A Public Records Access request has been submitted.

Request By:	Leslie G. London
Signature:	Leslie G. London
Request date:	06/29/2016
Address:	McManimon, Scotland & Baumann, LLC, 75 Livingston Avenue Roseland New Jersey 07068
Email:	llondon@msbnj.com
Phone number:	973-622-5335
Personal Information Request:	NO
Records seeking:	copy of all contracts involving A&A Construction & Management Consultants, 6 Gardner Road, Fairfield NJ involving the new World Trade Center Site and audit reports of the company's records, payroll, A/P receivables, etc. with respect to the contract(s). any contract with the Port Authority and A&A Construction & Management Consultants, 6 Gardner Road, Fairfield, New Jersey during the period covering 2012-2014

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY PRA #17130
PUBLIC RECORD ACCESS FORM

Action by (print / type name):

Danny Ng , Freedom of Information Administrator

Signature: Date: 10/31/2016

On behalf of the Secretary of the Port Authority, as Records Access Officer and Custodian of Government Records of the Port Authority.

- [x] The requested records are being made available.
- [ ] Any responsive records that may exist are currently in storage or archived, and a diligent search is being conducted. The Port Authority will respond by:
- [ ] A diligent search has been conducted, and no records responsive to your request have been located.
- [ ] The requested records that have been located are not being made available, as they are exempt from disclosure for the following specific reasons:
- [ ] Some requested records that have been located are being made available. The remainder are exempt from disclosure for the following specific reasons:
- [ ] The request does not reasonably describe or identify specific records; therefore, the Port Authority is unable to search for and locate responsive records. Please consider submitting a new request that describes or identifies the specific records requested with particularity and detail.
- [x] Other:

Material responsive to your request can be found on the Port Authority's website at http://corpinfo.panynj.gov/documents/17130-C/. Paper copies of the available records are available upon request. Exemptions applied for privacy and security.

This form is promulgated by the Port Authority pursuant to the Port Authority Public Records Access Policy and is intended to be construed consistent with the New York Freedom of Information Law and the New Jersey Open Public Records Act. It is intended to facilitate requests for Port Authority public records and does not constitute legal advice.

THE PORT AUTHORITY OF NY & NJ

WORLD TRADE CENTER SITE
TRANSPORTATION HUB
PATH HALL AND TRANSIT HALL CONSTRUCTION
NEW YORK, NEW YORK

TRANSIT HALL HVAC
CONTRACT WTC-264.614

C-017-R12-264.614

JUNE 30, 2010

RECEIVED
JAN 31 2011
Control #:
WTC Construction
Records & Information Management

PROJECT:	**WORLD TRADE CENTER SITE – TRANSPORTATION HUB** **NEW YORK, NEW YORK**
TRADE:	**TRANSIT HALL HVAC** **CONTRACT WTC-264.614**
OWNER:	**The Port Authority of New York and New Jersey** **225 Park Avenue South, New York, New York 10003**
CONSTRUCTION MANAGER:	**TISHMAN/TURNER, A JOINT VENTURE** **100 Broadway, 5th Floor** **New York, New York 10005** (herein called the **"Construction Manager"** as Agent for the **"Owner"**)
CONTRACTOR:	**A & A Industrial Piping, Inc.** **6 Gardner Road** **Fairfield, New Jersey 07004** (herein called the **"Contractor"**)

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be duly executed as of the day and year first above written.

ACCEPTED:

A & A INDUSTRIAL PIPING, INC.
(Contractor)

BY: Rosemary Donello Date: 12/10/10
(Signature)

President
(Title)

OWNER: THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY:

BY: TISHMAN/TURNER, A JOINT VENTURE
(As Agent for the "Owner")

BY: _____ Date: 1-21-11
Jay Badame
President & COO
Tishman Construction Corporation of New York

BY: _____ Date: 1/20/11
Pat A. Di Filippo
Executive Vice President
Turner Construction Company

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INSTRUCTIONS FOR PROPOSERS AND FORM OF PROPOSAL

1. FORM AND SUBMISSION OF PHASE II PROPOSALS

Tishman/Turner, A Joint Venture, having an office at 100 Broadway, 5th Floor, New York, New York 10005 ("Construction Manager"), on behalf of The Port Authority of New York and New Jersey, 225 Park Avenue South, New York, New York 10003 ("Authority"), invites Phase II Proposals ("Proposal") in the annexed form.

The contract award will be made to the firm with the "Lowest Price Technically Acceptable Proposal" following a two-phase RFP process. Phase II Proposals will be accepted, only from those firms that have been approved during the previous Phase I Technical Proposal submissions. Final award will be made to the technically qualified firm, with the lowest price following negotiations, if so required. The Port Authority reserves the right to award the contract based on initial or amended cost proposals submitted.

Proposals will be received at a date and time designated by Construction Manager at Construction Manager's office located at 100 Broadway, 5th Floor, New York, New York 10005. Each Proposal must be contained in the envelope furnished by the Construction Manager, which shall be sealed and conspicuously endorsed with the proposer's name and the number of this Contract in the space provided.

The Proposal must be submitted upon the blank Form of Proposal bound herewith and must provide all information required. [1] The Proposal must be signed and the acknowledgment taken on the appropriate form following the Form of Proposal.

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

Proposer shall assume for purposes of its Proposal that no New York State sales, use or other tax applies to any materials or equipment purchased in connection with the performance of the Proposer's Work. Therefore, Proposer represents that any prices in its Proposal including, but not limited to, the Lump Sum, Unit Prices and Alternates do not include any such tax. For more detailed information, please see the tax provisions in this Agreement noted in Exhibit III.

2. PAPERS ACCOMPANYING PROPOSALS

A. Phase I Technical Proposals (Previously completed but included as part of this agreement):

Each Phase I Technical Proposal included a requirement to complete and provide the following documents which remain an integral part of this agreement:

i. Tishman/Turner, A Joint Venture Pre-qualification Questionnaire
ii. Non-Disclosure Agreement
iii. Certification Regarding Debarment, Suspension & Ineligibility
iv. Certification Regarding Lobbying

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1 While two or more copies of this booklet may be furnished to each prospective proposer, only one should be submitted. The extra copies are for the proposer's use.

v. Excluded Parties Web Print
vi. Firm's Past Experience and Performance evidenced by verifiable references for completed projects within the past 7 years of similar or greater dollar size, complexity and scope.
vii. Demonstration of abilities defined in Exhibit B RFP Package-Specific Qualifications
viii. Bonding Capacity (aggregate and single limit) and current availability.
ix. Financial Capacity as evidenced by the firm's prior 2 years of audited or reviewed financial statements.
x. Qualifications and Experience of Proposed Key Personnel.
xi. Safety Record on all projects completed within the past 3 years and firm's general approach to safety.
xii. Firm's general approach to QA/QC.
xiii. Firm's approach/plan to maximizing M/WBE participation.

B. **Phase II Price Proposal:**

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

a) A fully completed Form of Proposal enclosed herein. The amount must be given both in figures and in writing and, in case of discrepancy, the writing shall control. One copy of each addendum, if any, issued during the proposal period shall be initialed and attached to the Proposal, but any Proposal submitted without such addendum initialed and attached will nevertheless be construed as though such addendum had been initialed and attached.

b) If the proposer be a corporation, a statement of the names and residences of its officers, which should be included on the page following the Form of Proposal.

If the proposer be a partnership, a statement of the names and residences of its members, indicating which are general and which are special partners, which should be included on the page following the Form of Proposal.

If the proposer be an individual, a statement of his residence, which should be included on the page following the Form of Proposal.

c) Fill in below the proposer's Federal Employer Identification Number (i.e., the number assigned to firms by the Federal Government for tax purposes); the proposer's Dun and Bradstreet number, if any; the name of any other credit service to which the proposer has furnished information and the number, if any, assigned by such service to the proposer's account.

