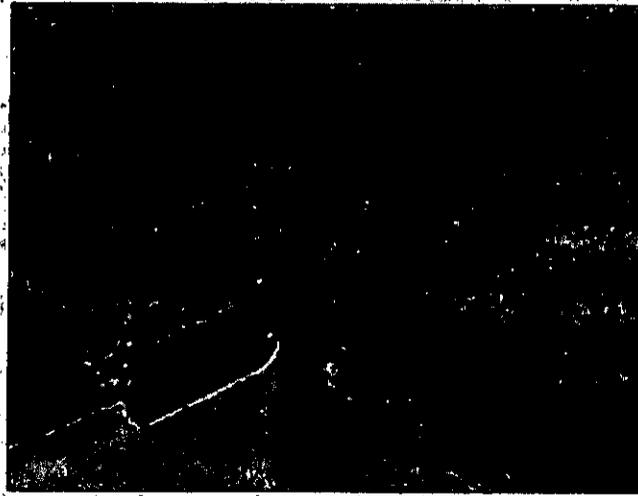


Figure E6

9. Junction box for fire alarm conduit is not painted red.

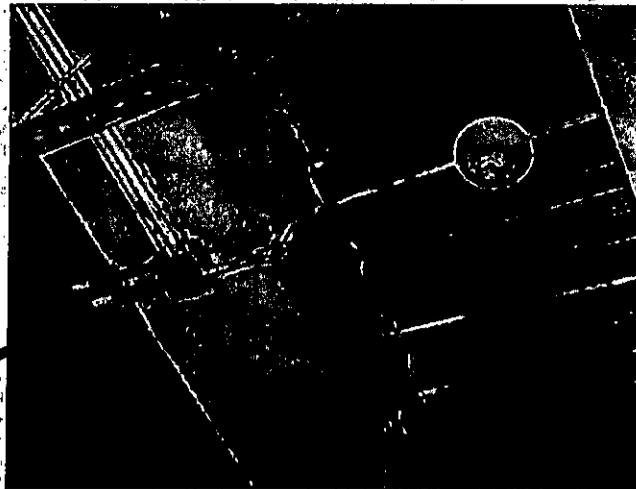


Figure E7

10. Service entrance conductors have been spray painted in lieu of using color tape for feeder phase identification. We do not know the chemical composition of the paint, but we feel that the chemicals present in the paint may deteriorate the wire insulation in the long run and may cause cable failure.

10



Figure E8

10

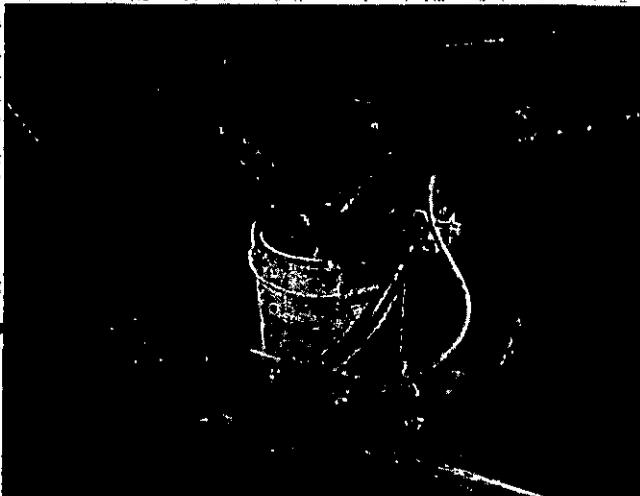


Figure E9

10

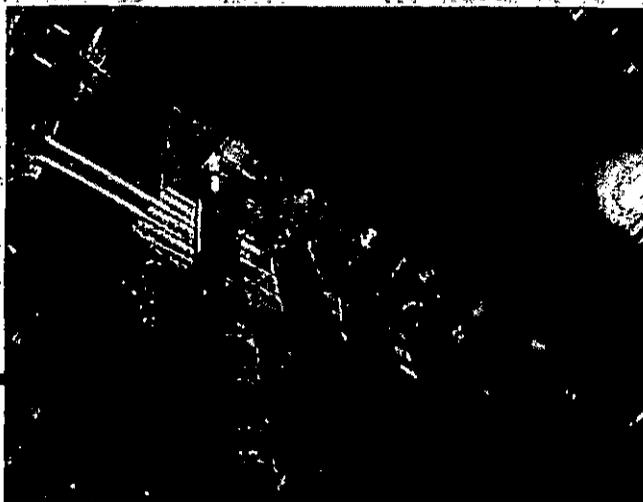
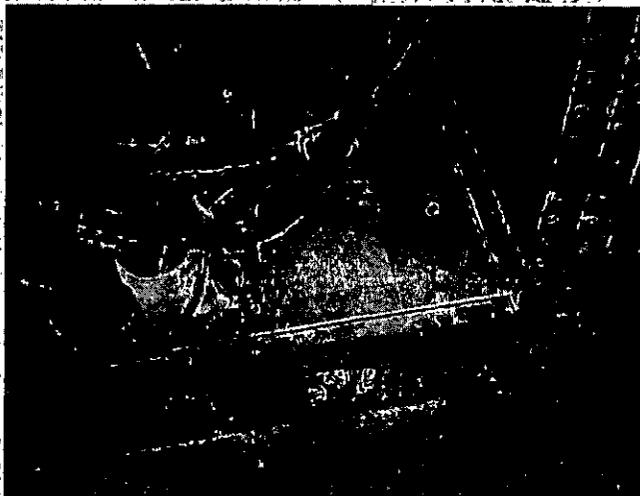


Figure E10



10

Figure E11



10

Figure E12

11. Fuse cut-out installed to feed power to existing fire alarm control panel has the following deficiencies:
- Solid neutral bar is missing and the neutral wires are connected through neutral bus.
 - Stranded wires have been used in lieu of solid wires.
 - Ground wire size is #12 stranded in lieu of #10 solid.
 - A third phase wire is hanging loose inside the FCO enclosure. This wire may be live and could cause a ground fault condition which may shut down power to the entire facility.



Figure E13

12. Two (2) load side feeders from distribution panel DP-AC are passing through the load side trough of distribution panel MDP, thus mixing the load feeders from two different panelboards in the common raceway.

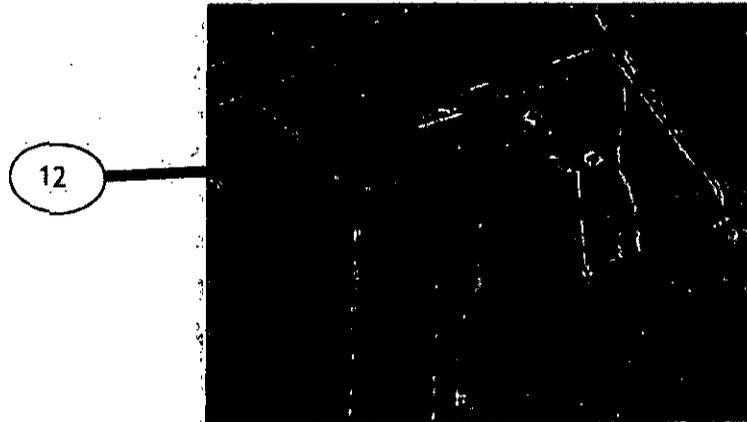


Figure E14



Figure E15

13. Contract Documents call for PVC coated rigid galvanized steel conduits to be used for eleven (11) sets of underground service feeders. However, the conduits stubbing up inside the service switchboard are not PVC coated and there is no shop drawing submission for PVC coated rigid galvanized steel conduits.

13.



Figure E16

13.



Figure E17

14. 24 wide insulation mat in front of switchboard equipment is not provided per Specification 16426 Section 3.02.E.

B. Mechanical Room

1. EMT conduits with set screw connectors and couplings have been used in lieu of rigid galvanized steel conduit.

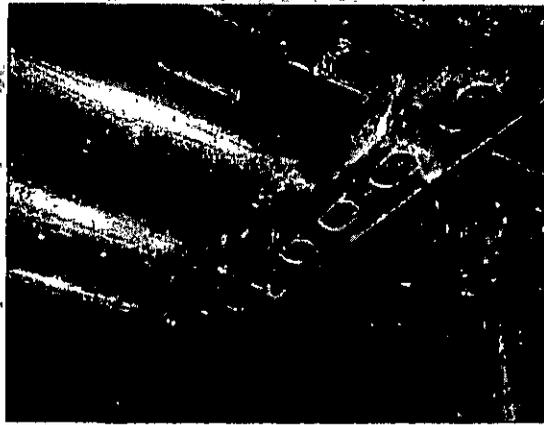


Figure E18

Electrical Specification Section 16111.3.02.A.20a and b states that "rigid galvanized steel conduit shall be used in mechanical equipment spaces and EMT shall be used for branch circuit wiring installed in dry locations (hung ceiling, hollow block wall and furred spaces)."

2. Greenfield has been used for final connection to pumps CHWP-1, CHWP-2, HWP-1 and HWP-2 in lieu of sealtite flexible conduit.



Figure E19

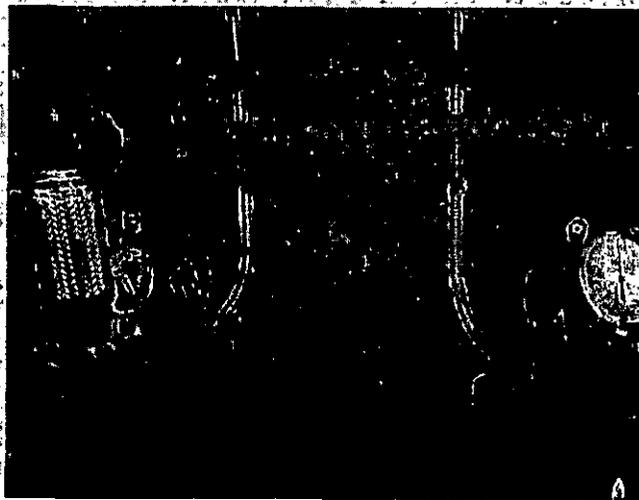


Figure E20

2

Electrical Specification Section 16111.3.02.A.20.c.1 and 2 states that "for final connections to motor terminal boxes, transformers and other vibrating equipments the flexible steel conduit shall have polyvinyl sheathing "sealtite" and a ground conductor."

3. 3/4" EMT conduit penetration on east wall for fire alarm smoke detector has not been patched and fire stopped.

Electrical Specification Section 16111-3.02.20.c.1 states that "where wiring, conduits, cable trays, wireways, and other electrical raceways pass through fire partitions, fire walls, or floors, install an approved firestop that provides an effective barrier against the spread of fire, smoke and gasses. Firestop material (heat activated putty and a high temperature fiber material) shall be packed tight and shall completely fill clearances between raceways and openings. It shall be applied concurrently with the installation of the wiring. The firestop fittings shall have a U.L. classified hourly rating equal to the fire rating of the floor or wall."

4. Fire alarm conduit on the east wall has not been patched and firestopped.

4

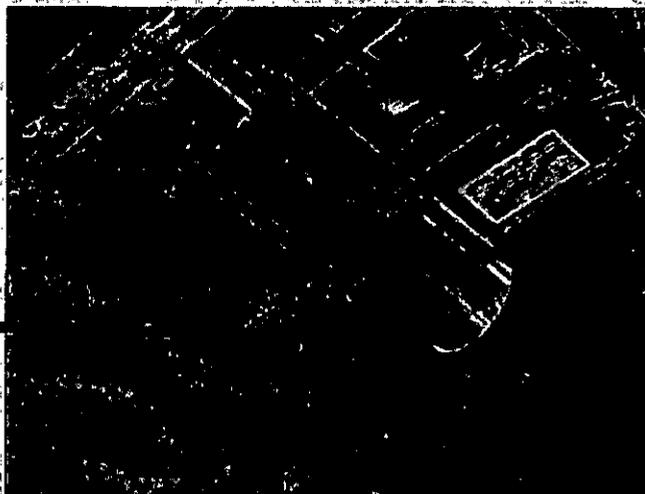


Figure E21

5. Pull box for pumps HWP-1 and 2 has KO seal missing.

5



Figure E22

6. Exit light, regular ambient light unit heater and sump pump circuits are all run through one common raceway homerun. Emergency light and exit sign circuit shall be run in separate conduit.



Figure E23

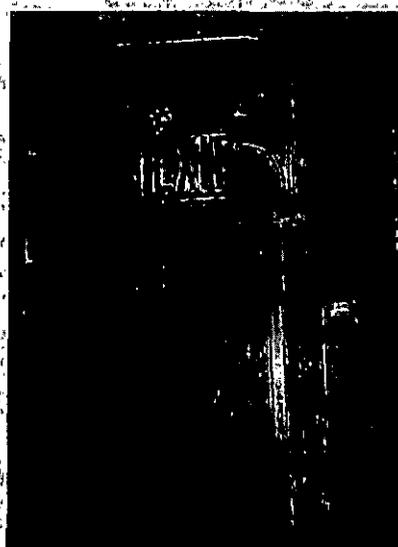


Figure E24

7. Motor controllers for CHWP-1, CHWP-2, HWP-1 and HWP-2 have not been labeled.

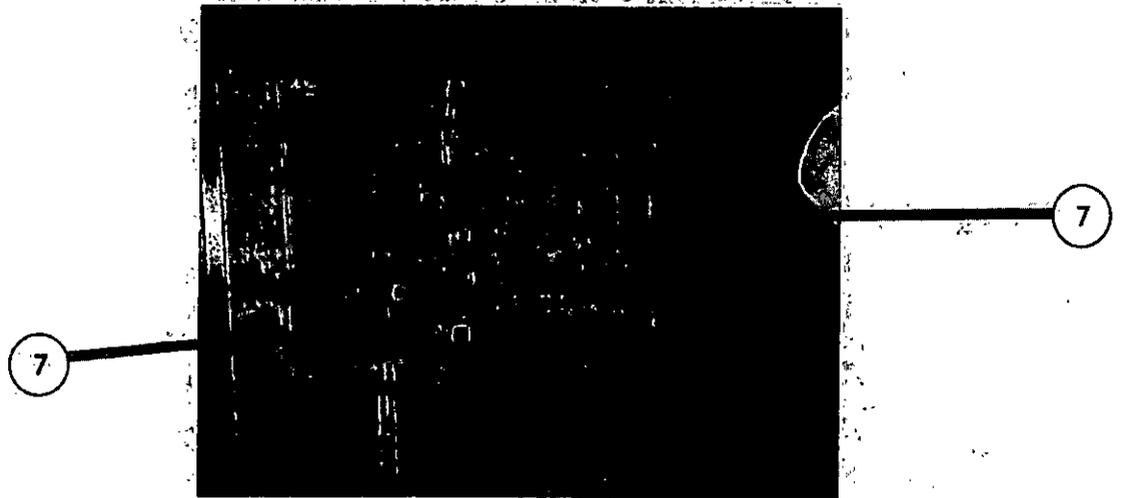


Figure E25

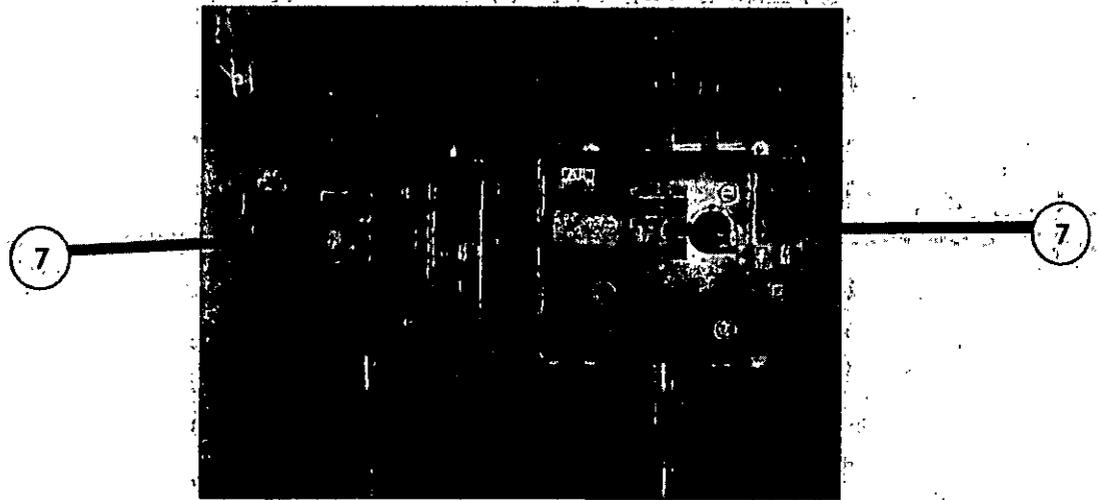


Figure E26

8. 3/4" conduit connector to pendant light fixture is loose exposing power wiring to outside for possible physical damage.

Due to loose conduit connection, the following problems may arise:

- a. Moisture or dampness may penetrate inside the fixture and cause damage to the interior parts.
- b. The wire insulation may deteriorate causing a short circuit condition at the fixture.

8

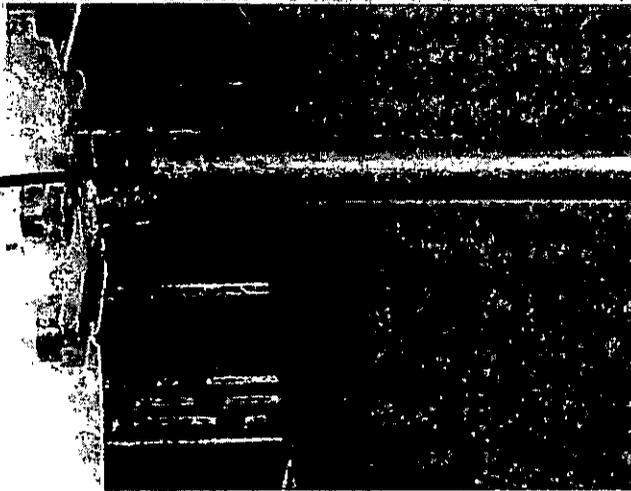


Figure E27

9. 1/4" C installed in the Mechanical Room Vestibule has cover missing for conduit.

9

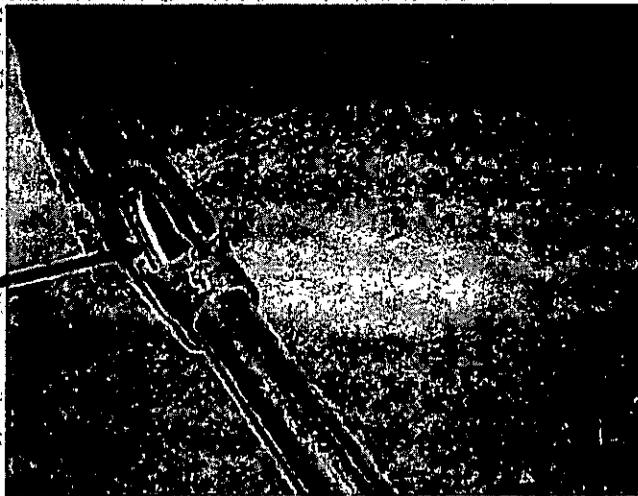


Figure E28

10. Fire alarm junction box installed in the Mechanical Room Vestibule has knock-out seal missing.



Figure E29

11. a. $\frac{3}{4}$ " EMT conduit feeding power to exhaust fan on the roof, above the Mechanical Room is not supported for a length of approximately 20'.