[redacted]

Federal Employer Identification No.

60-805-9903

Dun and Bradstreet No.

Banking

Other Credit Service

[redacted]

Account No.

d) A letter from proposer's surety (a letter from a broker is unacceptable) confirming that such proposer shall be capable of providing a payment and performance bond in the full amount of the proposer's proposal **and based on the Form of Bond included in the Contract Documents.**

e) Where financial statements submitted in Phase I Technical Proposal show the position of the proposer as of a date more than forty-five (45) days prior to the date on which Proposals are opened, the proposer shall submit a statement in writing signed by a duly authorized representative of the proposer, that the present financial condition of the proposer is at least as good as that shown on the statements submitted.

3. QUALIFICATION INFORMATION

At any time after the opening of Proposals, the Construction Manager may give oral or written notice to one or more proposers to attend a pre-award meeting and to furnish the Construction Manager with information relating to his qualifications to perform the Work, including the following, which information shall be furnished within seven (7) days thereafter:

A. The proposers MBE/WBE Participation Plan submitted in accordance with Exhibits VII and VIII, "MBE/WBE Participation and Equal Opportunity Policy", and a detailed list of the plant and equipment which the proposer proposes to use, indicating which portions it already possesses.

B. Detailed information relating to work which the proposer has completed for others, including personal and corporate references, sufficient to the Construction Manager to determine the Contractor's responsibility, experience and capacity to perform the Work. If required by the Construction Manager, the foregoing information shall include information to demonstrate to the satisfaction of the Construction Manager that the contractor has within the past five years been a contractor on at least one contract of the same general type, extent and complexity as the Contract on which the Proposal has been submitted, and completed the work skillfully, in a satisfactory manner and on time.

C. Information to supplement a) data shown in the financial statements and the statement of work on hand required to be submitted with the Proposal; and b) any statement

submitted under the clause hereof entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, etc, Disclosure of Other Required Information", Certification of Participation in a State-Registered Apprenticeship Program or "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee".

D. Moreover, in the event that the proposer's performance on a past Construction Manager or Authority or PATH contract or contracts has been rated less than satisfactory, the Construction Manager may give oral or written notice to the proposer to furnish information demonstrating to the satisfaction of the Construction Manager that, notwithstanding such rating, such performance was, in fact, satisfactory, or that the circumstances which gave rise to such unsatisfactory rating have changed or will not apply to performance of the Contract, and that such performance will be satisfactory.

E. If the proposer has performed a contract for the States of New York or New Jersey, or any governmental entity within such States and has filed a questionnaire or other document required to be submitted in order for the proposer to qualify to perform the contract, the proposer may be requested by the Construction Manager to submit the most recent completed questionnaire or other such document, or if the most recent completed questionnaire or other such document is not available, to submit a written statement indicating the approximate date of the contract and the name of the governmental entity which awarded them the contract.

F. Any additional information relevant to the proposer's Proposal including information to supplement the proposer's initial analysis of proposal.

G. Detailed information in writing setting forth the affirmative action which the proposer proposes to take to ensure equal employment opportunities as required by clause A of the clause of the Form of Contract entitled "No Discrimination In Employment", and subparagraph (1) of the section entitled "Equal Employment Opportunity" of Chapter VIII of the Form of Contract entitled "Department of Transportation Requirements". This action which for the purpose of convenience is referred to as an "affirmative action program", shall be in addition to the action required under clauses B through G of the "No Discrimination in Employment" clause and subparagraphs (2) through (7) of the section entitled "Equal Employment Opportunity" of Chapter VIII. Solely for the information of the proposer, and without in any way limiting or defining the affirmative action program to be proposed by the proposer, there are available for inspection in the office of the General Manager, Business and Job Opportunity, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, copies of sample affirmative action programs.

In the event that any of the foregoing is requested and is not furnished within seven days thereafter or within such additional time as the Construction Manager, in his sole discretion, may allow, the Construction Manager may not be in a position to determine whether the proposer is qualified, whether the proposer understands the requirements of the contract or whether the proposal is responsive and may, in its sole discretion, reject the proposer's Proposal.

The giving of such notice to the proposer in connection with any of the foregoing lists, statement or information shall not be construed as an acceptance of his Proposal. However, the Construction Manager reserves the right in its sole and absolute discretion, to accept the Proposal of a proposer despite the fact that said proposer has not submitted any information, list or statement required pursuant to this Section within the above-stated time period.

4. ACCEPTANCE OR REJECTION OF PROPOSAL

Within one hundred eighty (180) days after the opening of the Proposals, the Construction Manager may, in its discretion, accept one of the Proposals, if Construction Manager 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 Construction Manager. No other act of the Construction Manager shall constitute acceptance of a Proposal. Such notice will state whether or not the Construction Manager elects to require the proposer to furnish a Performance and Payment Bond. Rejection of a Proposal will be only by either (a) a notice in writing specifically stating that the Proposal is rejected, signed by Construction Manager and mailed to or delivered at the office designated in the Proposal or (b) omission of the Construction Manager to accept a Proposal within one hundred eighty (180) days after the opening of Proposals; and no other act of the Construction Manager shall constitute rejection of a Proposal, including any counter offer or other act of the Construction Manager.

The Construction Manager reserves the unqualified right, in its sole and absolute discretion, to reject all Proposals, seek modifications to one or more Proposals, or to accept that Proposal if any, which in its judgment will under all the circumstances best serve the public interest and to waive defects in any Proposal.

In the event that a successful proposer defaults upon the Contract by failing to furnish a satisfactory Performance and Payment Bond, if required, and the Construction Manager terminates the Contract, the Construction Manager reserves the option to accept the Proposal of any other proposer within one hundred eighty (180) days after the opening of Proposals, in which case such acceptance shall have the same effect as to such other proposer as though he were the originally successful proposer.

5. INTENTIONALLY DELETED

6. DISPOSAL OF CONTRACT DOCUMENTS

All recipients of Contract documents, including proposers and those who do not proposal and their prospective Subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Construction Manager.

7. AVAILABLE DOCUMENTS

Certain documents, specified in Attachment L (Available Documents), are available for reference and examination by proposers by contacting Construction Manager at Construction Manager's office to review such documents during regular business hours. These documents were not prepared for the purpose of providing information for proposers upon the present Contract but they were prepared for other purposes, such as for other contracts or for design purposes for this or other contracts, and they do not form a part of this Contract. The Construction Manager makes no representation or guarantee as to, and shall not be responsible for their accuracy, completeness or pertinence, and, in addition, shall not be responsible for the conclusions to be drawn therefrom. They are made available to the proposers merely for the purpose of providing them with such information as is in the possession of the Construction Manager, whether or not such information may be accurate, complete or pertinent or of any value to the proposers. Proposers accept all risks of inaccurate or incomplete information.

8. MINORITY AND WOMEN'S BUSINESS ENTERPRISES PROGRAM (MBE/WBE)

The Construction Manager and the PANYNJ adopt the Authority's long-standing practice of making its contract opportunities available to as many firms as possible and has taken affirmative steps to encourage Minority Business Enterprises (MBEs) and Women's Business Enterprises (WBEs) to seek business opportunities with it.

"Minority-owned business" or "MBE" means a business entity which is at least fifty-one percent (51%) owned by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least fifty-one percent (51%) of the stock of which is owned and controlled by one or more members of one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Women-owned business" or "WBE" means a business which is at least fifty-one percent (51%) owned by one or more women, or, in the case of a publicly held corporation, fifty-one percent (51%) of the stock of which is owned and controlled by one or more women, and whose management and daily business operations are controlled by one or more women who are citizens or permanent resident aliens.