Figure E30

- b. $\frac{3}{4}$ " EMT conduit opening has not been patched and firestopped.

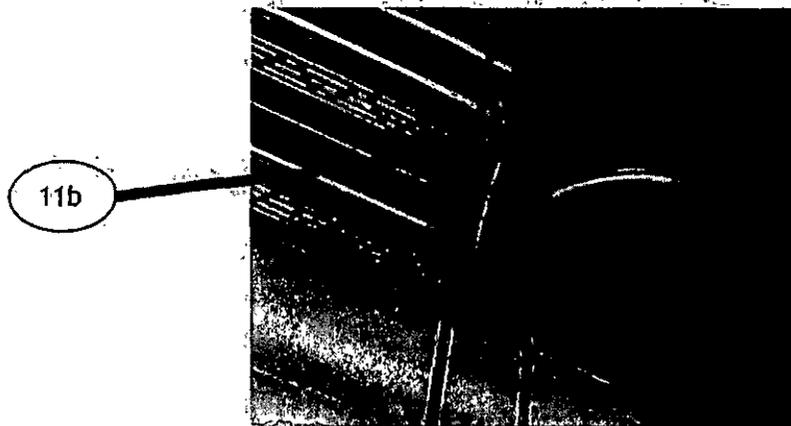


Figure E31

12. Fire alarm conduit connecting to smoke detector has not been supported for approximately 10' of the conduit run with multiple bends.



Figure E32

13. Feeders for pumps HWP-1.2 and CHWP-1.2 are run in one common raceway without any increased wire size for derating factor.



Figure E33



Figure E34

14. Emergency power shutdown breakglass switch for outdoor chiller unit is not installed.

C. Boiler Room

1. EMT conduits with set screw connectors and couplings have been used in lieu of rigid galvanized steel conduit.



Figure E35

2. 3/4" and 1" EMT conduits have not been strapped to the Kindorf channel at multiple locations.
3. 18"L x 3"W x 3"D pullbox has not been independently supported to building structure as stated in Specification Section 16111, 3.02.20.E.1.

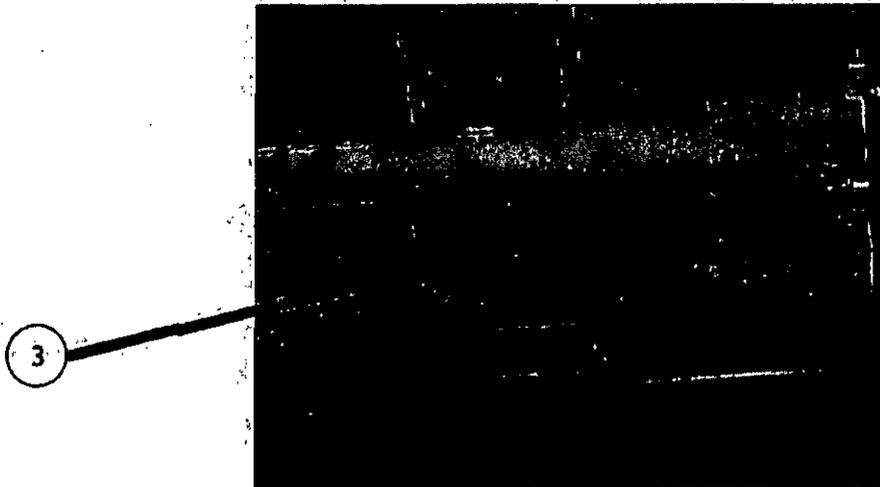


Figure E36

4. Greenfield has been used for final connection to pumps HWP-3 and 4 in lieu of sealtite flexible conduit.

Electrical Specification Section 16111.3.02.A.20.c 1 and 2 states that "for final connections to motor terminal boxes, transformers and other vibrating equipments the flexible steel conduit shall have polyvinyl sheathing "sealtite" and a ground conductor."



Figure E37

5. a. EMT and Greenfield conduits have been used in lieu of rigid galvanized steel conduit thru riser chase for second and third floor Panelboards LP-UV2 and LP-UV3 feeders.

Specification Section 16111, 3.02.A.20.a.1 states that "Rigid galvanized steel (RGS) conduit shall be used for risers and branch feeders as well as feeders in mechanical equipment spaces".

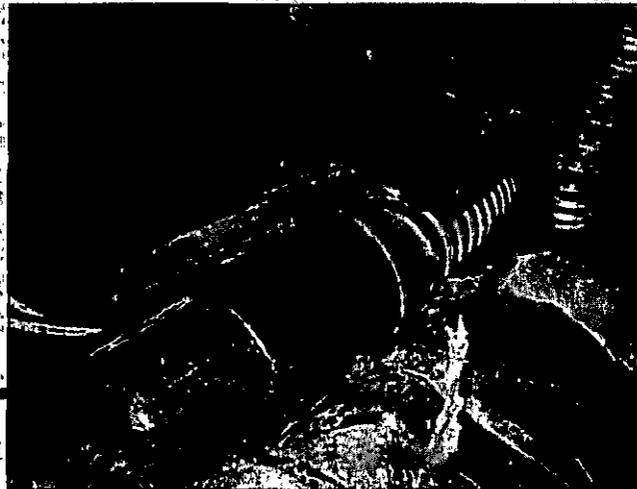


Figure E38

- b. Branch circuit wiring is run in Greenfield conduits:

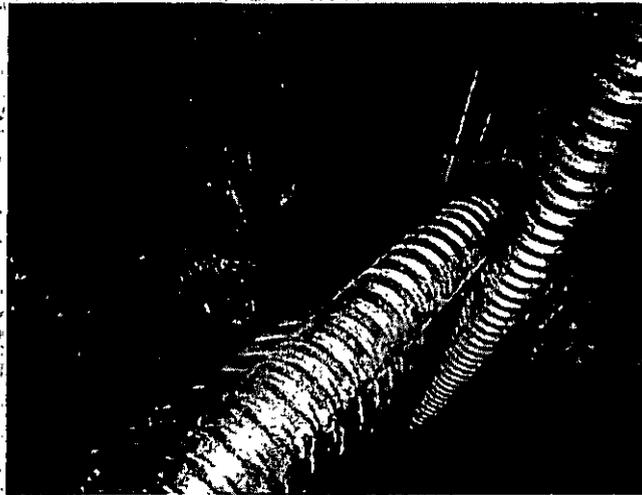


Figure E39

5b

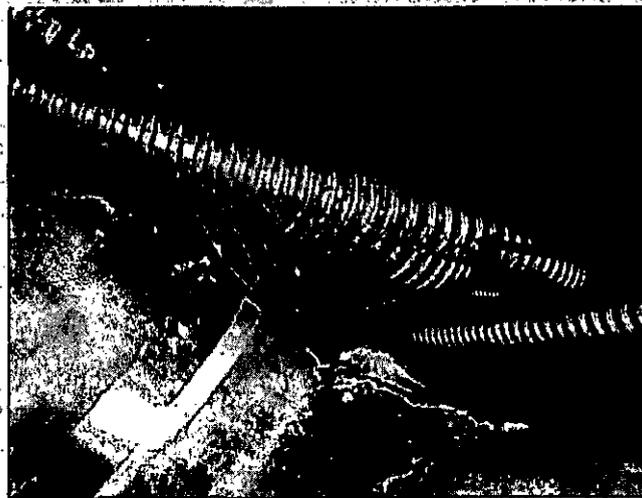


Figure E40

5b

6. a. Panelboard LP-UVI has been bought with one (1) 3 pole circuit breaker only, rather than five (5) 3 pole circuit breakers required for the field installation. For the four (4) missing 3 pole circuit breakers, 1 pole circuit breakers have been converted to 3 pole by inserting a piece of bare wire and nail. This will not only violate the UL rating of the equipment but also create a potential fire hazard situation where only one (1) of the three (3) circuit breakers may trip causing voltage unbalance known as single phasing where one phase will carry two times the current of the other two phases and eventually the motor will burn out.

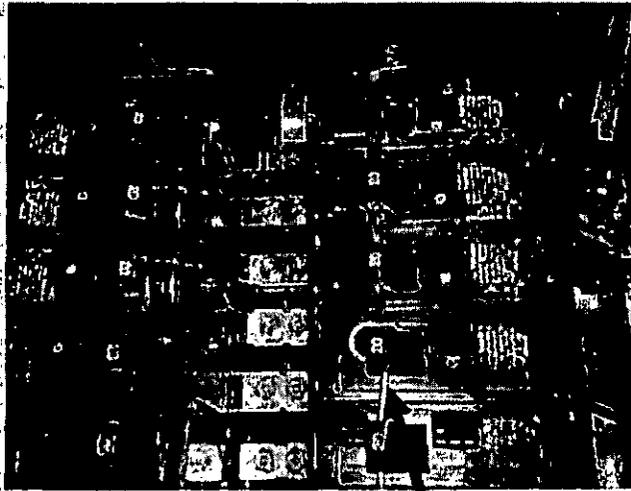


Figure E41

6a

- b. One of the circuit breaker tabs is broken due to excessive force used to drive the nail down the tab hole. This makes accidental tripping of one circuit breaker even more possible thus causing connected motor burnout.



Figure E42

- c. More than three (3) circuits are run in one (1) common raceway from Panelboard LP UV1 without proper derating factor.

6c

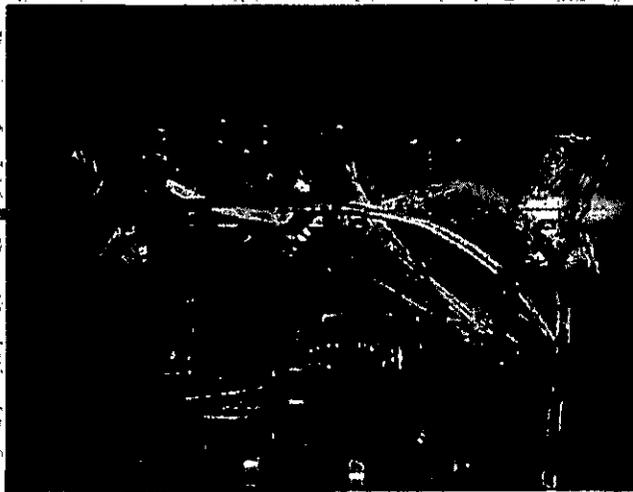


Figure E43

Electrical Specification Section 16123.3.01.B.7 and General Note No. 10 on Drawing E0.01, state that "not more than 3 lighting or convenience receptacle circuits shall be installed in one (1) conduit unless otherwise indicated on drawings."

- 7. a. Existing service CT cabinet and 1200 Amp attached service switch have not been removed.

7a



Figure 44

7a.

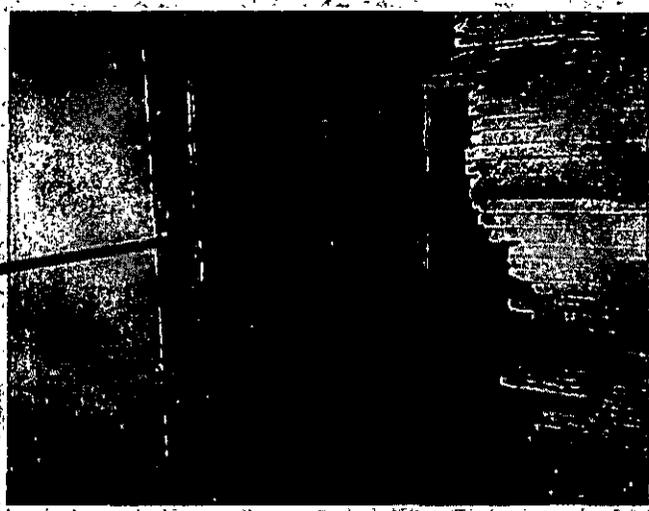


Figure E45



Figure E46

Drawings E2.01 and E6.01 single line riser diagram indicate that the CT cabinet and its service disconnect switch 1200A shall be disconnected and removed entirely with wires pulled back to the property line box located at 31st Avenue.

- b. Wiring nuts are used to splice #8 size cables or larger in the existing MDP panel slice box instead of using color-keyed compression connectors as mentioned in the Specification 16123, Section 3.01.C.2.

7b

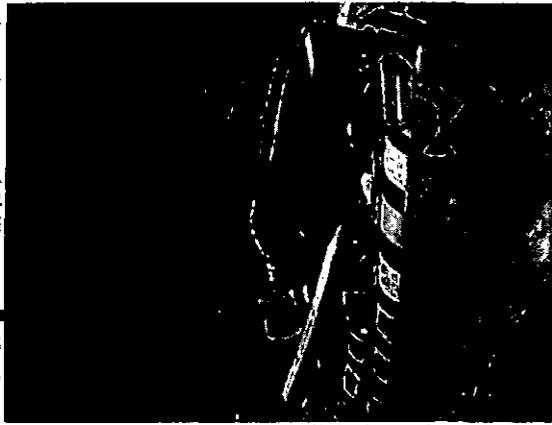


Figure E47

7b

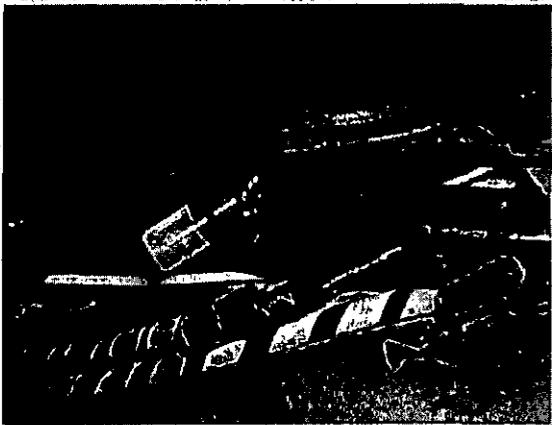


Figure E48

c. Some of the existing feeder wires are not removed from old MDP splice box.

7c

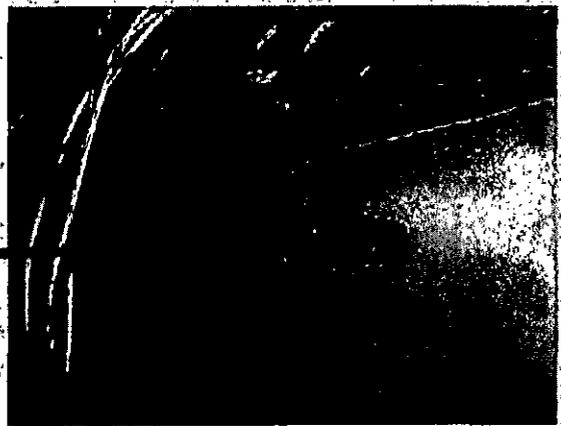


Figure E49

d. There are three (3) open knockouts in existing MDP panel presently used as splice box

7d

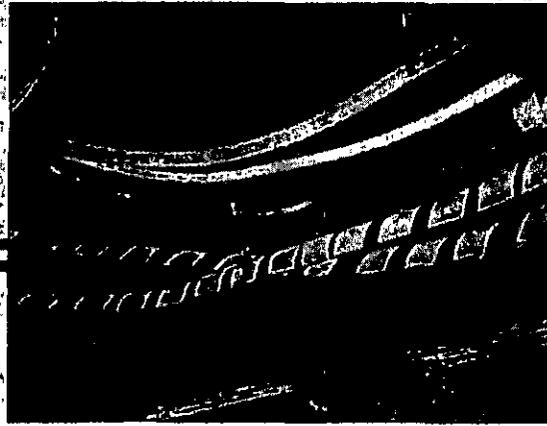


Figure E50

8. Greenfield has been used in lieu of rigid metallic conduit (through slab opening for unit ventilator power). This conduit is very close to steam pipes which may result in conduit damage. The opening is not patched and firestopped.

General Note No. 8 on Drawing E0.01 states that "no electrical conduit shall be installed within 3" space of steam or hot water pipes".

8

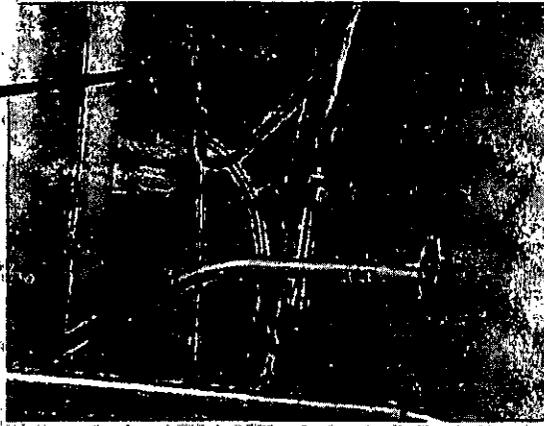


Figure E51

9. Greenfield conduits are run exposed along the side of steam pipes for power wiring.

9



Figure E52

10. Conduits passing from new building to old building shall use conduit expansion fittings at the building joints. However, expansion fittings have not been installed for all conduit crossing.

D. First Floor Corridor

1. Lighting fixtures Type 'FA' in the corridor do not match with the shop drawings submitted.
- a. Shop drawings indicate white acrylic overlay on the back of louvers to control the lamp glare. Contractor has used a plastic overlay material which is banned in New York City for the last many years. This plastic material also obstructs the light and has started burning at many places.

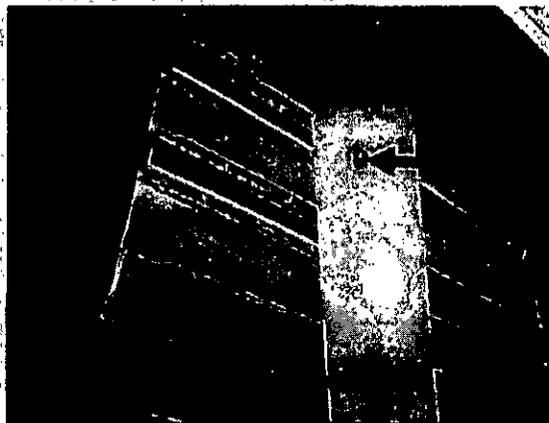


Figure E53

- b. Additionally, when the fixture cover is closed, the cover hits the T5 lamp on one side causing one of the three lamps to break. We were advised that the Contractor shall cut the part of the metal cover in the field to ensure that the cover will close properly. However, in our opinion, this will violate the UL Listing of the fixtures and we recommend that this should be done by the fixture manufacturers at the factory rather than the Contractor doing it in the field.



Figure E54

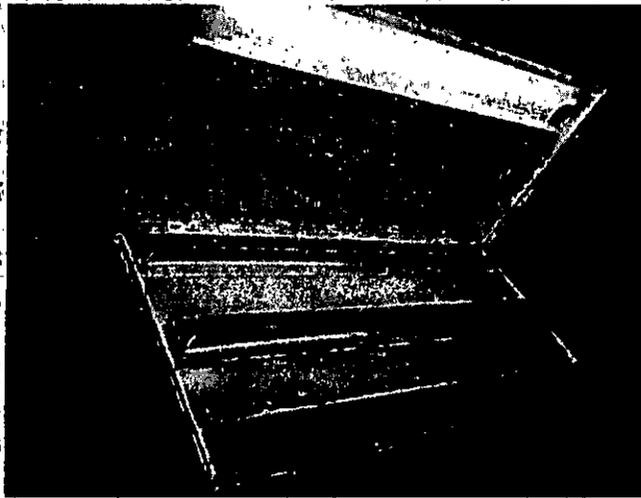


Figure E55

2. a. Greenfields have been used to carry branch circuits from a common pullbox in the hung ceiling to various loads.
- b. Pullbox located above the hung ceiling of the corridor outside the Custodian's Office has its cover missing, exposing live wires for possible damage.

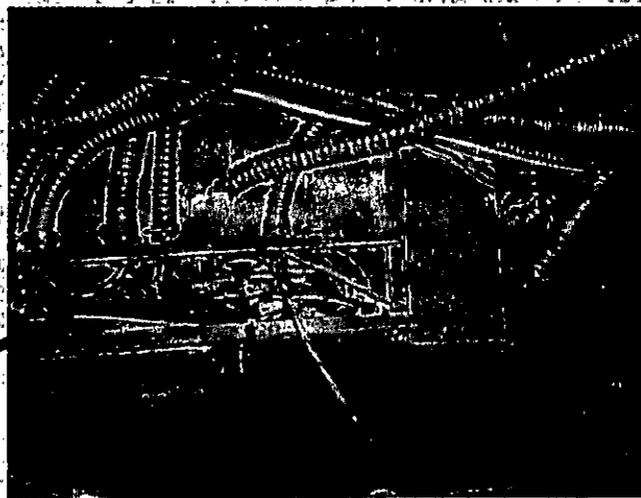


Figure E56

Specification Section 16111, 3.02:A.20.b.1 states that "EMT shall be used for branch circuit wiring installed in dry locations (hung ceilings, hollow block wall and furred spaces).

3. Fire alarm cables in the hung ceiling are run exposed without any conduit protection.

3

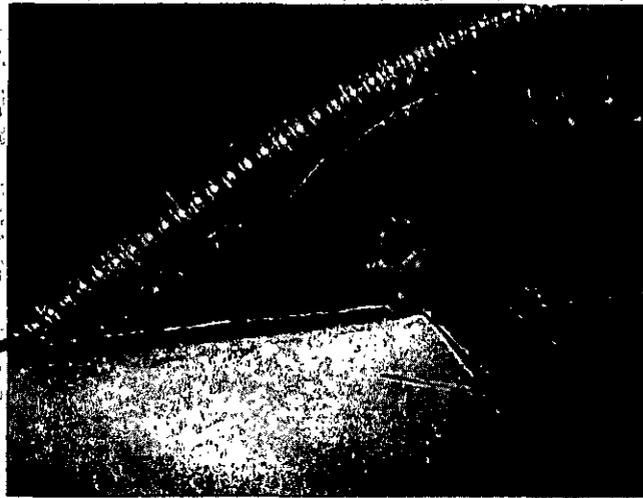


Figure E57

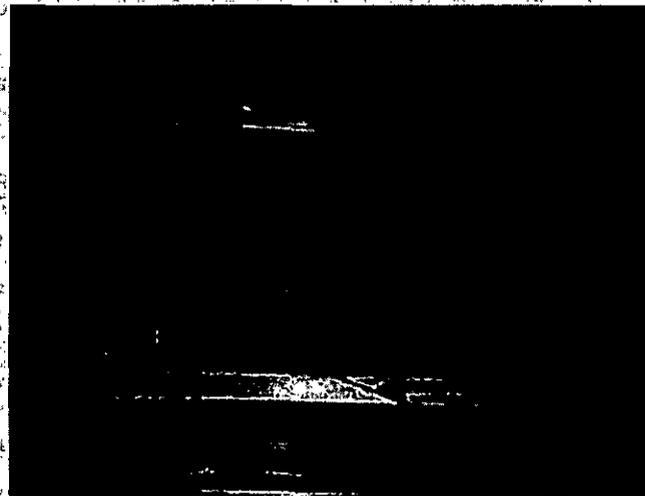


Figure E58

3

Specification Section 16111, 3.02.A.20.b.2 states that "EMT shall be used for low voltage system wiring including fire alarm wiring in dry locations (hung ceiling, hollow block walls, riser shafts and furred spaces).

4. Greenfield is run exposed in the ceiling of Custodian's Office.



Figure E59

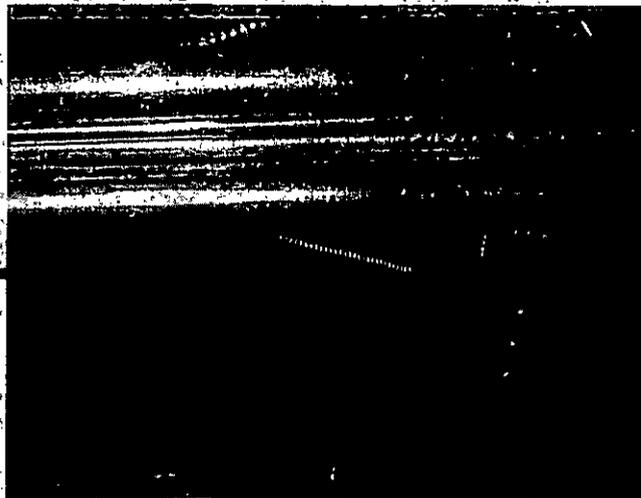


Figure E60

Specification Section 16111, 3.02.A.20.c.1 states that "Greenfield flexible conduit shall be used for short connection to light fixtures and vibrating equipment in dry locations" only.

E. Kitchen/Cafeteria

1. a. Power feed to two (2) Second Floor unit ventilators in the Classrooms are run in exposed Greenfield conduit rather than rigid conduit at Kitchen ceiling. Exposed Greenfield conduit wrapped around steam pipes and passing through same ceiling opening may damage conduit in the long run.

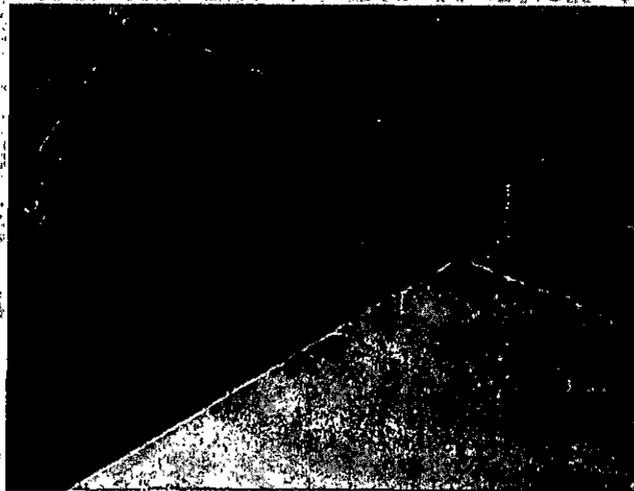


Figure E61

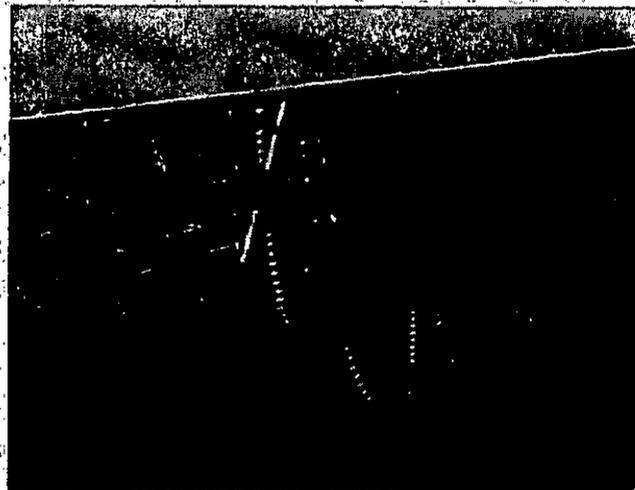


Figure E62

- b. Conduit and steam pipes opening at Kitchen ceiling to Second Floor unit ventilators in the Classroom is not patched and firestopped at two locations.
2. Receptacle at Cafeteria exit door has not been replaced with new and the broken receptacle has exposed live part which is potentially dangerous to the students.

2

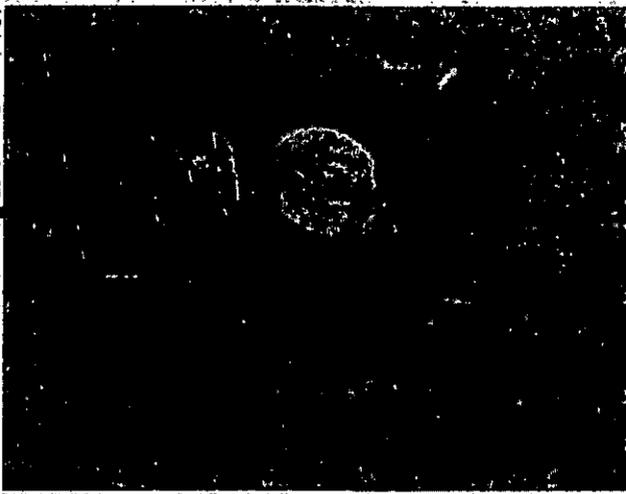


Figure E63

3.
 - a. Switch control for kitchen exhaust fan KX-1 on the roof is not functioning and it appears that the switch is not connected to the fan.
 - b. The switch provided is a weatherproof switch usually used for outdoor environment.
 - c. Raceway used for wiring method is Greenfield and Sealtite conduit in lieu of rigid metallic conduit.

3c

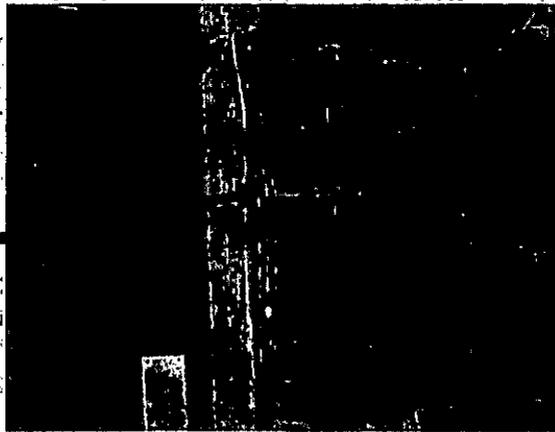


Figure E64



3a, b

Figure E65

4. Ten (10) unit ventilators in the Cafeteria are not installed.

F: Unit Ventilators in Classrooms and Offices

1. All power wiring for unit ventilators are run in flexible metal conduits (Greenfields) in lieu of electric metallic tubing (EMT) as per Specification Section 16111.3:02.A.20.b.
2. Conduit penetration through floor slab does not go through conduit sleeve.
3. Power conduits have not been terminated on the motor termination box leaving a length of power wiring exposed.

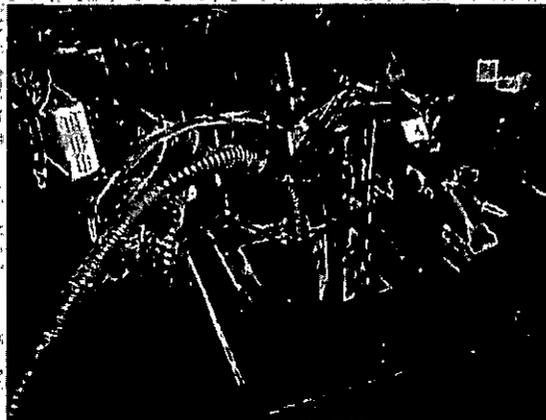


Figure E66

G. Multi-purpose Gymnasium Room

1. Old fire alarm pull station and its wiring are not removed after installation of new pull station.

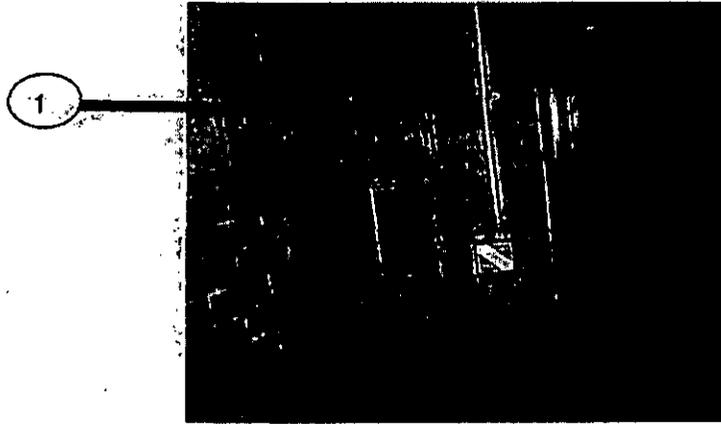


Figure E67

2. Fire alarm duct smoke detector wiring is run in exposed Greenfield conduit in lieu of rigid galvanized steel conduit.

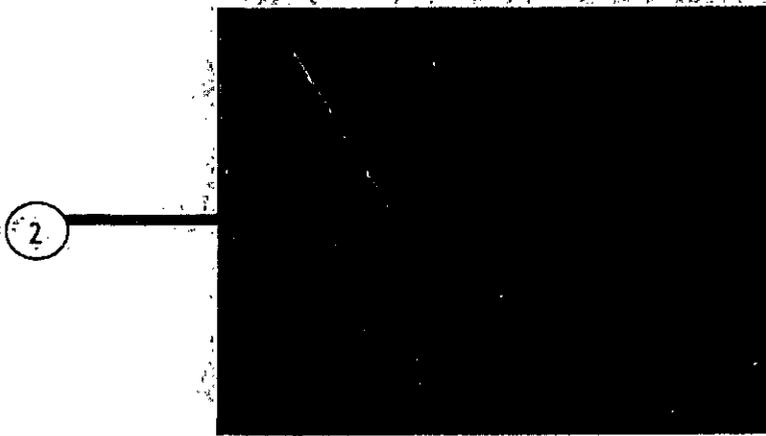


Figure E68

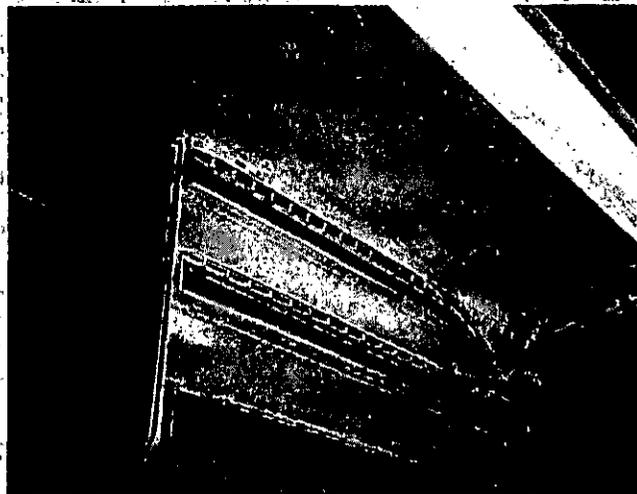
ii: Second Floor

Second Floor consists of Classrooms and Offices. The Scope of Work was to provide power to unit ventilators, receptacles, lighting fixtures in corridor and provide fire alarm devices.

During our field survey of the electrical system, the following electrical deficiencies were observed:

A. Corridor

1. Lighting fixtures type 'FA' in the corridor do not match with the shop drawings submittal.
 - a. Shop drawings indicate white acrylic overlay on the back of louvers to control the lamp glare. Contractor has used a plastic overlay material which is banned in New York City for the last many years. This plastic material also obstructs the light and has started burning at many places.
 - b. Additionally, when the fixture cover is closed, the cover hits the T5 lamp on one side, causing one of the three lamps to break. We were advised that the Contractor shall cut the part of the metal cover in the field to ensure that the cover will close properly. However, in our opinion, this will violate the UL Listing of the fixtures and we recommend that this should be done by the fixture manufacturers at the factory rather than the Contractor doing it in the field.



2a, b

Figure E69

2. Greenfields have been used to run branch circuit wiring from panelboards to various electrical loads.



Figure E70

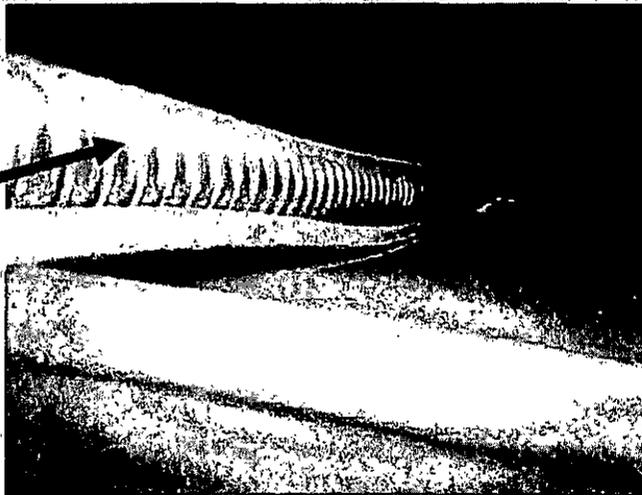


Figure E71

3. Fire alarm cables in the hung ceiling are run exposed without any conduit protection.

Note No. 6 on Drawing E6.02 states that "all fire alarm cables shall be run in rigid galvanized steel conduit".

4. Panel LP-UV2 directory is not up-to-date and does not agree with the loads connected to it.

5. Busbar for Panel LP-UV2 are rated for 100 Amp only. The overcurrent protection at distribution board DB-AC feeding LP-UV2 is 200 Amp. There is a 100 Amp main circuit breaker at Panel LP-UV2 but the feeder

to this panel is terminated at the main lugs rather than being terminated at the main breaker, thus making 100 Amp bus panel protected by a 200 Amp overcurrent protection from the Electrical Service Room panel. This clearly violates the electrical codes and makes this installation dangerous for a fire hazard.

5



Figure E72

5

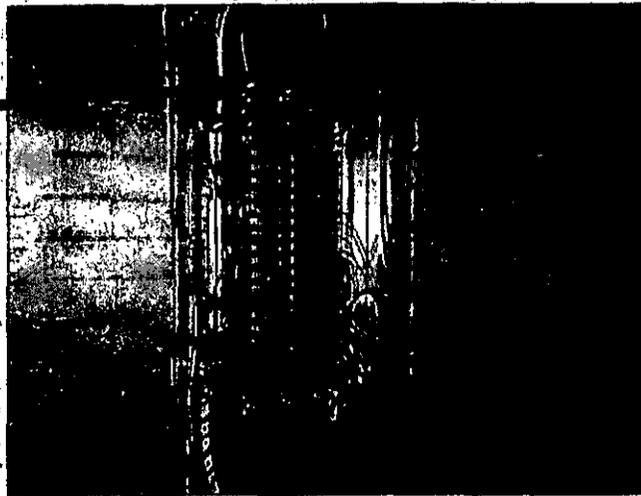


Figure E73

5

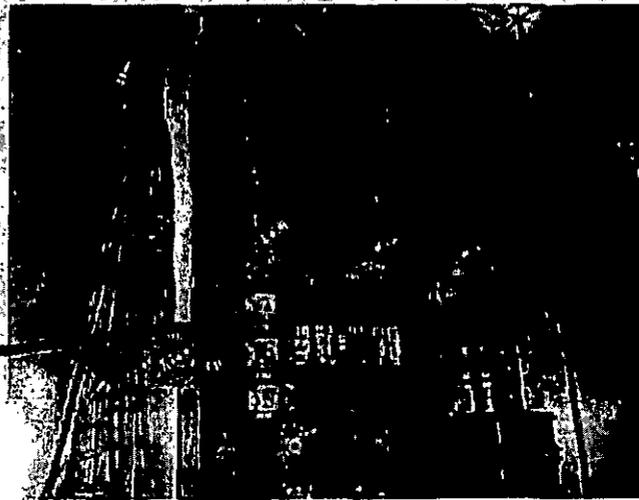


Figure E74

6. Multiple branch circuit conductors are run in one conduit without application of proper derating factor. This could cause overheating of the conductors inside the conduit and eventually damage the wire insulation.