"Minority group" means any of the following racial or ethnic groups:

A. Black (all persons having origins in any of the black African racial groups not of Hispanic origin);

B. Hispanic (all persons of Puerto Rican, Mexican, Dominican, Cuban, Central, or South American 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, the Indian subcontinent or the Pacific Islands);

D. Native American 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).

To ensure meaningful participation of MBEs and WBEs on this Project, the Authority has set a combined goal of seventeen percent (17%) for firms owned and controlled by minorities, and firms owned and controlled by women. The MBE/WBE Participation Plan, described below, should meet or exceed these goals. If such goals are not met, Contractor shall be responsible for demonstrating its "good faith" efforts to achieve the goals.

Each Proposer's Proposal shall be accompanied by a complete Minority Business Enterprises/Women Business Enterprises Participation Plan ("MBE/WBE Participation Plan") on a form approved by Construction Manager. The MBE/WBE Participation Plan must be approved by Construction Manager before award of the Contract. The MBE/WBE Participation Plan shall include the following information:

A. Name and telephone number of designated MBE/WBE contact person;

B. Names and addresses of proposed MBE/WBE contractors; the proposed MBE/WBE contractors must be approved as described below in this Section 8;

C. Description of work and approximate dollar value of work to be performed by each MBE/WBE contractor;

D. Percent of participation in relationship to the cost of the overall Project for each MBE/WBE contractor.

Subsequent to contract award, the Contractor shall use and document every good faith effort to comply with its MBE/WBE Participation Plan and to permit its MBE/WBE Subcontractors to perform. Participation percentages shall be monitored throughout the performance of this Contract. Such good faith efforts shall include at least the following:

A. Attendance at pre-proposal meetings, if any, scheduled by the Construction Manager;

B. Utilization of the Authority's Directory of certified MBE/WBEs available on-line (see MBE/WBE Directory Letter in back of Contract Book) and/or proposing for certification other MBE/WBEs which appear to meet the Authority's criteria for MBE/WBE certification and which are technically competent to perform the Work which the proposer plans to subcontract;

C. Active and affirmative solicitation of proposals for subcontracts from MBE/WBEs;

D. Advertisement in general circulation media, trade association publications and minority-focused media for a reasonable period before proposals or Proposals are due;

E. Dividing the work to be subcontracted into smaller portions or encouraging the formation of joint ventures, partnerships or similar arrangements among Subcontractors in order to increase the likelihood of achieving the MBE/WBE goals;

F. Providing a sufficient supply of plans and specifications of prospective work to MBE/WBEs and providing appropriate materials to each in sufficient time to review;

G. Utilizing the services of available minority and women's community organizations; contractor's groups; local, state and federal business assistance/development offices and other organizations that provide assistance to MBE/WBEs;

H. Ensuring that progress payments are made in a timely fashion in accordance with the requirements of this Contract;

I. Not requiring bonds from and/or providing bonds and insurance for Subcontractors where appropriate;

J. Soliciting specific recommendations on methods for enhancing MBE/WBE participation from Construction Manager's staff responsible for such participation;

K. Nominating Subcontractors for participation in business assistance programs sponsored by the Authority or the Regional Alliance of Small Contractors such as the Loaned Executive Assistance Program (L.E.A.P.);

L. Establishment of impress funds to facilitate MBE/WBE cash flow; and

M. Directing other contractors to solicit MBE/WBE subcontractor participation.

Subsequent to contract award, the Contractor shall also provide the Construction Manager, at its request, with a trade breakdown schedule showing when the Contractor's MBE/WBE Subcontractors are scheduled to perform. The Contractor shall also submit to the Construction Manager, on a monthly basis, the Statement of Subcontractor's Payments in a form approved by Construction Manager.

In order to assure that the planned goals are being met, a monthly Statement of Payments Reports reflecting the actual payments to MBE/WBE contractors must be submitted throughout the duration of performance of the Contract.

In calculating the progress toward meeting the goal, Contractor shall receive credit for only sixty percent (60%) of the amounts paid to material/suppliers who are MBE/WBE firms, except in the case of firms who manufacture materials. Contractor shall receive one hundred percent (100%) credit for suppliers who manufacture products or make material changes to products before sale.

In the event that, prior to contract award and following review of the MBE/WBE Participation Plan submitted by the proposer pursuant to the clause hereof entitled "Qualification Information", the Construction Manager determines that the Contractor has not made a good faith effort to meet the MBE/WBE participation goals set forth above and that the Contractor has not demonstrated that a full or partial waiver of such goals is appropriate, the Construction Manager may advise the proposer that it is not responsible and may reject the proposer's Proposal.

If, during the performance of the Contract, the Contractor fails to demonstrate good faith in carrying out its MBE/WBE Participation Plan and in permitting its MBE/WBE Subcontractors to perform and the Contractor has not demonstrated that a full or partial waiver of the above referenced MBE/WBE participation goals is appropriate, then, upon receipt of a future Proposal or Proposals from the Contractor, the Construction Manager may advise the Contractor that it is not a responsible proposer and

may reject such Proposal(s).

Either prior or subsequent to acceptance of the proposer's Proposal, the proposer may request a full or partial waiver of the above described MBE/WBE participation goals by providing a reasonable demonstration to the Construction Manager that its good faith efforts will not result in compliance with the goals set forth above because participation by eligible MBE/WBEs could not be obtained at a reasonable price or that such MBE/WBEs were not available or refused to perform as Subcontractors. The proposer shall provide such documentation to support its request as the Construction Manager may require.

Once approved, the MBE/WBE Participation Plan submitted by the proposer may be modified only with the written approval from the Construction Manager.

Following approval from the Construction Manager under the clause entitled "Assignments and Subcontracts" of one or more Subcontractors who are either MBEs or WBEs and listed in the MBE/WBE Directory or determined to be "eligible" by the Construction Manager in accordance with this numbered clause, Authority may, at its sole option, provide to said approved MBE/WBEs, without charge, whatever appropriate consultant services may be available under the L.E.A.P. Program; provided, however, that such consultant services will only be furnished pursuant to a request in writing from the Contractor to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, 233 Park Avenue South - 4th Floor, New York, NY 10003.

Such services will be discontinued following a written request from the Contractor to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, to discontinue them.

The L.E.A.P. services include advising on scheduling, purchasing, planning and other aspects of construction to firms to mitigate business or management problems which could negatively impact on their performance. These services do not include engineering or legal advice. The determination as to whether or not to follow the advice given lies solely with the MBE/WBE Subcontractor. Prior to being accepted as a participant in the L.E.A.P. Program, the MBE/WBE Subcontractor will be required to release the Construction Manager, Authority and the individuals furnishing consultant advice of all liability and responsibility in connection therewith.

The Authority has compiled and made available on-line an MBE/WBE Directory which specifies the firms the Authority has determined to be (1) MBEs/WBEs and (2) experienced in performing work in the trades and contract dollar ranges indicated in the Directory. The Construction Manager makes no representation as to the financial responsibility of such firms or their ability to perform Work required under this Contract. Subject to the following paragraph, only MBEs/WBEs listed in the Directory will count toward the required MBE/WBE participation.

If the Contractor wishes to perform a portion of the Work through a firm not listed in the Directory [2] but which the Contractor believes should be eligible because it is (1) an MBE/WBE, as defined above and (2)

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[2] The following organizations may be able to refer the Contractor to MBEs/WBEs who are technically competent to perform portions of the Work. Any referrals which are not listed in the Directory shall be submitted to the Construction Manager for a determination as to eligibility as provided above.

technically competent to perform portions of the Work or the Contractor believes it is such a firm, the Contractor shall submit to the General Manager, Small Business Programs, Office of Regional and Economic Development of the Port Authority of New York and New Jersey, a written request for a determination that the proposed firm is eligible. This shall be done by completing and forwarding a) the form labeled "Schedule A" and, if appropriate, "Schedule B" which are annexed hereto and form a part hereof and b) technical references of jobs completed of similar scope and complexity on the form annexed hereto and made a part hereof labeled "MBE/WBE Approval Request" and such other information as may be necessary to permit the Construction Manager to determine whether the firm is in fact an MBE/WBE and technically competent to perform portions of the Work.