6



Figure E75

Electrical Specification Section 16123.3.01.B.7 and General Note No. 10 on Drawing E0.01 state that "not more than 3 lighting or convenience receptacle circuits shall be installed in one (1) conduit unless otherwise indicated on drawings."

B. Classroom No. 202

1. Wiremold box leading to roof receptacle is open exposing wires and drag line for possible damage.



Figure E76

2. Wiremold connector cover is missing, exposing wires for possible damage.

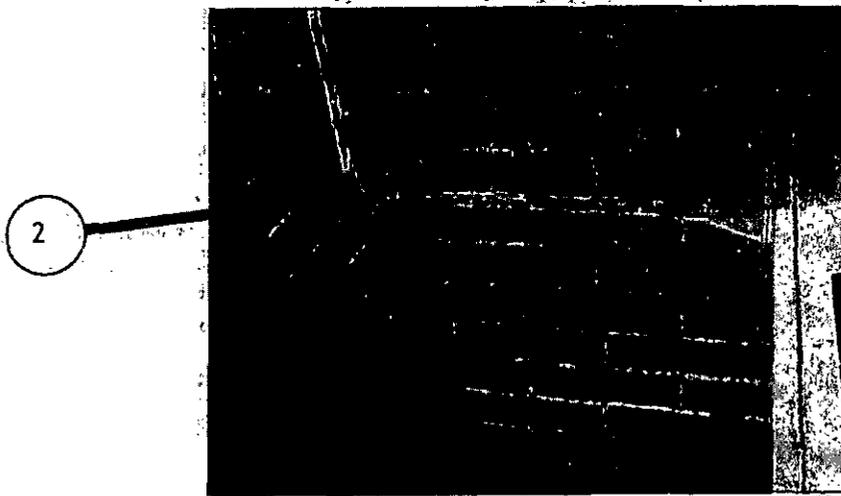


Figure E77

3. Roof receptacle circuit pass through unit ventilator raceway and roof receptacle may not be on a separate circuit.



Figure E78

C. Classroom No. 204

1. Duct smoke detector and fire smoke damper are not installed.
2. Power wiring inside the shaft junction box is exposed without box cover.

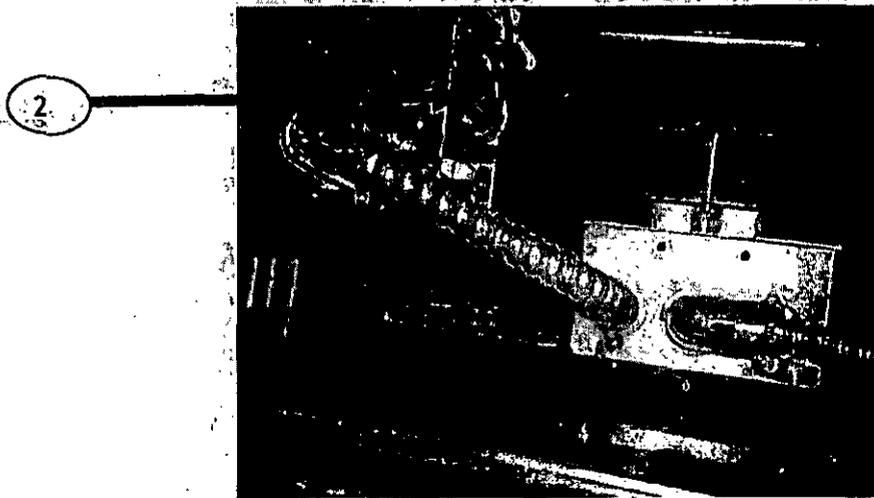


Figure E79



Figure E80



Figure E81

3. Wall opening for fire smoke damper and duct detector access is not covered with access door.

4. 'BX' wiring is run inside the duct shaft.

D. Classroom No. 205

1. Wiremold L fitting has its cover missing, exposing live wires for possible physical damage.

E. Library Room No. 218

1. After unit ventilation's installation, the existing wire mold has not been repaired properly exposing power wires to outside at multiple locations.

Notes Nos. 13 and 14 on Electrical Drawing E2.02 state that new flat type cover mold shall be installed to reroute the new wiring. This work has not been completed yet and there is exposed wiring at multiple locations:

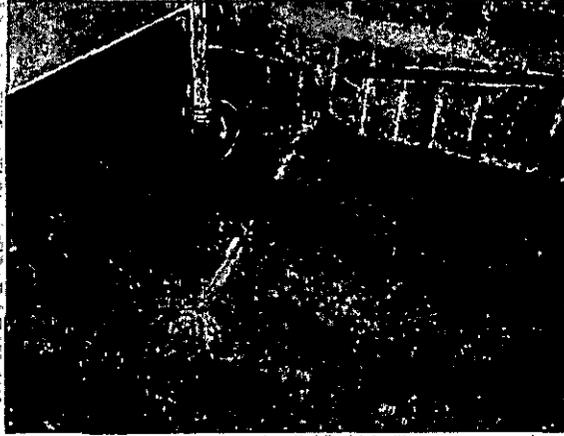


Figure E82

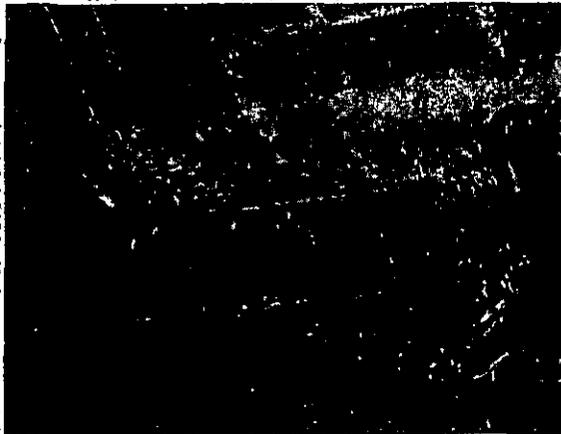


Figure E83

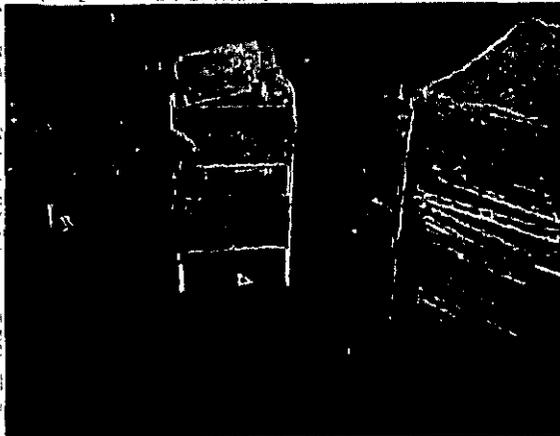


Figure E84

1

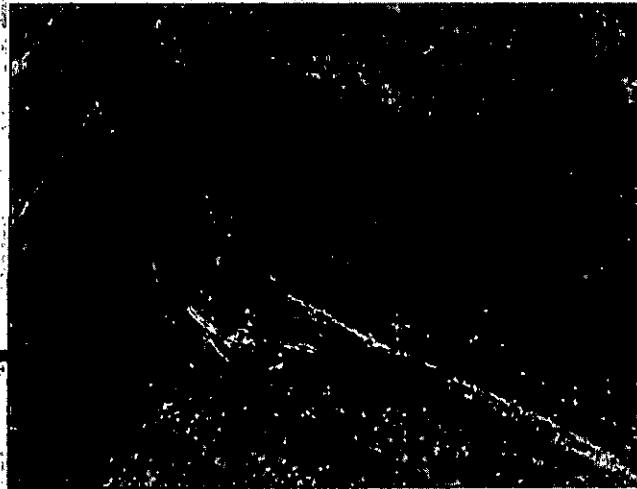


Figure E85

2. 220V outlet junction box near cast unit ventilator is not independently supported to the wall. Thus, the box and the outlet can rotate 360°, which can cause the wiring contacts to be loose and create a condition for ground fault.

2



Figure E86

3. Two (2) feet of power wiring running to a junction box is exposed without any wire mold or raceway protection.

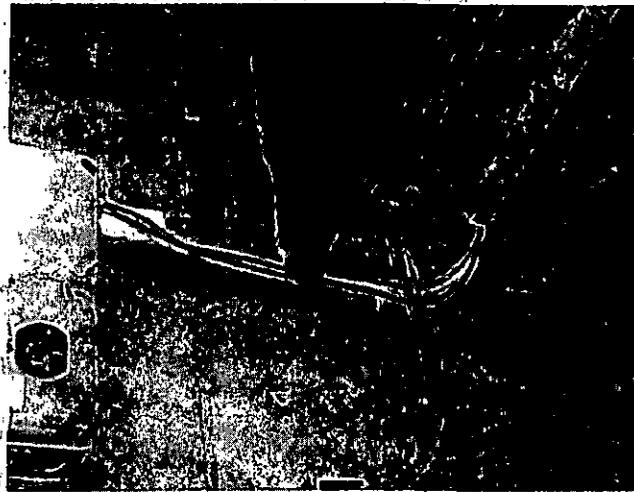


Figure E87

4. Wiremold connector is missing exposing live power wires for possible damage.

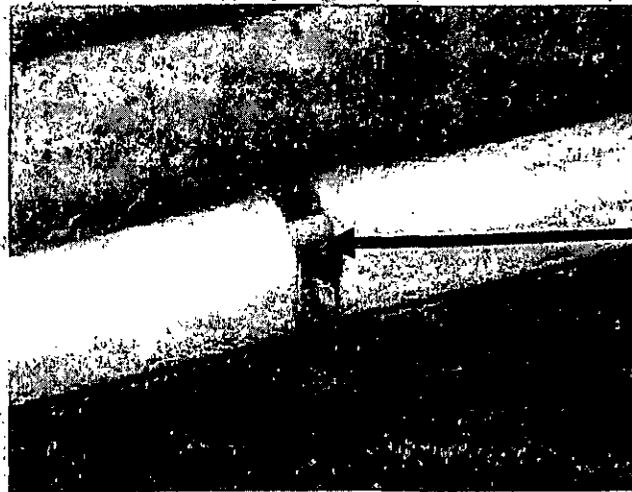


Figure E88

F. Finance Room No. 223

1. Two (2) new duplex outlets are not installed after unit ventilator completion.

Note No. 4 on Drawing E2.02 states that new outlets shall be installed with wiring and raceway extended over to the new location.

2. TEL/LAN wiring extension to new location is not provided.

G. Principal's Office Room No. 225

1. Unit ventilator's power wiring is run in Greenfield conduit and it is not connected to the motor terminal box. Thus, power wiring is exposed and wire nut splice is made outside the junction box.

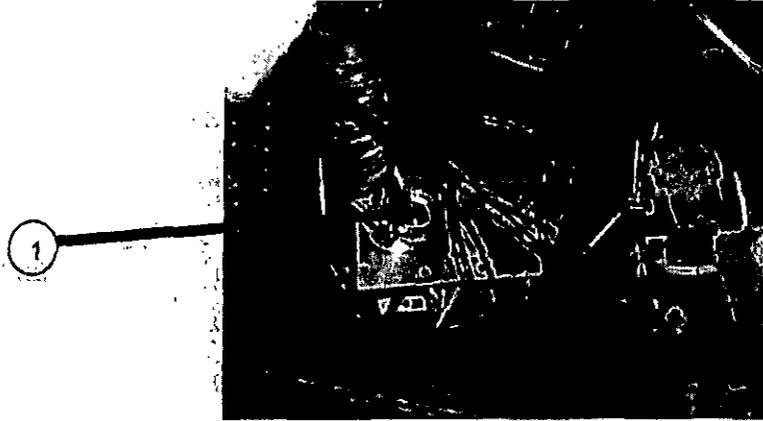


Figure E89

2. Gypsum board wall and ceiling are not repaired near duct opening and armored cable 'BX' is run exposed at the ceiling.

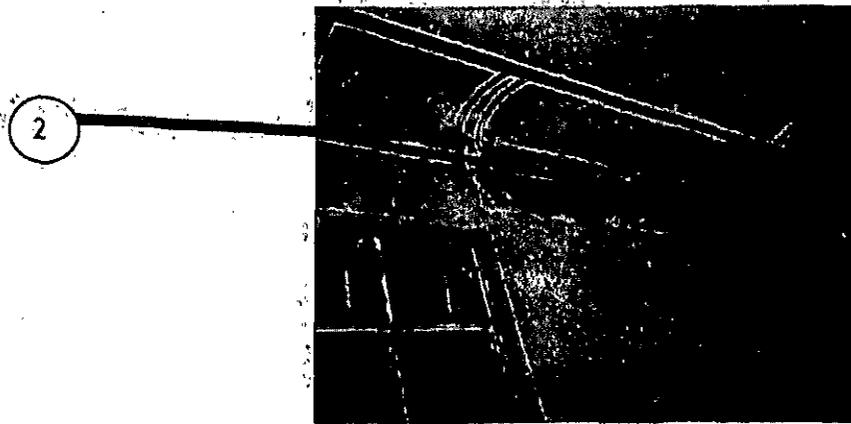


Figure E90

H. Unit Ventilators in All Classrooms and Office

1. All power wiring for unit ventilators are run in flexible metal conduits (Greenfields) in lieu of electric metallic tubing (EMT) as per Specification Section 16111.3.02.A.20.b.
2. Conduit penetration through floor slab does not go through conduit sleeve.

3. Power conduits have not been terminated on the motor termination box leaving a length of power wiring exposed.

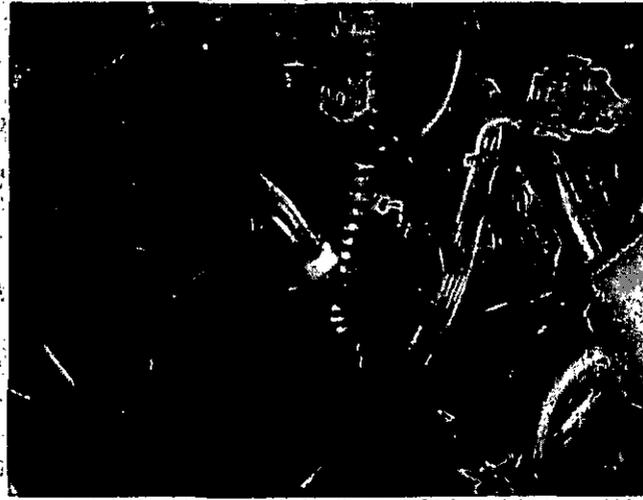


Figure E91

III. Third Floor

Third Floor Scope of Work was to furnish and install power to unit ventilators, receptacles, lighting fixtures in corridor, fire alarm duct smoke detectors and fire smoke dampers. Starters for roof exhaust fans are also located on the third floor.

In our field observation, the following deficiencies were noted:

A. Corridor

1. Lighting fixtures Type 'FA' in the corridor do not match with the shop drawings submitted.
 - a. Shop drawings indicate white acrylic overlay on the back of louvers to control the lamp glare. Contractor has used a plastic overlay material which is banned in New York City for the last many years. This plastic material also obstructs the light and has started burning at many places.
 - b. Additionally, when the fixture cover is closed, the cover hits the T5 lamp on one side, causing one of the three lamps to break. We were advised that the Contractor shall cut the part of the metal cover in the field to ensure that the cover will close properly. However, in our opinion, this will violate the UL Listing of the fixtures and we recommend that this should be done by the fixture manufacturers at the factory rather than the Contractor doing it in the field.

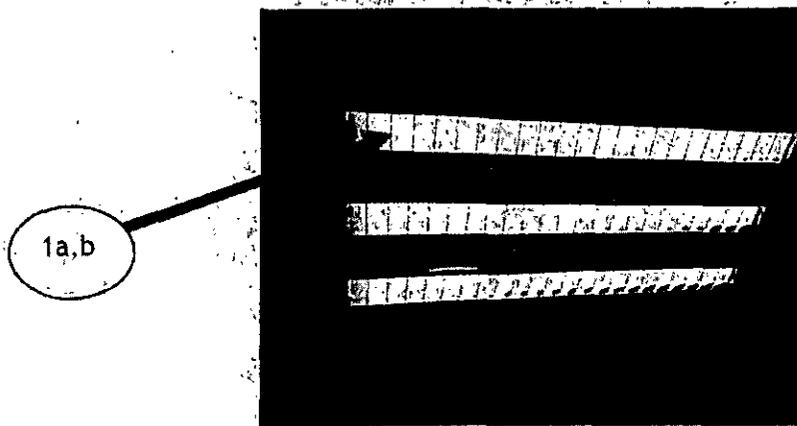


Figure E92

2. a. Greenfields have been used to run branch circuit wiring from panelboards to various electrical loads.

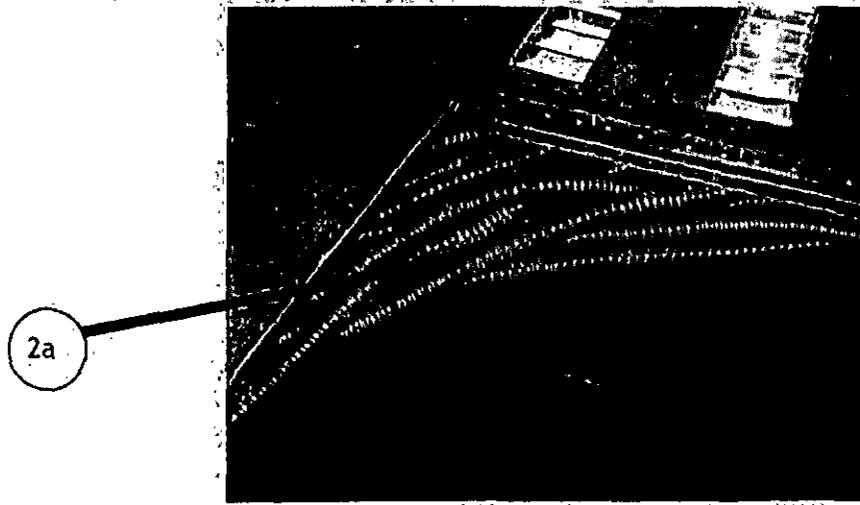


Figure E93

- b. Junction box is not independently supported to the building structure and does not have open knock-out sealed.

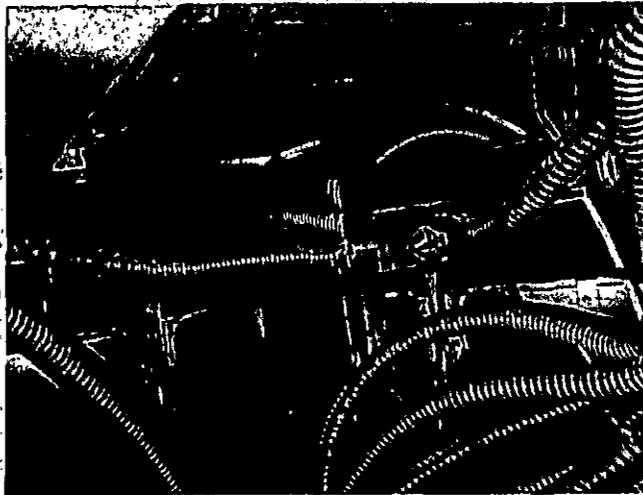


Figure E94

3. Fire alarm cables in the hung ceiling are run exposed without any conduit protection.

Note No. 6 on Drawing E6.02 states that "all fire alarm cables shall be run in rigid galvanized steel conduit".

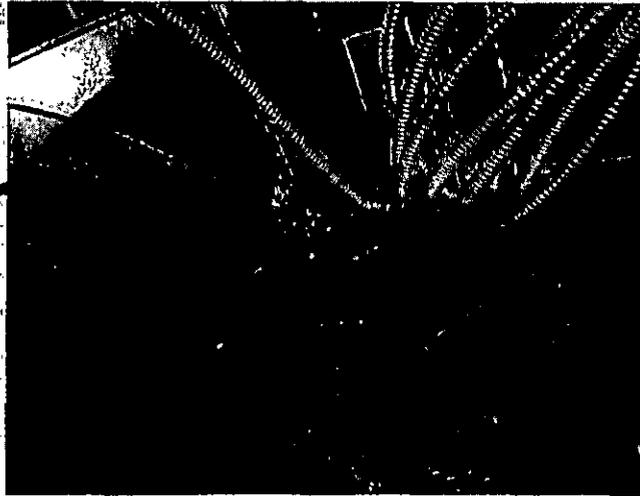


Figure E95

4.
 - a. Exposed power wires are run concealed in the hung ceiling outside Classroom No. 301.
 - b. For the sake of re-using existing junction box and wiring, the Contractor has made wiring splice outside the box in the open air.
 - c. The grounding cable is stretched to the extent that it may break anytime due to excessive stretching and become loose, making this an ungrounded system.

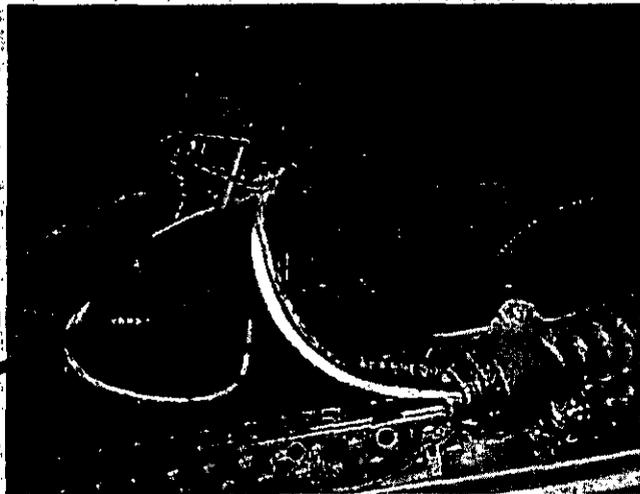


Figure E96

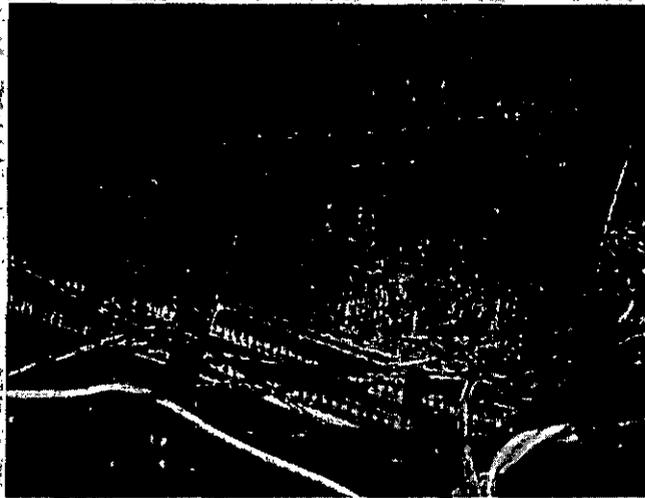
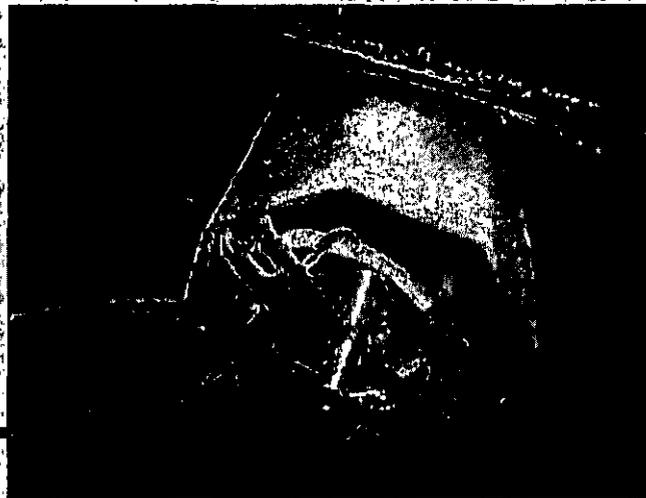


Figure E97

4a, b



4c

Figure E98

This is clearly a violation of Electrical Code and must be corrected immediately to avoid any personnel electrocution due to ungrounded system.

5. Power conduit openings to GX-1 unit on the roof are not patched and firestopped. Conduits are run without using any conduit sleeves.

5

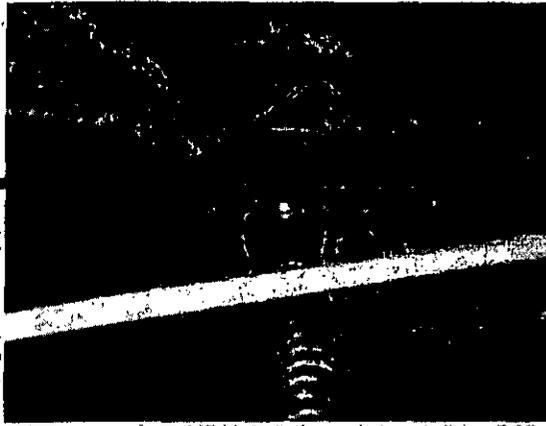


Figure E99

5

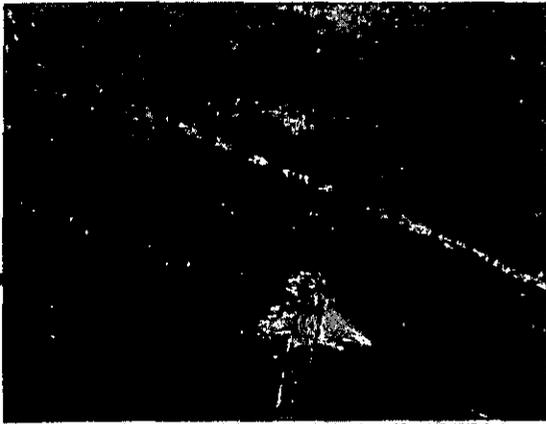


Figure E100

B. Room 302

1. Fire smoke damper and duct detector are not installed. Only fire alarm cable is pulled through junction box with missing cover.

1

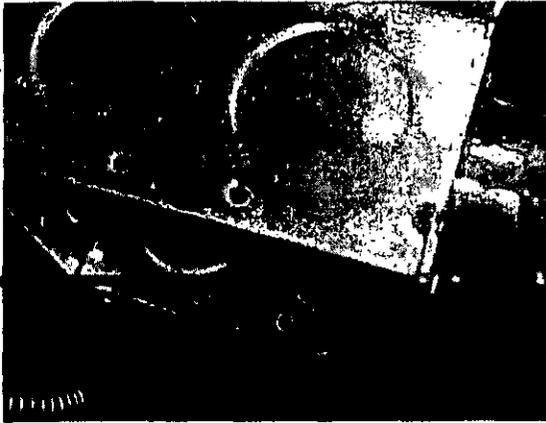


Figure E101

2. Opening in the wall and duct access have not been covered.

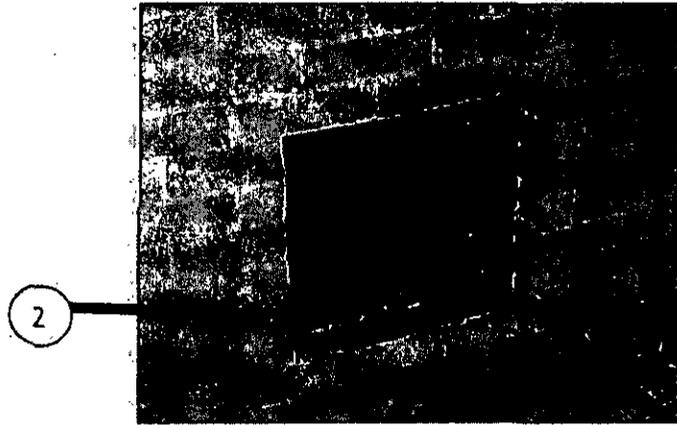


Figure E102

3. Gypsum board ceiling near duct riser shaft has not been repaired.

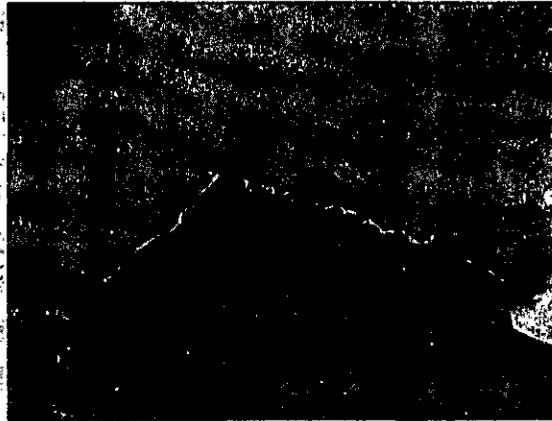


Figure E103

C. Computer Class Room No. 311

1. Two (2) of the four (4) receptacles are not installed.
2. Two (2) receptacles installed had cover missing.

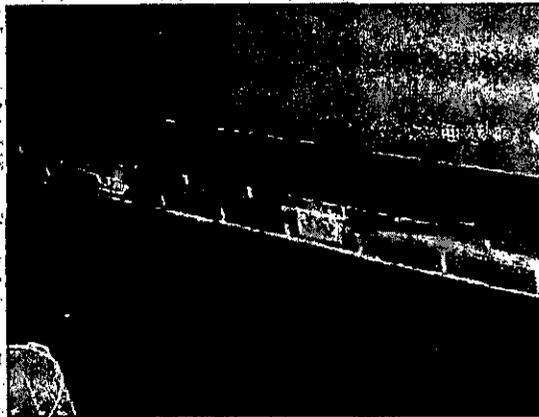


Figure E104

D. Physical Lab Room No. 317

1. Fire alarm cables are run exposed in the riser shaft.
2. Pull box carrying fire alarm cable is not covered.

1

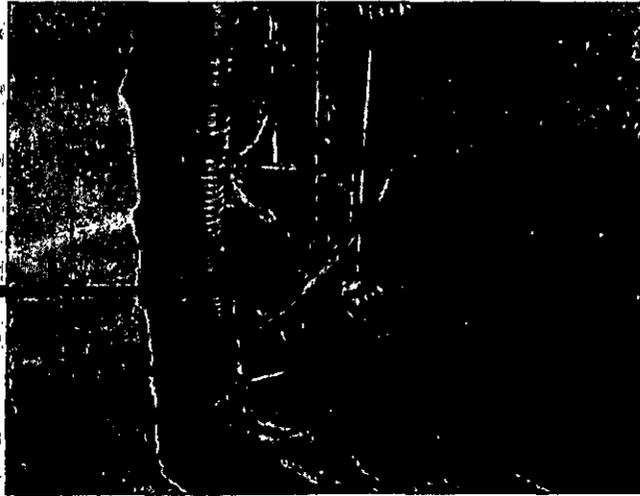


Figure E105

2

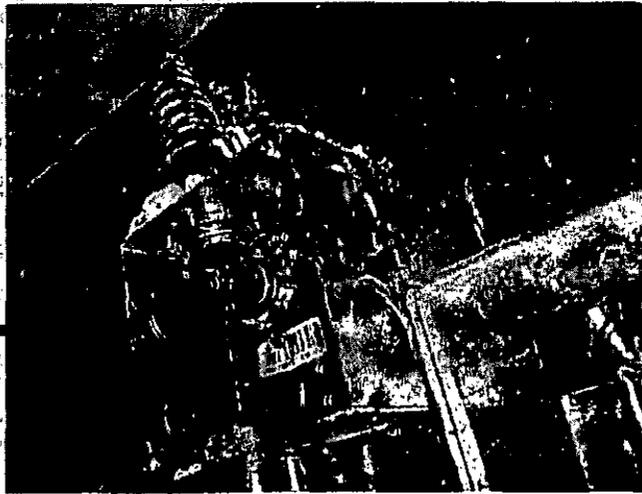


Figure E106

3. Fire smoke damper and duct detector are not installed. Only fire alarm cable is pulled through junction box with missing cover.
4. Opening in the wall and duct access have not been covered.

E. Storage Room No. 318

1. This chemical storage closet space has been used to house motor controllers for various exhaust fans.

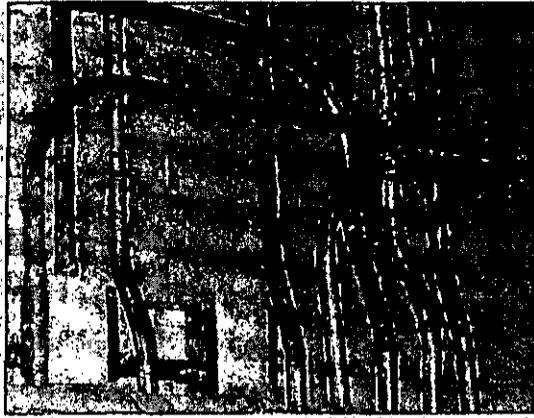


Figure E107

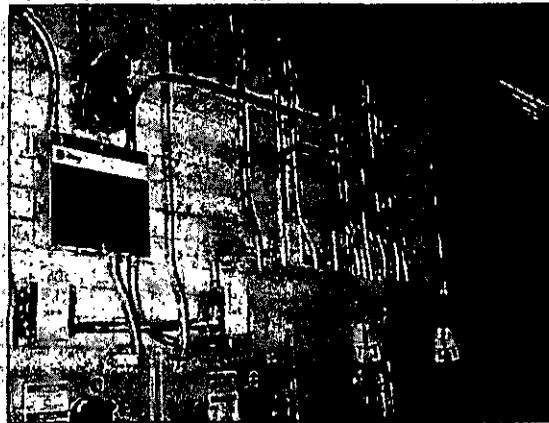


Figure E108

2. Conduit penetration through wall is not patched and firestopped.



Figure E109

2

3. Conduit openings at ceiling and wall are not patched and firestopped.

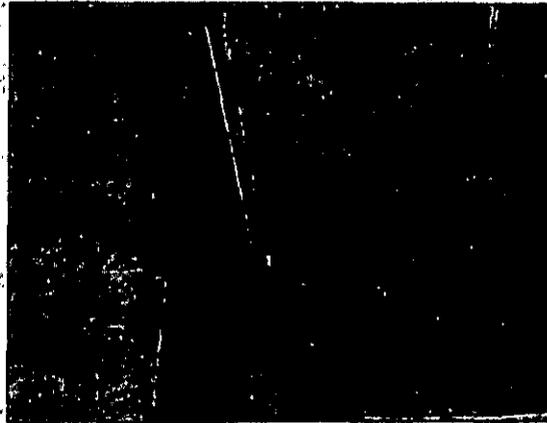


Figure E110



Figure E111

4. Branch circuit wires to starters for five (5) exhaust fans are run through one (1) common raceway without proper derating factor application and the wire size has not been upsized to offset the heating effect.

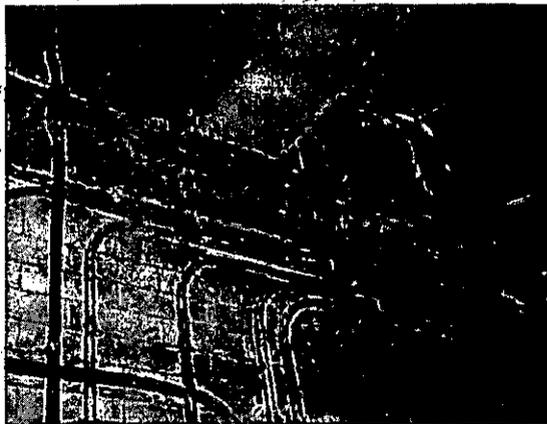


Figure E112

F. Chemistry Laboratory Room No. 319

1. Receptacle on west wall is not installed.
2. a. Exhaust fan located on the west wall of the Lab is not running, and it appears that the fan motor is burnt out. Extension cord is used to provide power to exhaust fan and armored cable 'BX' is exposed at the back of the fan enclosure.

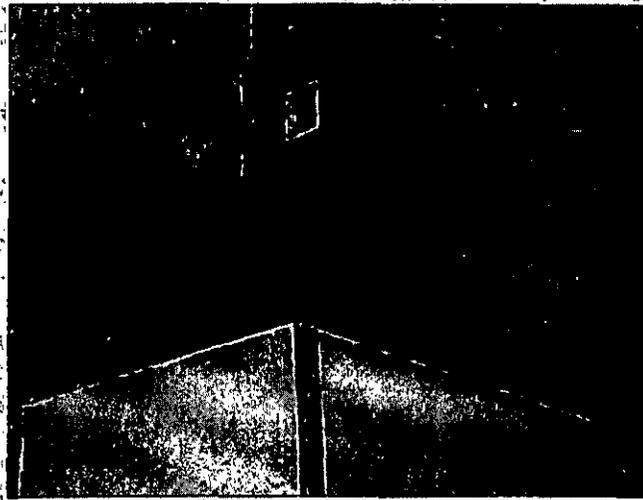


Figure E113

- b. Junction box connecting BX to exposed extension cord is not supported to any structure. This is causing strain on the extension cord and its connection to the fan motor.

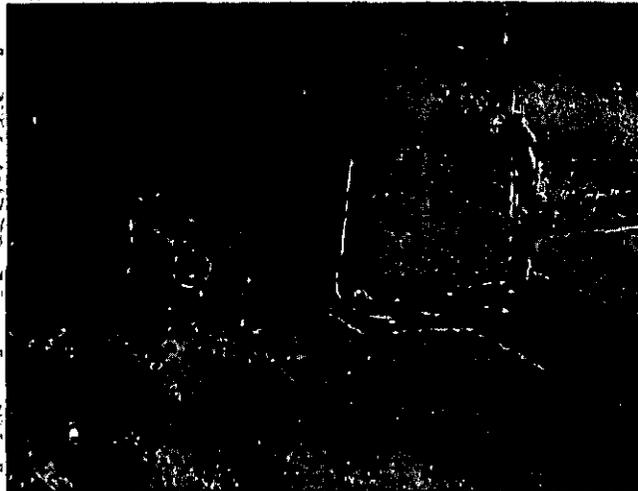


Figure E114



Figure E115

- c. Local thermal disconnect switch for exhaust fan motor has not been provided at the fan motor.
- 3. a. Power feeder inside the unit ventilation is run in Greenfield conduit in lieu of sealtite flexible conduit and presence of moisture inside the unit may cause the conduit to deteriorate.
- b. Greenfield does not have any connector at the end for termination on the junction box. Since the wires are partially exposed, against the rough edges of the conduit, the insulation could get damaged and cause a short circuit condition.