1. Queens Air Services Development Office
JFK International Airport
Building #141
Federal Circle, First Floor
Jamaica, NY 11430
(718) 244-6852
Fax (718) 244-7371
www.asdoonline.com

2. Chinatown Manpower Project, Inc.
70 Mulberry Street
New York, NY 10031
(212) 571-1690
www.cmpny.org

3. Association of Minority Enterprises of NY, Inc.
135-20 Liberty Avenue
Richmond Hill, NY 11419
(718) 291-1641
Fax (718) 291-1641
www.ameny.org

4. Statewide Hispanic Chamber of Commerce of New Jersey
150 Warren Street, Suite 110
Jersey City, NJ 07302
(201) 451-9512
Fax (201) 451-9547
www.shccnj.org

5. Greater Newark Business Development Consortium
744 Broad Street, 26th Floor
Newark, NJ 07102
(973) 242-5563
www.gnbdc.org

6. Jamaica Business Resource Center
90-33 160th Street
Jamaica, NY 11432
(718) 206-2255
Fax (718) 206-3693
www.jbrc.org

7. Council for Airport Opportunity
Newark Liberty International Airport
Building 80
Newark, NJ 07014
(973) 961-4382
www.caonj.com

8. National Hispanic Business Group
1230 Avenue of the Americas,
7th Floor
New York, NY 10020
(212) 265-2664
www.nhbg.org

9. Greater Jamaica Development Corp.
90-04 161st Street
Jamaica, NY 11432
(718) 291-0282
Fax (718) 291-7918
www.gjdc.org

10. NYS Assn. Of Minority Contractors Brooklyn Navy Yard
Building 280, 4th Floor, Suite 414 Brooklyn, NY 11205
(212) 246-8380
Fax (718) 246-8376
www.nysamc.org

11. Professional Women in Construction
315 E. 56th Street, Suite 202
New York, NY 10022
(212) 486-7745
Fax (212) 486-0228
www.pwcusa.org

12. NY/NJ Minority Purchasing Council
330 Seventh Avenue, 8th Floor
New York, NY 10001
(212) 502-5663
www.nynjmsdc.org

13. National Minority Business Council
120 Broadway, 19th Floor
New York, NY 10271
(212) 693-5050
www.nmbc.org

14. Queens Overall Economic Development Office
120-55 Queens Boulevard, Suite 309 Kew Gardens, NY 11424
(718) 263-0546
Fax (718) 263-0594
www.queensny.org

15. York College Small Business Development Center
94-50 159th Street
York College,
Room S 107
Jamaica, NY 11451
(718) 262-2880
Fax (718) 262-2881
www.nyssbdc.org

16. Small Business Development Center - Rutgers University, University Heights
3 Bleeker Street
Newark, NJ 07102
(973) 353-1927
Fax (973) 353-1110
www.msbdc.newark.rutgers.edu

17. New Jersey Association of Women Business Owners (NJAWBO)
186 Princetown Hightstown Road
West Windsor, NJ 08550
(609) 799-5101
www.njawbo.org

18. New Jersey Air Services Development Office
Newark Liberty International Airport
Building #80 - Second Floor
Newark, NJ 07114
(973) 961-4278
Fax (973) 961-4282
www.asdonline.com

19. Caribbean-American Chamber of Commerce
Brooklyn Navy Yard
63 Flushing Avenue
Brooklyn, NY 11205
(718) 834-4544
Fax (718) 834-9774
www.caribbeantradecenter.com

20. Northeast Region – Small Business Resource Transportation Center
29-10 Thomson Avenue
Long Island City, NY 11101
(718) 482-5941
www.osdbu.dot.gov/regional/northeast.cfm

21. Asian Women in Business
42 Broadway, Suite 1748
New York, NY 10004
(212) 868-1368
Fax (212) 868-1373
www.awib.org

22. Asian American Business Development Center
80 Wall Street, Suite 418
New York, NY 10005
(212) 966-0100
Fax (212) 966-2786
www.aabdc.com

23. New York State Federation of Hispanic Chambers of Commerce
2710 Broadway
New York, NY 10025
(212) 222-8300
Fax (212) 222-8412
www.nysfhcc.com

24. Orange County Chamber of Commerce
30 Scott Corners Drive
Montgomery, NY 12549
(845) 457-9700 Ext. 1101
www.orangeny.com

25. Regional Alliance For Small Contractors
625 Eighth Avenue, 2nd Floor, North Wing
New York, NY 10018
(212) 268-2991
www.regional-alliance.org

26 Women Builders Council
500 Hampton Avenue
Brooklyn, NY 11235
(212) 367-2130
www.wbcnyc.org

All such requests shall be in writing addressed to the Construction Manager. If any such firm is determined to be eligible it shall only be by writing over the name of the Construction Manager. In the event that such firm is found not to be eligible, the Construction Manager will only consider as a substitute for such firm, a firm listed in the Authority's MBE/WBE Directory available on-line.

Please note that the Contractor must submit the names of proposed MBEs/WBEs for work on this Contract if their names do not appear in the Authority's MBE/WBE Directory available on-line in accordance with the requirements of this clause and all other requirements of this Contract. MBEs/WBEs proposed as lessors of equipment or Materialmen shall be deemed "Subcontractors" for the purpose of this numbered clause and the clause hereof entitled "Assignments and Subcontracts" but shall not be deemed Subcontractors for any other purpose. However only sixty percent (60%) of the amounts paid by the Contractor to such Materialmen who are MBEs/WBEs, except in the case of firms who themselves manufacture materials for use under the Contract, shall be allowed in computing the percentages of the Lump Sum required to be paid to MBEs/WBEs hereunder.

Nothing herein shall be deemed to supersede or to otherwise modify the clause of the Form of Contract entitled "Assignments and Subcontracts".

9. INSPECTION OF SITE

Each proposer or his authorized representative must make proper arrangements with the Construction Manager at the construction site before inspecting the construction site. To make such arrangements contact Construction Manager's Procurement Manager at lboresen@tcco.com.

10. QUESTIONS BY PROPOSERS

Questions by prospective proposers concerning the Contract may be addressed to Construction Manager to the contact listed below, who, however, is authorized only to direct the attention of prospective proposers to various portions of the Contract so that they may read and interpret such portions for themselves. Neither Construction Manager nor any other employee or representative of the Construction Manager is authorized to give interpretations of any portion of the Contract or to give information as to the requirements of the Contract in addition to that contained in the Contract. Interpretations of the Contract or additional information as to its requirements, where necessary, shall be communicated to proposers only by written addendum, which addendum shall be considered part of this Contract. Accordingly, nothing contained herein and no representation, statement or promise, oral or in writing, of the Construction Manager, or Authority its Directors, officers, agents, representatives or employees shall impair or limit the effect of the warranties of the Contractor contained in the clause of the Form of Contract entitled "Contractor's Warranties" or elsewhere in this Contract. The provisions of this clause shall apply to questions addressed by prospective proposers both before and after their receipt of Contract documents.

Direct all inquiries regarding this RFP in writing to:
Tishman/Turner, A Joint Venture
100 Broadway, 5th Floor
New York, NY 10005
Attn: Lawrence R. Boresen, Jr.
Procurement Manager
Email: lboresen@tcco.com

11. AUTHORITY SECURITY REQUIREMENTS

Proposer shall comply with the security requirements set forth herein both pre- and post-contract award, including, without limitation, the requirements set forth in Exhibit II - PANYNJ WTC Site Rules and Regulations.