Figure E116

4. Conduit opening to the roof for exhaust fan LE-1 is not patched and firestopped.

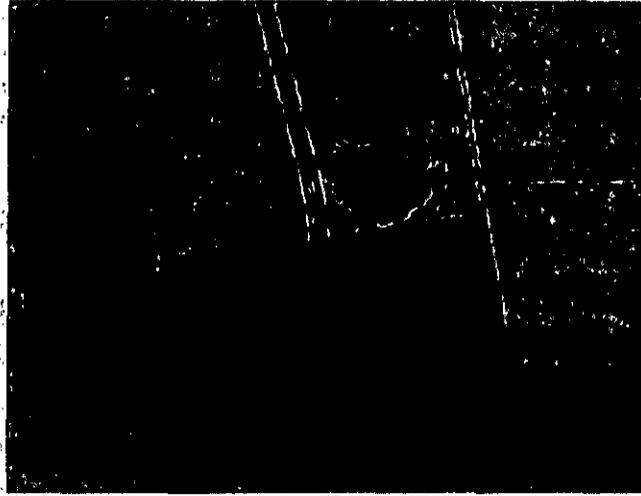


Figure E117

5. Receptacle on the west wall is not installed as called for in Note No. 4 of Drawing E2.02.

G. Unit Ventilators in Classrooms and Offices

1. All power wiring for unit ventilators are run in flexible metal conduits (Greenfields) in lieu of electric metallic tubing (EMT), as per Specification Section 16111.3.02.A.20.b.
2. Conduit penetration through floor slab does not go through conduit sleeve.
3. Power conduits have not been terminated on the motor termination box leaving a length of power wiring exposed.



Figure E118

IV. Roof Above Third Floor

A. Exhaust Fan GX-1

1. Feeder length for exhaust fan GX-1 is approximately 375' from Panel LP-UV3, via GX-1 starter located on third floor to GX-1 unit located on the roof. This would cause a voltage drop of 5.6% for a 208 volt branch circuit run, which is not acceptable by Code.
2. Two (2) disconnect switches have been used to shut down one motor in lieu of using one (1) 6 pole switch for six (6) phase legs from Star-Delta starter. This violates the Electrical Code.
3. Local disconnect switch at the unit is not labeled.

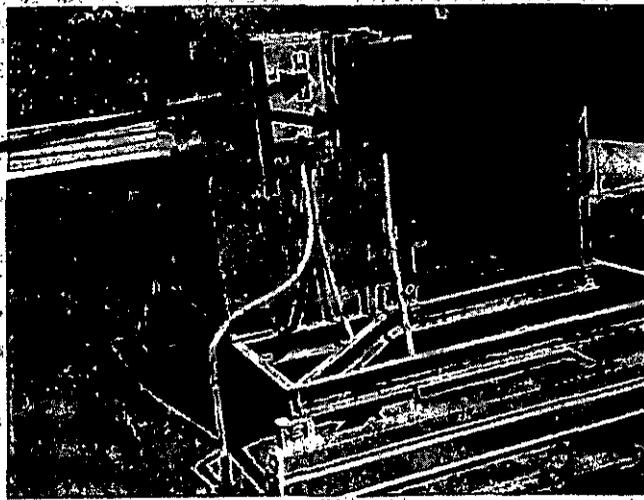


Figure E119

B. Fan GX-2

1. 3/4" RGS conduit run to the equipment has been secured using black electrical plastic tape and loose wires. This causes the rigid conduit to vibrate along with the flexible sealite conduits.

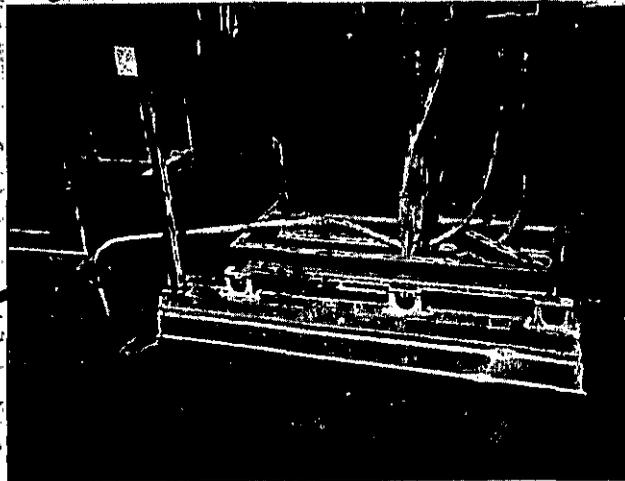


Figure E120

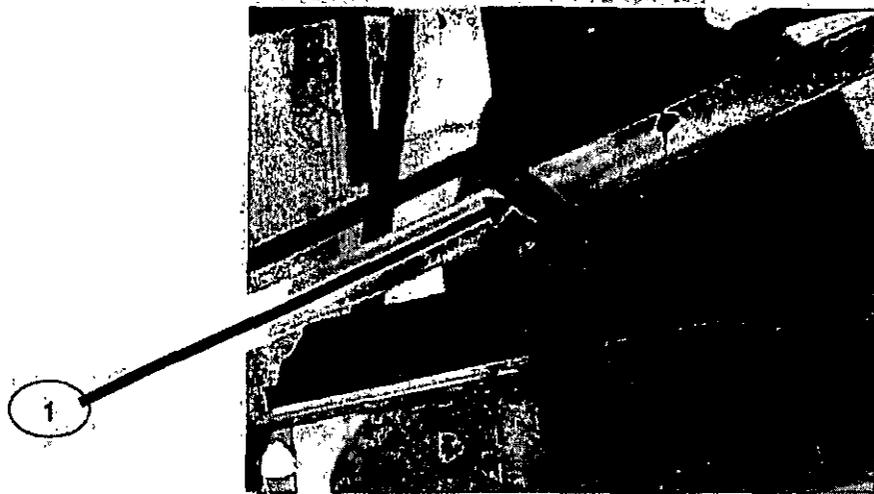


Figure E121

2. Two (2) disconnect switches have been used to shut down one motor in lieu of using one (1) 6 pole switch for six (6) phase legs from Star-Delta starter. This violates the Electrical Code.

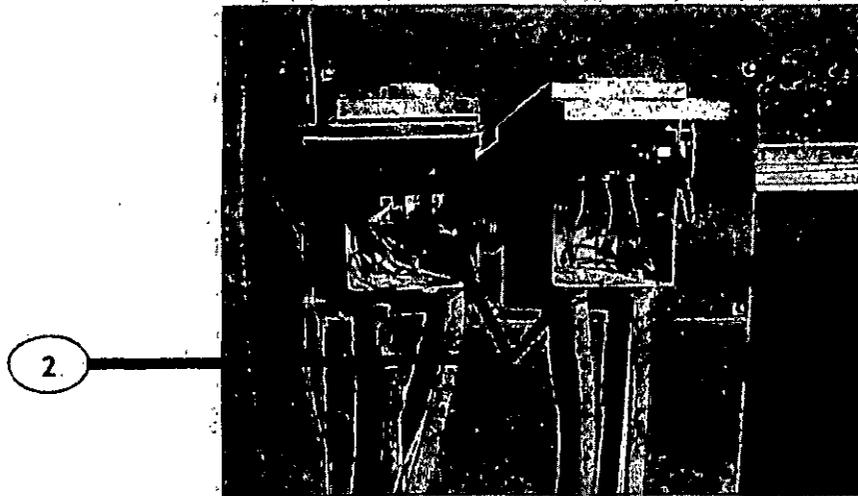


Figure E122

3. Local disconnect switch at the unit is not labeled.

Electrical Specification Section 16440-3.02:E states "Provide nameplate on switch indicating equipment served."

3

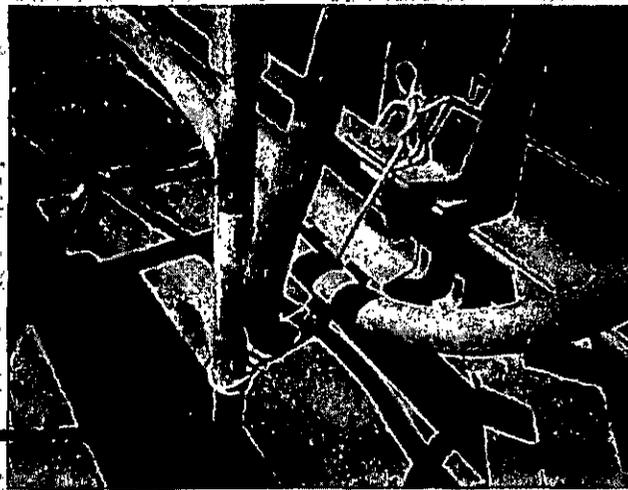


Figure E123

- 4. Ground wire is not bonded to the disconnect switch enclosure.



Figure E124

- 5. Conduit bushing inside the disconnect switch enclosure is not installed, making the wires more prone to insulation damage.

National Electric Code (NEC) Section 430.13 states that "where wires pass through an opening in an enclosure, conduit box, or barrier, a bushing shall be used to protect the conductors from the edges of openings having sharp edges".

- 6. Two (2) sets of 3 phase wires from starter to two-speed motor are not the same size. One set is 3#8 and the other is 3#10, which would cause different voltage drops at different speeds.

7. Stranded cables have been used in lieu of solid cables for #10 size and smaller as mentioned in the Specification 16123 Section 2.01.A.2.

C. KX-1

1. $\frac{3}{4}$ " rigid conduit run on the roof is not secured at all to the structure, causing it to vibrate free in the air.

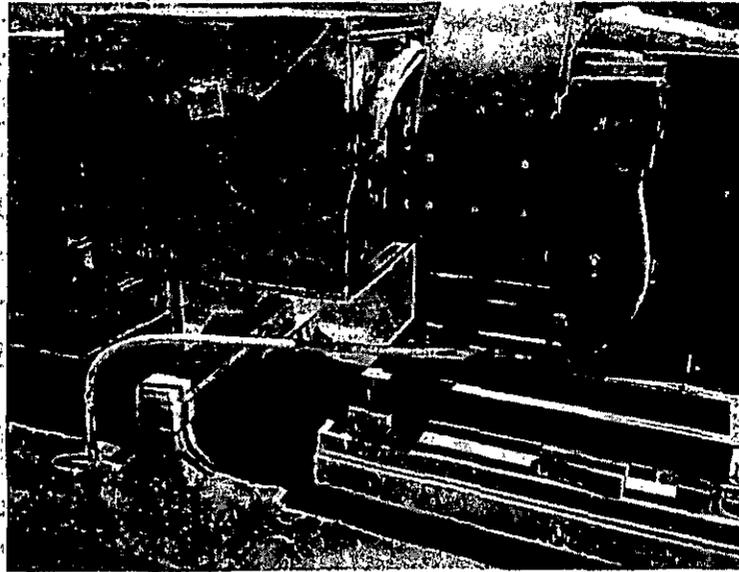


Figure E125

2. 30A, 3P local disconnect switch is not labeled.

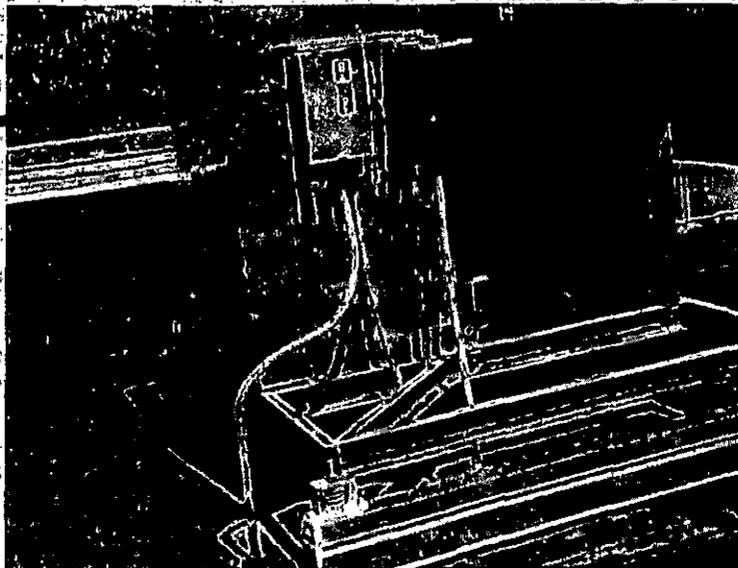


Figure E126

Electrical Specification Section 16440-3.02.E states "Provide nameplate on switch indicating equipment served." There are two local disconnect switches and neither one is labeled.

3. Stranded cables have been used in lieu of solid cables for #10 size and smaller as mentioned in the Specification 16123 Section 2.01.A.2.

D. LE-2

1. $\frac{3}{4}$ " rigid conduit run on the roof has been secured using loose piece of wire causing it to vibrate free in the air.

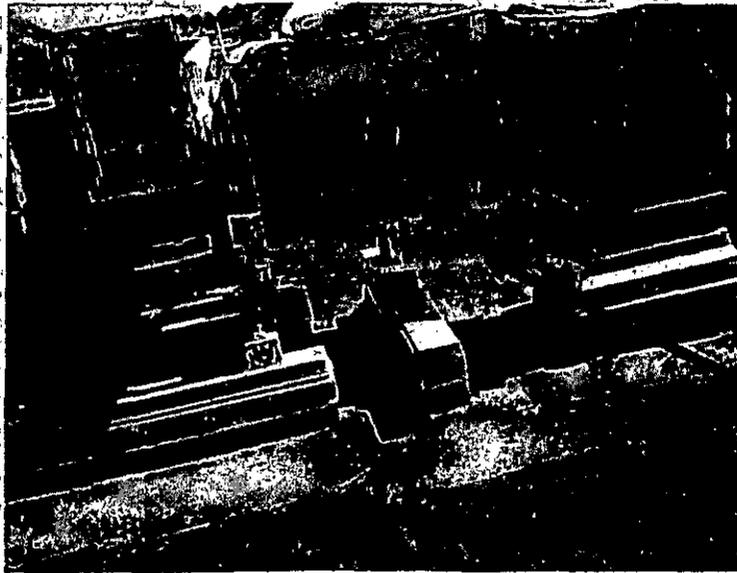


Figure E127

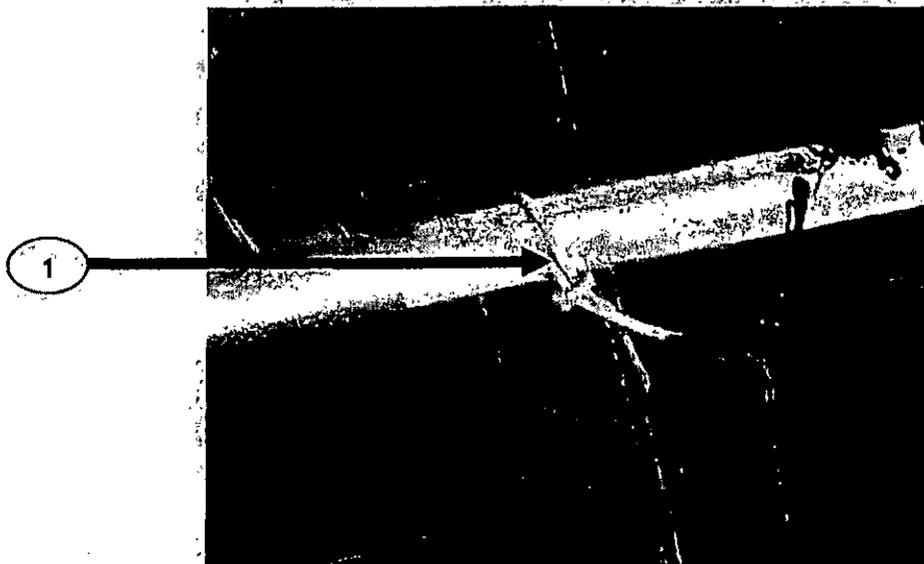


Figure E128

2. 30A, 3P local disconnect switch is not labeled.

Electrical Specification Section 16440-3.02.E states "Provide nameplate on switch indicating equipment served."

3. Ground wire is not bonded to the disconnect switch enclosure.

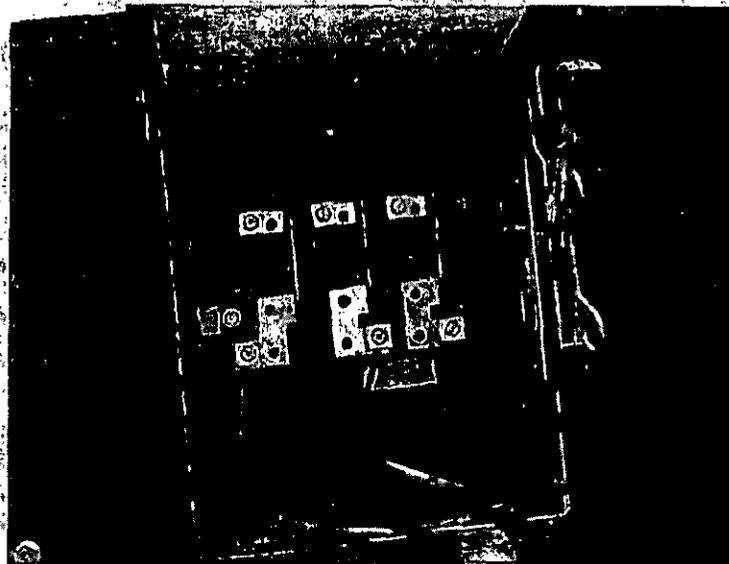


Figure E129

4. 3/4" feeder conduit up to the roof is running thru duct opening and the fire smoke damper. This conduit will obstruct the closing of fire smoke damper in case of a fire emergency and will allow the smoke to travel across the barrier, causing a hazardous situation.



Figure E130

5. Conduit bushing inside the disconnect switch enclosure is not installed, making the wires more prone to insulation damage.

National Electric Code (NEC) Section 430.13 states that "where wires pass through an opening in an enclosure, conduit box or barrier, a bushing shall be used to protect the conductors from the edges of openings having sharp edges."

6. Conduit passing through the sheet metal duct has damaged the duct and has created an opening which cannot be repaired.
7. Stranded cables have been used in lieu of solid cables for #10 size and smaller as mentioned in the Specification 16123 Section 2.01.A.2.

E. LE-1

1. 3/4" conduit on the roof is not secured at all to any structure, causing it to vibrate along with motor vibration.

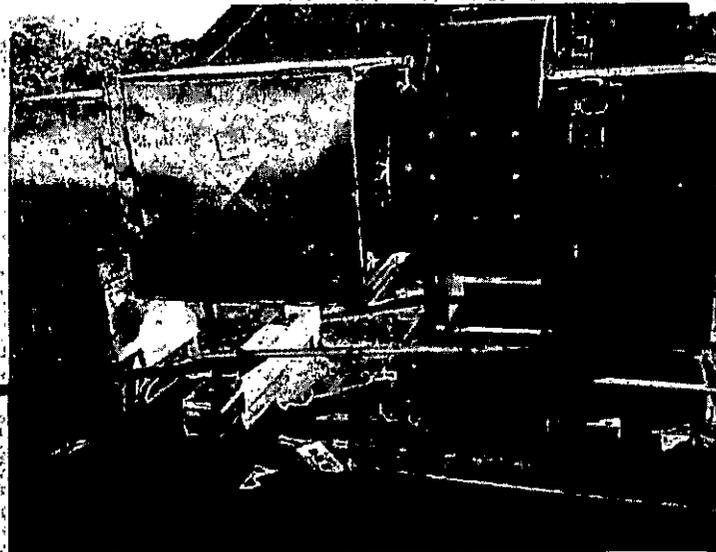


Figure E131.

2. 30A, 3 phase local disconnect switch is not labeled.



Figure E132

3. Conduit bushing at termination inside switch enclosure is not installed.
4. Conduit sleeve has not been used to install conduit through the roof.
5. Stranded cables have been used in lieu of solid cables for #10 size and smaller as mentioned in the Specification 16123 Section 2.01.A.2.

V. **Roof Above Mall and Multi-purpose Room (Gymnasium)**

This roof consists of three (3) different levels where mechanical equipment is installed.

1. Lowest roof is the roof above the Gym Locker Room. Equipment on this roof is AC-1 unit which is served by 400 Amp feeder.
 2. Slightly higher than this is the roof above the Mall Classrooms. There are three (3) HVAC equipments installed on this roof. AC-2 and AH-1 are new units. The third equipment is an existing unit which was not part of the Contractor's scope.
 3. The next higher roof is above the Gymnasium stage area where two (2) exhaust fans are located.
- A. Air Handling Unit Above Mall Classroom

1. Local disconnect switch is not labeled.

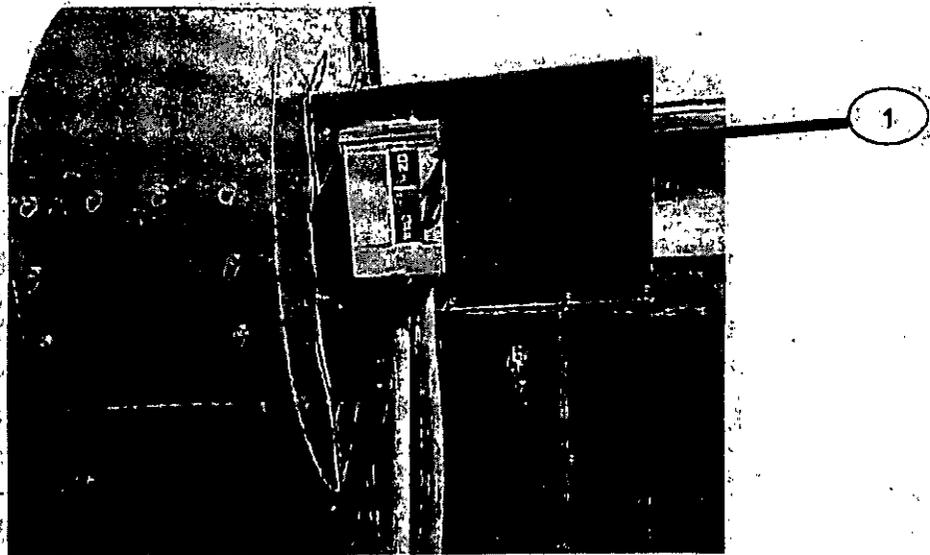


Figure E133

2. Ground wire is not bonded to the switch.

3. Bushing is not installed for wire protection.

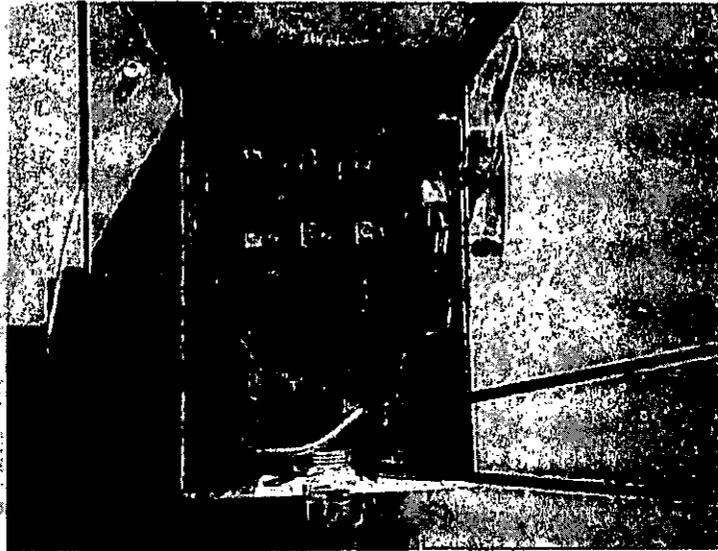


Figure E134

4. Part of the conduit run is old and existing with conduit corroding at multiple locations. Couplings and connectors are corroding at multiple locations.
5. Kindorf supporting conduit is missing at multiple locations leaving approximately 30' of conduit sagging down due to weight.



Figure E135

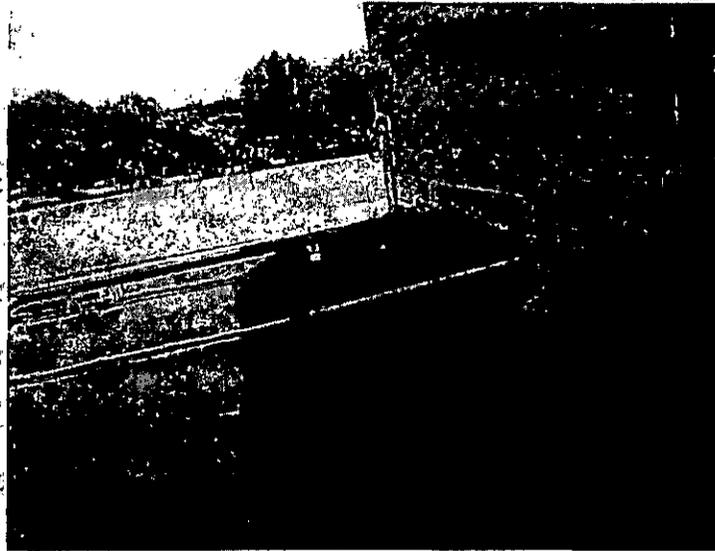


Figure E136

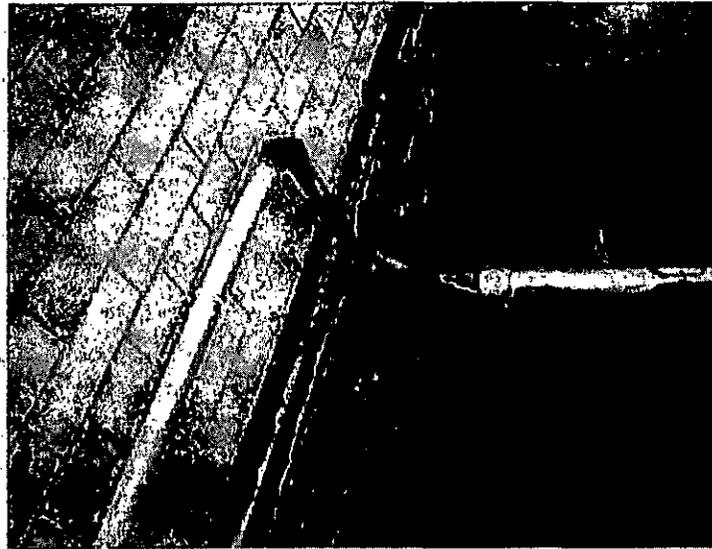


Figure E137

B. AC-2 Unit

1. 4" and 3/4" conduits are sagging down due to missing Kindorf support for almost 16' of conduit run.

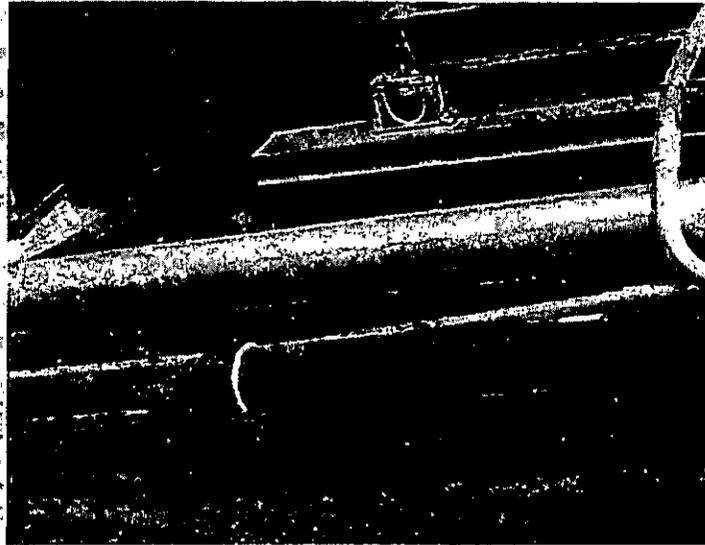


Figure E138

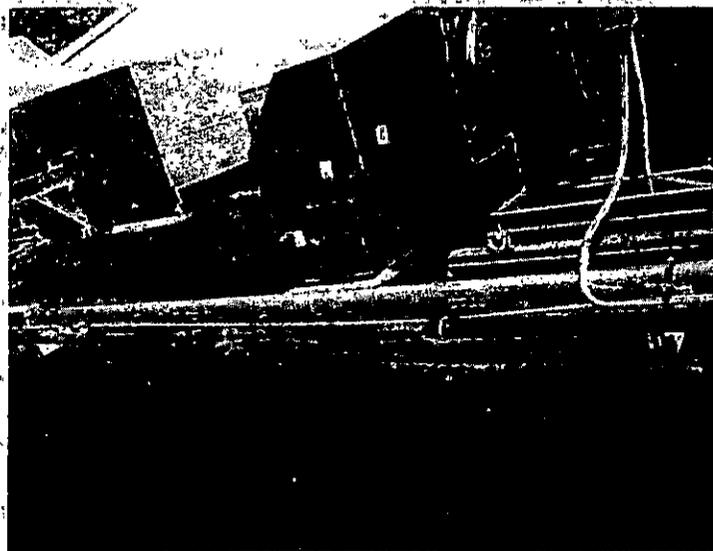


Figure E139

2. Pullbox for 400 Amp feeder run is loose and can rotate 90° on either side because the pullbox has not been fastened to any structure.

Specification Section 16111, 3:02.20.E.1 states that "Pullboxes shall be supported from the Building structure independent of the conduits".

2

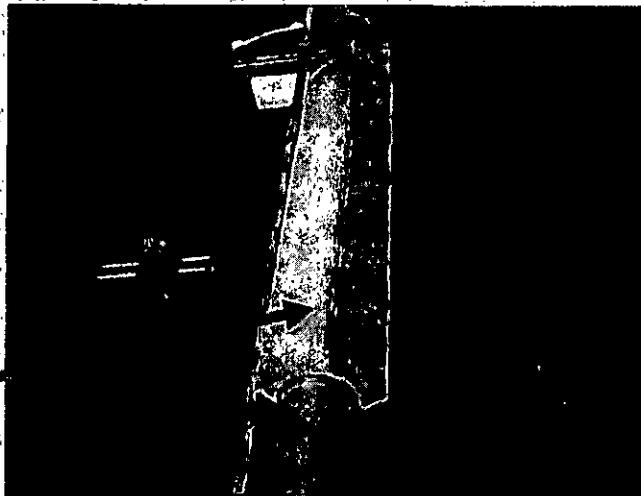


Figure E140

2

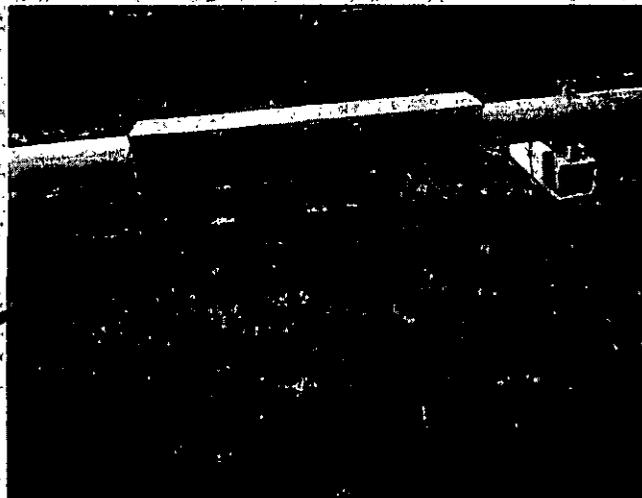


Figure E141

3. Conduits feeding power to air conditioning unit have been strapped to the Kindorf supporting HVAC pipe.

3

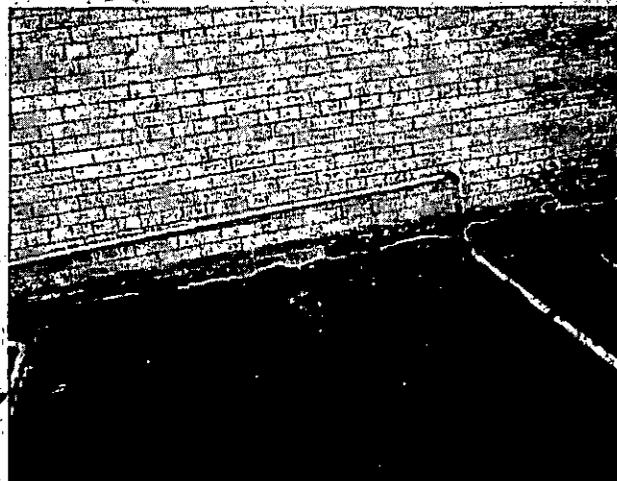


Figure E142

VI. BASEMENT CRAWL SPACE

1. Greenfield has been used in lieu of rigid metal conduit through slab opening for unit ventilator power wiring.
2. Power wiring has been run very close to steam pipes.

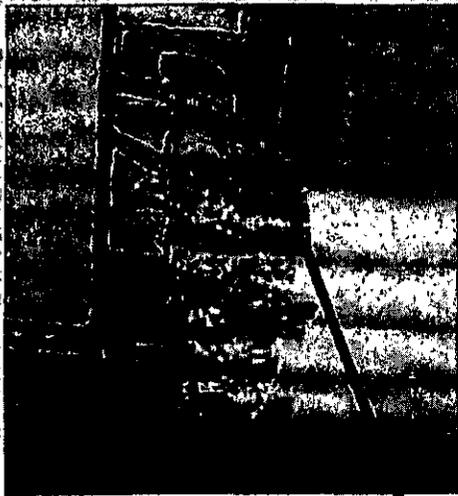


Figure E143

1



Figure E144

2

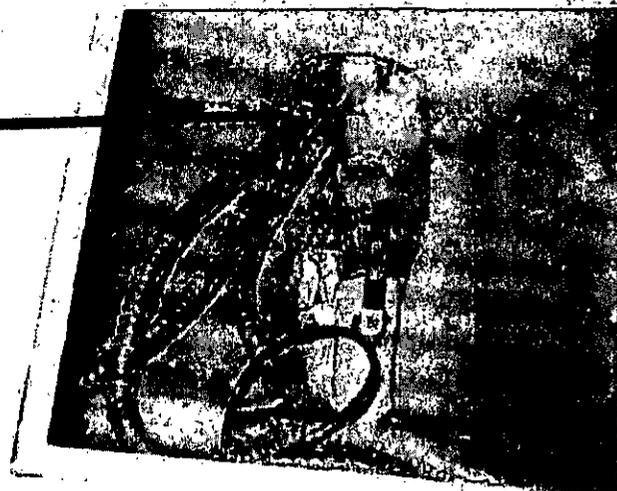


Figure E145

2

3. a. 400A feeder in 4" C for AC-1 unit on the roof is passing through the crawl space in the Locker Room. The pull box used for this feeder in the Locker Room has exposed feeder due to missing cover.
- b. Feeders exposed in the pull box are not color tapped.

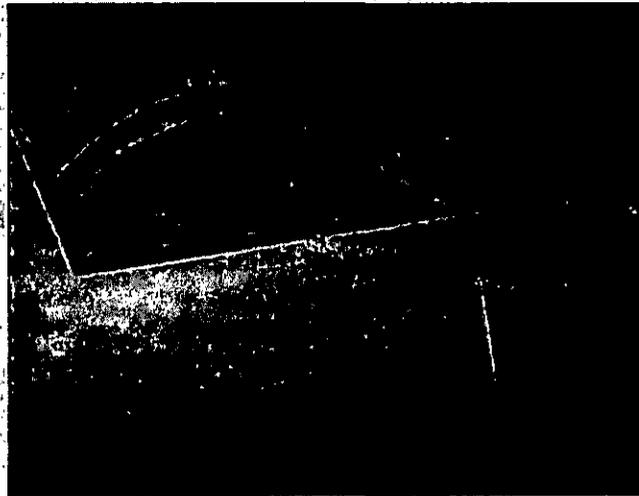


Figure E146

**MECHANICAL
RECOMMENDATIONS:**

1. Piping

- a. Replace all gruvlok piping with flanged or welded piping as per specification section 15820-2.01.
- b. Piping not provided with identification as per specification section 15000-1.26.
- c. Provide piping penetrations through rated walls as per "DETAIL OF PIPING PIRCING REQUIRED FIRE RATED PARTITIONS AND WALL" on contract drawing M2.13.
- d. Provide dielectric fittings between any dissimilar metal pipes as per contract drawing M-001. Replace any damaged pipe or equipment.
- e. Replace all damaged piping.

2. Pipe Insulation

- a. Pipe fitting insulation is not per specification section 15850-2.03 requiring factory precut Hi-Lo Temp insulation insert covered with PVC fitting cover. Fittings in the field wrapped with mineral wool and covered with aluminum foil tape. Figures shown are a small sampling, the deficiency occurs throughout school.
- b. Inspect all piping within concealed soffits, chases, and crawl space. Insulate all piping to meet specification section 15850.

3. Pipe Hangers

- a. Install pipe trapeze hangers per "TRAPEZE HANGER DETAIL" detail on contract drawing M2.14 which requires load bearing calcium silicate insulation at hanger and semi-cylindrical galvanized iron shield for hot pipes 2-1/2" & over.
- b. Install pipe clevis hangers per "CLEVIS HANGER" detail on contract drawing M2.14 which requires load bearing calcium silicate insulation at hanger and semi-cylindrical galvanized iron shield for hot pipes 2-1/2" & over. For pipe 4" and over, use clevis roller hanger.

4. Ductwork

- a. Replace ducts exposed to weather with aluminum ductwork per specification section 15840-2.01-G and section 15840-2.05-C.
- b. Replace fume hood exhaust with stainless steel as per specification section 15840-4.
- c. Provide piping penetrations through rated walls as per "DETAIL OF PIPING PIRCING REQUIRED FIRE RATED PARTITIONS AND WALL" on contract drawing M2.13.
- d. Provide dielectric fittings between any dissimilar metal pipes as per contract drawing M-001. Replace any damaged pipe or equipment.
- e. Replace any damaged piping.