The Authority has facilities, systems, and projects where terrorism or other criminal acts may have a significant impact on life safety and key infrastructures. Authority and Construction Manager reserve the right to impose multiple layers of security requirements on the Contractor, its staff and Subcontractors and their staffs depending upon the level of security required, as determined by Authority. This includes the Contractor's responsibility to perform Contractor/Subcontractor identity checks and background screening, including, but not limited to: inspection of not less than two forms of valid/current government issued identification (at least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; multi-year check of personal, employment and/or credit history. The Contractor shall, and shall instruct its Subcontractors, to cooperate with Construction Manager's staff in adopting security requirements. These security requirements may include, but are not limited to the following:

a. Access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like;

b. Issuance of photo identification cards:

   No person will be permitted on or about the construction site without a photo identification badge approved by the Construction Manager. The Construction Manager will provide such identification badges for Contractor and Subcontractor staff, and Materialmen, if necessary. All employees of the Contractor, Subcontractors and Materialmen shall wear identification badges in a conspicuous and clearly visible position whenever they are working at the construction site.

c. Access control, inspection, and monitoring by security guards:

   The Construction Manager may provide for construction site access control, inspection and monitoring by Construction Manager retained security guards. However, this provision shall not relieve the Contractor of its responsibility to secure its equipment and work at the construction site at its own expense.

d. Neither the Contractor nor any Subcontractors shall issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to Authority or the Authority or the Work performed in connection with this Contract without first obtaining the written approval of Authority. Such approval may be withheld if for any reason Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

e. Under no circumstances shall the Contractor nor any Subcontractor communicate in any way with any consultant, department, board, agency, commissioner or other organization or any person whether governmental or private in connection with the Work to be performed hereunder, unless required by Law, except upon prior written approval and instructions of Authority, provided, however that data from manufacturers and suppliers of material may be obtained when such data is necessary to the performance of the Work.

f. Neither the Contractor nor any Subcontractors shall provide access to the construction site to anyone other than their employees and others who are approved by Authority to be directly involved in performing Work at the construction site.

g. Neither the Contractor nor any Subcontractor is permitted to take photographs or video recordings or make sketches at the construction site, except when necessary to perform the Work under this Contract. Upon request, any photograph, video recording or sketch taken at the construction site shall be submitted to Authority to ascertain compliance with this paragraph.

The Contractor shall be required to have its staff and that of its Subcontractors undergo a criminal history background check and shall furnish proof to Authority, in a form acceptable to Authority, that such check has been performed. No employee of the Contractor or any Subcontractor will be permitted at the construction site without proof that such check has been performed.

In addition, Authority or Construction Manager may increase and/or upgrade security requirements for the Contractor, its staff and Subcontractors and their staffs during the term of this Contract to address changing security conditions and/or new governmental regulations.

Should Authority or Construction Manager increase and/or upgrade security requirements after acceptance of the Contractor's Lump Sum Proposal, the Contractor will be compensated for the additional cost of such increase and/or upgrade in accordance with the clause of the Contract entitled, "Extra Work."

11A. PROTECTION OF SECURITY INFORMATION

1. The Contractor, Subcontractors and others requiring access to Confidential and Privileged (C&P) security information and Sensitive Security Information (SSI) shall also be required to implement uniform security procedures regarding the identification, handling, care and storage of C&P security information belonging to Authority or Construction Manager; and SSI as defined in 49 CFR Parts 15 and 1520. Authority or Construction Manager C&P security information is information that, if subject to unauthorized disclosure, access, alteration, loss or misuse would be detrimental to the public interest and/or might adversely affect, or compromise, public safety or security as it relates to Authority or Authority property, facilities, systems and/or operations, or which might otherwise adversely affect homeland security.

The Authority has developed requirements and other safeguards that are necessary both to prevent unauthorized disclosure of C&P security information and to control the authorized disclosure of this information for use internally within the Authority and when released by the Authority to outside entities for legitimate business purposes. These requirements and safeguards may be found in the Information Security Handbook dated February 9, 2009 (Exhibit IV), which will be made available to the Contractor and each Subcontractor. Each Contractor, Subcontractor and their staffs shall follow and implement the requirements and safeguards set forth in the aforementioned Handbook. Further, the staffs of the Contractor, Subcontractors and others requiring access to C&P security information and SSI shall also be required to sign a Non-Disclosure/Confidentiality Agreement (NDA), or an Acknowledgement thereof where an executed NDA is in place, prior to performing work activities in connection with this Contract, the form of which is set forth in Exhibit IV - Information Security Handbook, Chapter 3 – Information Access, Non-Disclosure and Confidentiality Agreement.

2. The Contractor, each Subcontractor and others requiring access to C&P security information and SSI, shall appoint a senior management level employee to be the company's Security Information Manager (SIM). The SIM is responsible for implementing and maintaining the firm's Program For Protecting C&P security information and/or SSI. A deputy SIM (DSIM) shall also be appointed in case the SIM is unavailable for any reason.

3. The SIM shall prepare an Authorized Personnel Agreement Sub-Project List - a list of employees who are authorized to access C&P security information and the date each executed the NDA. A copy of this list shall be provided to Authority and the Construction Manager and updated monthly. This list will be used to verify that individuals have been briefed into the program and are certified for access to C&P security information.

Protection of C&P security information and SSI is a material obligation of the Contractor hereunder and failure to do so is grounds for termination for cause.

In addition, an individual's access to C&P security information and SSI may be contingent upon the satisfactory completion of a security background check for such individual and proof of the implementation of satisfactory procedures for safeguarding such C&P security information and/or SSI.

Unauthorized disclosure of SSI may be grounds for a civil penalty and/or other enforcement or corrective action by the United States Department of Transportation and/or the United States Department of Homeland Security against individuals or entities they deem appropriate including but not limited to the Contractor, its Subcontractors and their staffs.

Corrective action may include issuance of an order requiring retrieval of SSI to remedy unauthorized disclosure or an order to cease future unauthorized disclosure.

4. The Contractor shall include and require the inclusion of this numbered provision in all subcontracts and contracts for Work, services or supplying materials required for this Contract of every tier.

12. PREVAILING RATE OF WAGE CERTIFICATION

The proposers' attention is directed specifically to the clause of the Form of Contract entitled "Prevailing Rate of Wage" and to the fact that the Construction Manager requires a certification in writing from the successful proposer, in such form as may be required pursuant to such clause, that he has paid and caused his Subcontractors to pay at least the prevailing rate of wage and supplements required by such clause. This certification is required prior to his receipt of any payment from the Construction Manager hereunder as provided in the clauses of the Form of Contract entitled "Monthly Advances" and "Final Payment" or at any other time.

13. CERTIFICATION OF NO INVESTIGATION (CRIMINAL OR CIVIL ANTI-TRUST), INDICTMENT, CONVICTION, SUSPENSION, DEBARMENT, DISQUALIFICATION, PREQUALIFICATION DENIAL OR TERMINATION, ETC; DISCLOSURE OF OTHER REQUIRED INFORMATION

By proposing on this Contract, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the proposer and each parent and/or affiliate of the proposer has not (a) been indicted or convicted in any jurisdiction; (b) been suspended, debarred, found not responsible or otherwise disqualified from entering into contracts with any governmental agency or been denied a government contract for failure to meet prequalification standards; (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; (d) changed its name and/or Employer Identification Number (taxpayer identification number) following its having been indicted, convicted, suspended, debarred or otherwise disqualified, or had a contract terminated as more fully provided in (a), (b) and (c) above; (e) ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Proposal; (f) been denied a contract by any governmental agency for failure to provide the required security, including proposal, payment or performance bonds or any alternative security deemed acceptable by the agency letting the contract; (g) failed to file any required tax returns or failed to pay any applicable federal, state or local taxes; (h) had a lien imposed upon its property based on taxes owed and fines and penalties assessed by any agency of the federal, state or local government; (i) been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency, including an inspector general of a governmental agency or public authority; (j) had any sanctions imposed as a result of a judicial or administrative proceeding with respect to any professional license held or with respect to any violation of a federal, state or local environmental law, rule or regulation; and (k) shared space, staff, or equipment with any business entity.