- f. Replace kitchen exhaust ductwork as per specification section 15840-4 which requires 10 gauge black iron with continuously welded seams and continuously welded joint connections in accordance with NFPA 96. NFPA 96 allows for 4 types of kitchen exhaust duct connections; Telescoping joint, Bell-type joint, Flange with edge weld, and Flange with filled weld (all of these connection types provide minimal extrusion into the duct).
 - g. The inside of the kitchen exhaust duct exhibits significant amount of rust for a two year old installation. Replace ductwork.
5. Roof duct supports EF's and AC's
- a. Install duct supports in accordance with "DUCT SUPPORT ON ROOF" detail on contract drawing M2.13.
 - b. Avoid the use of dissimilar metals used on roof supports.
 - c. Vertical kitchen exhaust ducts shall be supported as per detail "SUPPORTS FROM WALL" on contract drawing M2.14.
6. Pumps
- a. Insulated pump casings as per specification section 15850-2.08-E.
 - b. insulated flex hose as per specification section 15850-2.01-E.
 - c. Insulate Strainer/suction diffuser as per specification section 15850-2.01-K.
 - d. Pump not provided with nameplate as per specification section 15000-1.24-A.
7. Valves
- a. Replace all valves to meet specification section 15830-2.07.
 - b. Tag all valves per specification section 15000-1.25-A.
 - c. Provide automatic air vents per specification section 15801-2.08
 - d. Provide pressure gauges per specification section 15801-2.02
8. Equipment
- a. Provide equipment with identification as per specification section 15000-1.26.
 - b. Repair/replace any damaged equipment.
9. Equipment insulation
- a. Insulate all required equipment as per specification section 15850-2.08.
10. Unit ventilator / Fan coil unit
- a. Remove unit with OA louvers and reinstall as per sketch 20.
 - b. Wrong model units should be replaced with the appropriate model.
 - c. Secure unit to wall as per Trane installation manual.
 - d. Insulate condensate drain line as per specification section 15850-2.01.
 - e. Provide condensate drain piping as per "FOUR PIPE UNIT VENTILATOR PIPING" detail.

- f. Provide fire stopping is not provided on the chilled water and heating hot water pipe penetration as per contract drawings M2.13 detail "PIPE SLEEVE THRU FLOOR SLAB".
 - g. Insulate chilled water supply and return lines as per specification section 15850-2.01.
 - h. Replace any damaged components on unit.
- 11. Glycol fill unit
 - a. Replace fill units per engineering specifications section 15815-2.04.
- 12. Venturi flow meter
 - a. Install venturi flow meters per specification section 15830-2.17-A.
- 13. Unit Heater
 - a. Install thermostat for unit heater
- 14. Area drain at west exit of new mechanical room.
 - a. Install new drain.
- 15. Fresh air louver in mech and elec room.
 - a. Install motorized dampers as per contract drawing M2.05.
- 16. EF-1 and EF-2.
 - a. Install motorized damper as per contract drawing M2.13.
- 17. FSD's
 - a. Repair/replace FSD's throughout the building.
- 18. Grilles, registers, and diffusers
 - a. Provide any missing grilles, registers, and diffusers throughout the building.
- 19. Gym supply and return ductwork
 - a. Provide volume dampers as per sheetmetal Dwg # S.M. -1A.
 - b. Provide duct collars as per sheetmetal Dwg # S.M. -1B.
- 20. Cleaning, Testing, and Balancing
 - a. All hydronic systems should be drained, flushed, cleaned and have corrosion inhibitor added as per specification section 15900. Prior to this all strainers should be cleaned.

- b. All water and air systems should be tested and balanced according to the mechanical specification section 15900.

21. General exhaust fans (utility sets)

- a. provide motorized damper as per specification section 15760-2.01-D.
- b. Provide roof duct penetration constructed in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13.
- c. Relocate fan to adequate distance from elbow as per specification section 15760-3.02-A which states that equipment shall be installed in accordance with manufacturer's written instructions, and with recognized industry practices. ASHRAE dictates the required distance.
- d. Provide inlet condition consistent with the "ROOF UTILITY SET FAN DETAIL" on contract drawing M2.12.
- e. Housed spring isolators are shall be leveled by the following method. Leveling nut must be turned counter clockwise to compress spring. This will lift the isolation base to provide clearance.
- f. Install sound attenuators in the ductwork located below the penetration through the roof as required per "SOUND TRAP SCHEDULE" located on contract drawing M2.11. The required sound trap is also shown "ROOF UTILITY SET FAN DETAIL" located on contract drawing M2.12.
- g. Modify the access doors located in the ductwork to comply with Reference Standard 13, Chapter 3, Section 3.4.2 of the New York City Building Code. "2-3.4.2 Service openings shall be identified with letters having a minimum height of one-half in. (12.7 mm) to indicate the location of the fire protection device(s) within.

22. Kitchen exhaust fan (KX-1)

- a. Replace kitchen exhaust ductwork access doors constructed per specification section 15840-2.04-A which requires double wall access doors located every 15' and at each change in direction.
- b. Construct kitchen exhaust ductwork access door per specification section 15840-2.11-C which states that in no case shall access doors require the removal of nuts, bolts, screws, wing nuts, wedges, or any other screws or loose device.
- c. Install FlexClad-400 outdoor duct insulation per manufactures instructions.
- d. Insulate kitchen exhaust duct per specification section 15850-2.08-H. Specification calls for 2" calcium silicate insulation on all kitchen hood exhaust ductwork.
- e. Slope kitchen exhaust ductwork toward exhaust hood as per specification section 15840-2.04-A.
- f. Properly installed fan motor cover.
- g. Install kitchen exhaust switch shown on contract drawing M2.02. To control kitchen exhaust fan.
- h. Construct new roof duct penetration in accordance with the "ROOF DUCT CURB DETAIL" on contract drawing M2.13.

23. Gym roof top ac unit

- a. Reconstruct outdoor ductwork associated with AC-2 per Sheetmetal Dwg # S.M.-1A (Revised by sheetmetal contractor 2/26/2006 and Stamped by engineer "EXCEPTIONS AS NOTED" on 5/2/2006).
- b. Finish installation of service platform for units.
- c. Provide flexible duct connection to unit as required by contract drawing M2.03.
- d. Install FlexClad-400 outdoor duct insulation per manufactures instructions. Will require the replacement of the FSK rigid insulation.
- e. Install metal strip missing off unit door to prevent insulation from coming off door. Replace damaged insulation.
- f. Provide all missing bolts on AC unit vibration isolators. Follow manufacturer's instructions.

24. Natural gas piping

- a. Install AC-2 natural gas line under the roof according to P2.02 and specification.

25. Condensate pump (CP-1 and 2)

- a. Install condensate pumps in location shown on contract drawing M2.00.

26. Air cooled chiller

- a. Secure chiller to steel channels.

27. Exterior louver

- a. Louver not provided with weep holes as per sketch SK20. Modify or replace installation to conform to sketch SK20.

28. Construction Clean-up

- a. Remove all suspended ceiling tiles post construction and remove rubble. Construction debris should be removed from entire site.

29. General construction repair

- a. Repair damage caused to existing conditions.
- b. Complete all general construction items associated with work such as completing soffits or inclosing chases. *Note: All soffits will have to be demolished to properly insulate HHWS&R piping, CHWS&R piping, and condensate piping.*

30. Building management system (BMS)

- a. Controls shall be fixed and work per specification. Controls operation should be verified by third party commissioning agent.

31. Building commissioning

- a. After all work has been complete a third party agent should be obtained to verify all work has been completed to the contract drawings and specification.

32. Structural investigation

- a. The services of a structural engineer should be obtained to analyze the structural integrity of the perimeter beams. The beams are compromised due to core drilling through them.

33. Environmental investigation

- a. Due to the presence of standing water, improper louver installation, and profusely sweating chilled water lines. An environmental investigation should be performed to determine mold is present in and around the unit ventilator/fan coil units and soffits below units (but not limited to these areas).

**ELECTRICAL
RECOMMENDATIONS:**

1. All EMT conduits used for feeders and sub-feeders shall be replaced by rigid galvanized steel conduits as mentioned in the Contract Specification Documents.
2. All conduits shall be secured to the Kindorf channel at code required distance to avoid any excessive weight on Kindorf.
3. All pull and splice boxes not supported to the building structure shall be supported independently.
4. All conduit penetrations through fire-rated walls and ceilings shall be patched and fire-stopped with approved fire-stopping materials.
5. All indoor pumps and motors are connected with Greenfield flexible conduits. These Greenfield conduits shall be replaced with flexible sealtite conduits of the same size.
6. Local disconnect switches for motors and pumps are not provided with screw-type phenolic label. Contractor shall furnish and install these labels at all disconnect switches and panel boards.
7. Riser feeders to Second and Third Floors are run in flexible Greenfield conduit. Contractor shall replace these risers with rigid galvanized steel conduits as mentioned in the Specifications.
8. One pole circuit breakers, field converted to three pole by using a piece of metal or nail shall be replaced with factory manufactured three-pole circuit breakers.
9. Multiple branch circuits run in one common raceway from Panels LP-UV1, LP-UV2 and LP-UV3 shall be segregated into multiple conduits carrying not more than three phase legs.
10. Existing CT cabinet, 1200A, 3P service switch, service end box and conduits including wires shall be removed. Conduits shall be cut flush with the slab, patched and abandoned in place.
11. Conduit feeding light fixture in the Mechanical Room shall be re-terminated at the light fixture connector.
12. All corridor fixtures type 'FA' for the First, Second and Third Floors shall be removed, refurbished at the factory, and re-installed at the job site so that there is no need for field modification. Refurbishing shall include changing plastic overlay cover and cutting part of the fixture metal cover so that the cover can be closed without damaging the lamp.
13. All flexible metal conduits (Greenfields) feeding branch circuit loads from Panel LP-UV1, LP-UV2 and LP-UV3 on the First, Second and Third Floors, respectively, shall be replaced with EMT conduits as specified in the Electrical Specification.

14. All fire alarm cables installed exposed in the hung ceiling shall be rerun through rigid galvanized steel conduit as mentioned on fire alarm drawings.
15. All fire alarm cables installed in EMT conduits in the Boiler Room and Mechanical areas shall be re-installed through rigid galvanized steel conduit as mentioned on Fire Alarm Drawings.
16. Panel board LP-UV2 located in the Second Floor Corridor is unprotected since the 250 Amp feeder does not pass through 100 Amp main circuit breaker. Existing 250 Amp riser feeder shall be replaced with new so that a tap from the riser feeder can feed 100A, main circuit breaker of Panel LP-UV2 before extending over to feed Panel LP-UV3 on the Third Floor.
17. All duct smoke detectors and fire smoke dampers shall be installed and connected to the fire alarm system as shown in Fire Alarm Drawings.
18. Wire-mold installed in Classrooms, Offices and finished areas have covers and fittings missing at multiple locations. Contractor shall re-install wire-mold with fittings so that there is no wiring exposed anywhere in the system.
19. All branch circuit wiring feeding loads other than unit ventilator and passing through unit ventilation enclosures, especially in Room Nos. 202 and 319 shall be rerouted to avoid running through unit ventilator enclosure.
20. All unit ventilators branch circuit wiring uses Greenfield to pass through concrete floor slab. These flexible metal conduit (Greenfield) shall be replaced with rigid galvanized steel conduit and sleeves while passing through floor slab. The Contractor shall maintain a safe distance of 3" between the electrical conduits and steam or hot water pipes. All openings created to run these conduits shall be patched and fire-stopped.
21. On the Third Floor Corridor ceiling outside Classroom No. 301, power wiring is run and spliced exposed without any conduit or junction box protection. New rigid conduits and junction box must be installed to enclose these wirings in a code approved manner.
22. In Computer Classroom No. 311, two (2) missing receptacles shall be installed per Contract Drawings and two (2) receptacles installed on wire-mold shall be covered with cover plates.
23. Chemistry Lab Room No. 319 exhaust fan shall be repaired or replaced with new. Furnish and install a new local disconnect switch at the fan motor and redo the wiring so that flexible metal conduit is concealed and all exposed wiring is in rigid metal conduit and junction box used for splicing is secured on a structure.
24. Replace dual local disconnect switches with one (1) 6 pole switch for exhaust fans GX-1 and GX-2.
25. Provide label, bushing and bonding jumper to each of the local disconnect switches.

26. All conduits run exposed on the roof shall be secured to a structure and sleeves shall be used to run the conduits through any floor opening.
27. Branch circuit wiring for exhaust fan GX-1 is more than 300 LF and provides a voltage drop which exceeds the code permitted limit. This wiring shall be upsized to compensate for any voltage loss.
28. Branch circuit wiring for exhaust fan LE-2 shall be relocated away from duct and fire smoke damper penetration. New conduit through sleeve shall be used to run branch circuit wiring.
29. On the roof above Mall area, existing conduits used to run new wiring shall be replaced with new for new wiring installation. New conduit installation shall be supported as required by code.
30. On the roof above the Mall area, 4" and ¾" conduits used to provide power and controls for AC-2 unit shall be provided with additional supports so that the distance between each support does not exceed code required interval.
31. Pull box used for AC-2 unit feeder shall be secured independently so that it does not rotate freely.
32. Conduit supported on the Kindorf used for mechanical piping shall be re-supported independently of any mechanical supports.
33. Provide megger test report for all cables as mentioned in the Specification 16123 Section 3.02.B.1.
34. Furnish and install emergency shut-off breakglass station for outdoor chiller unit.
35. Provide documentation to show that the electrical service layout is approved by New York City Advisory Board. Otherwise, obtain approval and provide a copy to the Owner.
36. Segregate load side feeders of distribution panel DP-AC from panel MDP and reroute these feeders in separate conduits to the load.
37. Install rubber mat in front of all electrical equipments in the electrical service room.
38. Remove all unused electrical equipments including wiring and conduits.

ELECTRICAL CODE REFERENCES

Electrical installation shall comply with the following Electrical Codes and Standards.

- A. National Fire Protection Association (NFPA 70), National Electrical Code (NEC) latest edition at the time of filing the project with New York City Bureau of Electrical Control.
- B. New York City Amendment to National Electric Code.
- C. Underwriters Laboratories Inc. (UL) comply with applicable requirements of UL Standards pertaining to electrical systems.
- D. American National Standards Institute (ANSI).
- E. National Electrical Manufacturers Association (NEMA).
- F. American Society for Testing Materials (ASTM).
- G. Institute of Electrical and Electronics Engineers inc.(IEEE).

MECHANICAL CODE REFERENCES

Mechanical installation shall comply with the following Mechanical Codes and Standards.

- A. National Fire Protection Association latest edition at the time of filing.
- B. Underwriters Laboratories Inc. (UL) comply with applicable requirements of UL Standards pertaining to mechanical and electrical systems.
- C. American Society of Mechanical Engineers (ASME).
- D. American National Standards Institute (ANSI).
- E. American Society for Testing Materials (ASTM).
- F. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- G. Sheet Metal And Air Conditioning Contractors' National Association (SMACNA)
- H. New York City Building Code
- I. The Air-Conditioning, Heating, and Refrigeration Institute (AHRI)

**Executive
Summary**

Mechanical

Electrical

Recommendations

Code References

NEW YORK CITY SCHOOL
CONSTRUCTION AUTHORITY



August 8, 2006

RE: Solicitation No. SCA07-06636D-1
Gompers Vocation HS (Bronx)
Aircraft Noise Abatement Program/Window Replacement/AC/Roofs/Parapets

ADDENDUM NO. 1:

Attention to Bidders:

This constitutes Addendum No. 1 to the referenced Solicitation Documents. This Addendum consists of this cover page and two (2) additional pages of answers to questions raised by prospective bidders.

Bidders are to acknowledge receipt of this Addendum in their bid.

The bid opening date and time of August 10, 2006 at 11:00AM remains unchanged.

All questions/comments should be directed in writing to Mr. R. Forde, SCA Contract Administration at E-mail address: rforde@nycsca.org, Fax Number (718) 472-0477, Phone Number (718)752-5288.

Sincerely,

Janet C. Cowhey
Director, Contract Administration

JCC/rdf

cc: D. Seymour C. Collins L. Einstein M. Melman File

Questions and Answers

Question # 1: Floor Plans A-102A thru A-105B indicate 2HR rated Shaft Wall Partition per Details on Drawing # A-411 WHILE RCP Drawings A-802A thru A-805B point to the same locations and call it 6" CMU Shaft Enclosure per Detail A/A-411. Please advise

Answer #1: *Shaft wall partition will be as noted on Drawings A-102A thru A-105B, per details on Drawing A-411.*

Question #2: Acoustic window details show blinds but no Specification Section exists. Please advise.

Answer #2: *Blinds shall be as follows:*

1. *Blinds: Commercial quality 1".*
2. *Color: As selected by Architect from manufacturer's standard colors.*
3. *Tilt Mechanism: Radio Knob or other similar means without having to remove the guardian sash. Tilting mechanism driven by a cable attachment with a universal clutch to minimize cable or blind damage.*
4. *Factory install blinds enclosed between the exterior and the interior sash of the window unit.*

Question # 3: Work shown against symbol as ineligible but is in Base Bid on Drawing # A-201 thru A-208. Please advise.

Answer #3: *The term "ineligible" relates to funding. These windows, except for the window shades, are in base bid*

Question #4: "Acoustical treatment" is shown on Drawing # A-102A thru A-106B. Please clarify.

Answer #4: *There is no separate "acoustical treatment" other than the work shown on the contract documents.*

Question #5: Is the Project Labor Agreement (PLA) in effect for this project? Please advise.

Answer #5: *No*

Question# 6: Is pipe scaffolding required for the entire building for full duration? Please advise.

Answer #6: *Yes, scaffolding is required until all work is signed off by all parties.*

Question #7: Detail 1 on Drawing A-410 states that the soffit height is to be 10'-0" A.F.F. plus or minus. Detail 1 on Drawing H-102A indicates that the soffit height is to be 9'-0" A.F.F. plus or minus. Which is correct?

Answer #7: *Soffit height will be per 'H' Drawings (9'-0" A.F.F.).*

Question #8: Exhibit 1 and Appendix A: Exhibit 1, FAA requirements states that the over all DBE participation is 13.7%. Appendix A, Information to Bidders states that the utilization goal is 20% for M/WBE and 10% for LBE participation. Please clarify which of these requirements we are to apply to the above project.

Answer #8: *This school is funded primarily by the FAA to handle noise reduction construction at SCA schools. Therefore, we must abide by the FAA regulations regarding DBE participation. The SCA has a goal of 20% M/WBE and 10% LBE participation. On these particular projects, the DBE goals of 13.8% participation must be met. This does not totally exempt the firm from the SCA's M/W/LBE goals.*

You must work closely with the Contract Compliance officer that is assigned to the borough of Queens, Mr. Steve Gonzalez, (718) 752-5046 who is aware of the situation and requirements and can be helpful to you in assuring that you meet all goals. Some of the SCA's M/W/LBE firms are qualified as DBE's with the Port Authority, while some of the contractors that you are proposing may also qualify as DBE's with the Port Authority if they submit an application to them. We may be able to help you with this certification process. This way you can satisfy the Port Authority's goals and the SCA's requirements by utilizing firms that have overlapping certifications.

End of Questions and Answers