The foregoing certification as to "(a)" through "(k)" shall be deemed to have been made by the proposer as follows: if the proposer is a corporation, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each director and officer, as well as, to the best of the certifier's knowledge and belief, each stockholder with an ownership interest in excess of 10%; if the proposer is a partnership, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate proposer, shall be deemed to have been authorized by the Board of Directors of the proposer, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the proposer cannot make the foregoing certification, the proposer shall so state and shall furnish with the signed proposal a signed statement which sets forth in detail the reasons therefor. If the proposer is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its proposal, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the proposer's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the proposal is submitted, the proposer agrees to complete Exhibit V (Project Corruption Prevention Program) as part of its proposal, require all Subcontractors and Materialmen to complete Exhibit V (Project Corruption Prevention Program) and to immediately notify the Construction Manager in writing of

any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the proposer with full knowledge that it would become a part of the records of the Construction Manager and that the Construction Manager will rely on its truth and accuracy in awarding this Contract. In the event that the Construction Manager determines at any time prior or subsequent to the award of the Contract that the proposer has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Construction Manager may determine that the proposer is not a responsible proposer with respect to its proposal on this Contract or with respect to future proposals and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority". In addition, proposers are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Proposers are also advised that the inability to make such certification will not in and of itself disqualify a proposer, and that in each instance the Construction Manager will evaluate the reasons therefor provided by the proposer.

Under certain circumstances the proposer may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by Authority. Said Monitor shall be charged with, among other things, auditing the actions of the proposer to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with Authority and the Authority.

As used in this clause, the following terms shall mean:

> Affiliate - An entity in which the parent of the proposer owns more than fifty percent (50%) of the voting stock, or an entity in which a group of principal owners which owns more than fifty percent of the proposer also owns more than fifty percent (50%) of the voting stock.
>
> Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, quasi-public agencies, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.
>
> Employer Identification Number - The tax identification number assigned to firms by the federal government for tax purposes.
>
> Investigation - Any inquiries made by any federal, state or local criminal prosecuting or investigative agency, including an inspector general of a governmental agency or public authority, and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal,

state, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the proposer by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than fifty percent (50%) of the voting stock of the proposer.

Space Sharing - Space shall be considered to be shared when any part of the floor space utilized by the submitting business at any of its sites is also utilized on a regular or intermittent basis for any purpose by any other business or not-for-profit organization, and where there is no lease or sublease in effect between the submitting business and any other business or not-for-profit organization that is sharing space with the submitting business.

Staff Sharing - Staff shall be considered to be shared when any individual provides the services of an employee, whether paid or unpaid, to the proposer and also, on either a regular or irregular basis, provides the services of an employee, paid or unpaid, to one or more other business(es) and/or not-for-profit organization(s), if such services are provided during any part of the same hours the individual is providing services to the proposer or if such services are provided on an alternating or interchangeable basis between the proposer and the other business(es) or not-for-profit organization(s). "The services of an employee" should be understood to include services of any type or level, including managerial or supervisory. This type of sharing may include, but is not limited to, individuals who provide the following services: telephone answering, receptionist, delivery, custodial, and driving.

Equipment Sharing - Equipment shall be considered to be shared whenever the proposer shares the ownership and/or the use of any equipment with any other business or not-for-profit organization. Such equipment may include, but is not limited to, telephones or telephone systems, photocopiers, computers, motor vehicles, and construction equipment. Equipment shall not be considered to be shared under the following two circumstances: when, although the equipment is owned by another business or not-for-profit organization, the proposer has entered into a formal lease for the use of the equipment and exercises exclusive use of the equipment; or when the proposer owns equipment that it has formally leased to another business or not-for-profit organization, and for the duration of such lease the proposer has relinquished all right to the use of such leased equipment.

14. NON-COLLUSIVE PROPOSING AND CODE OF ETHICS CERTIFICATION; CERTIFICATION OF NO SOLICITATION BASED ON COMMISSION, PERCENTAGE, BROKERAGE, CONTINGENT FEE OR OTHER FEE

By proposing on this Contract, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that: (a) the prices in its proposal 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 proposer or with any competitor; (b) the prices quoted in its proposal have not been and will not be knowingly disclosed, directly or indirectly, by the proposer prior to the official opening of such proposal to any other proposer or to any competitor; (c) no attempt has been made and none will be made by the proposer to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition; (d) this organization has not made any offers or agreements, or given or agreed to give anything of value (see definition of "anything of value" appearing in the clause of the Form of Contract entitled "No Gifts, Gratuities, Offers of Employment, etc.") or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the individual named in the clause hereof entitled "Questions by Proposers"), nor does this organization have any knowledge of any act on the part of an Construction Manager employee or former Construction Manager employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code; (e) no person or selling agency, other than a bona fide employee or bona fide established commercial or selling agency maintained by the proposer for the purpose of securing business, has been employed or retained by the proposer to solicit or secure this Contract on the understanding that a commission, percentage, brokerage, contingent or other fee would be paid to such person or selling agency; the proposer has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or from a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Contract.

The foregoing certification as to "(a)", "(b)", "(c)", "(d)" and "(e)" shall be deemed to have been made by the proposer as follows: if the proposer is a corporation, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each parent, affiliate, director and officer of the proposer, as well as, to the best of the certifier's knowledge and belief, each stockholder of the proposer with an ownership interest in excess of ten percent (10%); if the proposer is a partnership, such certification shall be deemed to have been made not only with respect to the proposer itself, but also with respect to each partner. Moreover, the foregoing certification, if made by a corporate proposer, shall be deemed to have been authorized by the Board of Directors of the proposer, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the proposer cannot make the foregoing certification, the proposer shall so state and shall furnish with the signed proposal a signed statement which sets forth in detail the reasons therefor. If the proposer is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its proposal, setting forth in such statement the reasons for its uncertainty.

As a result of such disclosure, the Port Authority shall take appropriate action up to and including a finding of non-responsibility.

Failure to make the required disclosures shall lead to administrative actions up to and including a finding of non-responsibility.

Notwithstanding that the proposer may be able to make the foregoing certification at the time the proposal is submitted, the proposer shall immediately notify the Construction Manager in writing during the period of irrevocability of proposals on this Contract or any extension of such period, of any change of circumstances which might under this clause make it unable to make the foregoing certification or required disclosure. The foregoing certification or signed statement shall be deemed to have been made by the proposer with full knowledge that it would become a part of the records of the Construction Manager and that the Construction Manager will rely on its truth and accuracy in awarding this Contract. In the event that the Construction Manager should determine at any time prior or subsequent to the award of this Contract that the proposer has falsely certified as to any material item in the foregoing certification or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certification required to be disclosed, the Construction Manager may determine that the proposer is not a responsible proposer with respect to its proposal on this Contract or with respect to future proposals on Construction Manager or Authority contracts and may, in addition to exercising any other rights or remedies it may have, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority".

In addition, proposers are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g., New York Penal Law, Section 175.30 et seq.). Proposers are also advised that the inability to make such certification will not in and of itself disqualify a proposer, and that in each instance the Construction Manager will evaluate the reasons therefor provided by the proposer.

Under certain circumstances the proposer may be required as a condition of this contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Authority. Said Monitor shall be charged with, among other things, auditing the actions of the proposer to determine whether its business practices and relationships indicate a level of integrity sufficient to permit it to continue business with Authority and the Authority.

15. PROPOSER ELIGIBILITY FOR AWARD OF CONTRACTS – DETERMINATIONS BY AN AGENCY OF THE STATE OF NEW YORK OR NEW JERSEY CONCERNING ELIGIBILITY TO RECEIVE PUBLIC CONTRACTS

Proposers are advised that the Authority has adopted a policy, which Construction Manager and Authority adopt as set forth herein, to the effect that in awarding its contracts it will honor any determination by an agency of the State of New York or New Jersey that a proposer is not eligible to proposal on or be awarded public contracts because the proposer has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The Authority policy permits a proposer whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a proposal on a Authority contract and then to establish that it is eligible to be awarded the contract on which it has proposal because (i) the state agency determination relied upon does not apply to the proposer, or (ii) the state agency determination relied upon was made without affording the proposer the notice and hearing to which the proposer was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state agency determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or a violation of a prevailing rate of wage law.

The full text of the resolution adopting the Authority policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

16. CONSTRUCTION SKILLS 2000 – APPRENTICESHIP PROGRAM

The Authority is a participant in Construction Skills 2000, a cooperative program among New York City schools, unions and public agencies. Construction Skills 2000 creates career opportunities in the construction industry for high school graduates by providing a systematic pathway into union-sponsored, skilled trade apprenticeship programs. The Authority encourages Contractors and their Subcontractors to maximize the use of apprentices under the applicable collective bargaining agreements or as contained in the applicable program approved by the New York State Department of Labor. The Contractor's plan for utilizing apprentices will be discussed at the pre-construction meeting.

Each Subcontractor proposed for approval under the Contract whose total amount of subcontracts under this Contract is greater than $1 Million Dollars and each proposer (except as set forth in the certification below) will be required to certify as to their participation in a New York State-registered apprenticeship program.

17. CERTIFICATION OF PARTICIPATION IN A STATE-REGISTERED APPRENTICESHIP PROGRAM

By proposing on this Contract, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, that the proposer participates in an apprenticeship program registered by the New York State Department of Labor. Participation in such an apprenticeship program shall mean that the proposer either (a) is a signatory to a collective bargaining agreement with a labor organization which sponsors an apprenticeship program registered with the New York State Department of Labor or (b) individually sponsors an apprenticeship program registered by the New York State Department of Labor and, in the case of both (a) and (b) above, such apprenticeship program shall be in the trade(s) in which Work is to be performed. This clause shall not apply to proposers who will perform all Work at the construction site through the use of Subcontractors.

The foregoing certification, if made by a corporate proposer, shall be deemed to have been authorized by the Board of Directors of the proposer, and such authorization shall be deemed to include the signing and submission of the proposal and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the proposer cannot make the foregoing certification, the proposer shall so state and shall furnish with the signed proposal a signed statement which sets forth in detail the reasons therefor. If the proposer is uncertain as to whether it can make the foregoing certification, it shall so indicate in a signed statement furnished with its proposal, setting forth an explanation for its uncertainty.

Notwithstanding that the certification may be an accurate representation of the proposer's status with respect to the enumerated circumstances provided for in this clause as requiring disclosure at the time that the proposal is submitted, the proposer agrees to immediately notify the Construction Manager in writing of any change in circumstances during the period of irrevocability, or any extension thereof.

The foregoing certification or signed statement shall be deemed to have been made by the proposer with full knowledge that it would become a part of the records of the Construction Manager and that the Construction Manager will rely on its truth and accuracy in awarding this Contract. In the event that the Construction Manager determines at any time prior or subsequent to the award of the Contract that the proposer has falsely certified as to any material item in the foregoing certification; willfully or fraudulently submitted any signed statement pursuant to this clause which is false in any material respect; or has not completely and accurately represented its status with respect to the circumstances provided for in this clause as requiring disclosure, the Construction Manager may determine that the proposer is not a responsible proposer with respect to its proposal on this Contract or with respect to future proposals and may, in addition to exercising any other rights or remedies available to it, exercise any of the rights or remedies set forth in the clause of the Form of Contract entitled "Rights and Remedies of Authority ". In addition, proposers are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see, e.g., New York Penal Law, Section 175.30 et seq.).

18. PROTEST PROCEDURES

The following protest procedure is the sole administrative remedy for protesting procurement decisions.

Any Proposer submitting a proposal in response to a solicitation may protest the award or decision to award a contract by submitting by certified mail such protest setting forth the basis thereof in writing to the Construction Manager's Procurement Manager no later than ten calendar days after notice of award or announcement of the decision to award on Construction Manager's website or actual knowledge by the protester that a decision by the Construction Manager on behalf of the Port Authority to award to other than the protester has been made whichever occurs first, addressed as follows:

Tishman/Turner, A Joint Venture
Procurement Manager
100 Broadway, 5th Floor
New York, NY 10005

The written protest should be received in the Construction Managers office not later than 5:00 p.m. on the tenth day. If the tenth day falls on a weekend or an official holiday, the ten-day period expires at 5:00 p.m. on the next regular workday.

The protest should contain, at a minimum, the following:

1.) Name and address of the protester including telephone and fax numbers and e-mail address;
2.) the solicitation title and number (if applicable);
3.) The contract or purchase order title and number, if available;
4.) A statement concerning the protester's interest in the award or non-award of the contract and/or purchase order;
5.) A detailed statement of the basis for the protest including any supportive documents and information;
6.) The relief requested and the reason therefore.

The Construction Manager's Procurement Manager will review the protest and supportive documents. The Construction Manager's Procurement Manager may take any action or make any requests he or she deems necessary in order to investigate the protest including extending the time to issue a decision in order to obtain all evidence and other pertinent information.

The protestor will be provided a copy of the written decision within seven (7) business days of receipt. This decision will be final unless within three (3) business days of receipt of the written decision the protestor appeals to the Construction Manager's Procurement Manager. The appeal should be in writing and sent certified mail to the Construction Manager's Procurement Manager as follows:

Tishman/Turner, A Joint Venture
Procurement Manager
100 Broadway, 5th Floor
New York, NY 10005

Upon receipt of such appeal, a Appeals Officer will be designated. Appeals Officer will review the protest and supportive documents and will issue notice to the Port Authority of receipt of such appeal. Appeals Officer will draft a written decision and submit to the Port Authority for review and written approval

within five (5) business days of the receipt of the protest where feasible.

No evidence or information may be introduced in the appeal that has not been presented to the Construction Manager's Procurement Manager. The Appeals Officer will review the appeal and supportive documents and the decision of the Construction Manager's Procurement Manager and issue a written decision within five (5) business days of receipt if feasible. The Appeals Officer may take any action or make any requests he or she deems necessary including extending the time to issue a decision in order to render a decision on the appeal.

The decision shall be conclusive and final.

Where the protester has exhausted all administrative remedies, the protester may pursue a protest with the FTA. An appeal to the FTA should be sent to the FTA Lower Manhattan Recovery Office (1 Bowling Green, New York City, NY, 10004) within five (5) working days of the date the protester learned or should have learned of a final adverse decision of the Authority. In addition, for FTA funded contracts, whenever any protest is received, regardless of its credibility, the Construction Manager's Procurement Manager should give notice to the FTA.

Reviews of protests by FTA will be limited to:

A. A grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or
B. Violations of Federal law or regulation.

19. INTEGRITY MONITOR

In the event that the Authority hires an Integrity Monitor in connection with the World Trade Center site, the contractor and any subcontractors shall cooperate fully with the Monitor and the Authority, which includes, but is not limited to, providing complete access to all personnel and records in any way related to the Work performed pursuant to this Agreement. Any failure to cooperate may result in the termination of this Agreement.

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CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

_____

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

- No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.
- The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(I)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.

The Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day _____ of _____, 200_____

By: _____ Signature of Authorized Official

_____ Official Name and Title of Authorized Official

STANDARD FORM LLL - DISCLOSURE OF LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

1. Type of Federal Action:
(a.) contract
b. grant
c. cooperative agreement
d. loan
e. loan guarantee
f. loan insurance

2. Status of Federal Action:
(a.) bid//offer/application
b. Initial award
c. post-award

3. Report Type:
(a.) initial filing
b. material change
For Material Change Only:
Year_____Quarter_____
date of last report_____

4. Name and Address of Reporting Entity:

(A.) Prime Subawardee

Tier___, *if known:*

Congressional District, *if known:*

5. If Reporting Entity in No.4 is a Subawardee, Enter Name and Address of Prime:

Congressional District, *if known:*

6. Federal Department/Agency:
N/A

7. Federal Program Name/Description:
N/A
CFDA Number, *if applicable:*

8. Federal Action Number, *if known:*

9. Award Amount, *if known:*
$_____

10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI)*

b. Individuals Performing Services *(including address if different from No.10a): (last name, first name, MI):*

11. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more that $100,000 for such failure.

Signature _____ Print Name _____
Title _____ Telephone No. _____ Date: _____

INSTRUCTIONS FOR COMPLETION OF DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s} performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. The prospective lower tier participant,

_____, certifies by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day _____ of _____, 200_

_____

BY SIGNATURE OF AUTHORIZED OFFICIAL

_____

NAME AND TITLE OF AUTHORIZED OFFICIAL

INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the signed certification set out on the previous page.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 292 CFR Parts 180 and 1200]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include the "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.

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

9. Except for transactions authorized under sub-paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

FORM OF CONTRACT

CHAPTER I
GENERAL PROVISIONS

20. 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 this Form of Contract, the Information for Proposers, the Authority's acceptance, the Specifications and the Contract Drawings (including written addenda issued over the name of the Director), all of which are made part hereof as though herein set forth in full. The Contract and term Contract Documents 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. The Form of Proposal is not a part of the "Contract" or the "Contract Documents".

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 Engineer; and "approved", "acceptable", "satisfactory" and words of similar import shall mean approved by or acceptable or satisfactory to the Engineer; and "necessary", "reasonable", "proper", "correct" and words of similar import shall mean necessary, reasonable, proper or correct in the judgment of the Engineer.

Whenever "including", "such as" or words of similar import are used, the specific things thereafter enumerated shall not limit the generality of the things preceding such words.

"Catalog Cuts" shall mean all standard drawings, diagrams, illustrations, brochures, schedules, performance charts and instructions submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work.

"Construction Manager" shall mean Tishman Turner a Joint Venture, having an office at 666 Fifth Avenue, New York, New York 10103, acting on behalf of the Director hereunder, and shall be generally responsible for the managing, supervision, coordination, and direction of all contractors in regards to the Work. Notwithstanding anything to the contrary contained in this Contract or in the Contract Documents shall be deemed to require or authorize Construction Manager to perform any act which would constitute the rendering of professional engineering, land surveying or other design services or laboratory testing. All rights of Construction Manager hereunder shall be deemed rights available to both Construction Manager and Authority, jointly and severally. All obligations of Construction Manager shall be deemed obligations of the Authority (and not the Construction Manager) and the Authority shall be solely obligated to the Contractor for all sums required to be paid hereunder to the Contractor. The Contractor shall simultaneously submit to the Construction Manager a copy of all notices and submittals that Contractor is required to submit to the Authority or Engineer.

The term "construction site" or words of similar import shall mean the WTC Transportation Hub areas within and adjacent to the area bordered by Church Street, Vesey Street, West Street, and Liberty Street

and the vicinity thereof at the World Trade Center site and the Temporary PATH Station and tracks, and other PATH facilities in New York and in New Jersey.

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

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

"Equipment" and "plant" shall include construction equipment and plant rented as agent for the Authority.

"Extra Work" shall mean Work required by the Director pursuant to the clause hereof entitled "Extra Work Orders" which is in addition to that required by the Contract Drawings and Specifications in their present form.

"Chief Engineer" shall mean the Chief Engineer of the Authority for the time being, or his successor in duties, acting personally.

"DCAA" shall mean the Defense Contracting Audit Agency.

"Deputy Director of Construction" shall mean the Deputy Director of Construction of the Authority for the time being, or his successor in duties, acting personally.

"Director" shall mean the Director, World Trade Center Construction, acting either personally or through his duly authorized representatives acting within the scope of the particular authority vested in them. For the purpose of administering this Contract, the Director has designated Tishman/Turner JV ("Construction Manager") to act as his duly authorized representative. The Director may from time to time change designations in writing of his representatives authorized to act as his duly authorized representatives with respect to this Contract, but no such representative shall be authorized to amend or modify any provision of this Contract or to act beyond its authority other than by written directions from the Director.

"Director of Procurement" shall mean the Director of Procurement of the Authority for the time being, or her successor in duties, acting either personally or through her duly authorized representatives acting within the scope of the particular authority vested in them.

"DOT" shall mean the United States Department of Transportation.

"Government", "Unites States Government", "Federal" or words of like import shall mean the United States of America.

"Engineer" shall mean the Engineer of Construction, acting either personally or through his duly authorized representatives acting within the scope of the particular authority vested in him. On behalf of the Director, the Construction Manager is responsible for administrating the Contract.

"Engineer of Construction" shall mean the designated Engineer of Construction for the facility at which the Work is being performed or his successor in duties, acting personally. On behalf of the Director, the Construction Manager is responsible for administrating the contract.

"FTA" and Government shall be used interchangeably.

"Inspector" shall mean any representative of the Engineer designated by him as Inspector and acting within the scope of the particular authority vested in him.

"Lump Sum" or "Contract Price" shall mean the amount stipulated in the clause hereof entitled "General Agreement".

"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 or of the parent or 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.

"Notice" shall mean a written notice.

"PATH" shall mean the Port Authority Trans Hudson Corporation transit system.

The term "permanent construction" shall include all construction, installation, structures, equipment and materials (including materials and equipment, if any, furnished by the Authority to be constructed, installed or left by the Contractor at or about the construction site (or elsewhere in the possession of the Authority 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 of similar import shall have the same meaning as the term "permanent construction".

"Shop Drawings" shall mean all drawings, diagrams, illustrations, schedules, including supporting data, which are specifically prepared for this Contract and submitted by the Contractor pursuant to the requirements of the Specifications or the Engineer to illustrate some portion of the Work. The terms "shop drawings", "placing drawings" and "working drawings" are used interchangeably in this Contract.

"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 furnished merely 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.

"Work" shall mean all work that is identified in the Contract Documents and shall include all things required to be provided, delivered, accomplished, submitted, furnished, supplied, performed and/or undertaken by the Contractor under the terms of the Contract Documents and includes all labor,

supervision and materials required to be supplied pursuant to this Contract, as well as all any other activities related or applicable thereto, associated therewith or arising therefrom; and "performance of Work" and words of similar import shall mean the furnishing of such facilities and the doing of such things. All Work is to be done in the best manner and by persons skilled in the type of work to be performed.

"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 shown upon the Contract Drawings), all Work shown upon the Contract Drawings in their present form (whether or not mentioned in the Specifications), and all 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)."

"FTA" shall mean the United States Department of Transportation, Federal Transit Administration (formerly known as the Urban Mass Transportation Administration).

"Workingman" or "workman" shall mean any employee of the Contractor or of a subcontractor who performs personal labor or personal services at the construction site.

"World Trade Center Construction (WTCC)" shall mean the Port Authority's World Trade Center Construction Department, which is principally responsible for the design and construction of the World Trade Center Site Transportation Hub.

"WTC/HUB" or "Project" shall mean the World Trade Center Site Transportation Hub project.

21. GENERAL AGREEMENT

The Contractor shall provide for the Project all the labor, supervision and materials hereinafter set forth in accordance with specifications hereto annexed or described herein and as shown on plans, drawings and details prepared by the Engineer. Such additional drawings as may be necessary to explain and detail the Work will be furnished by the Engineer, if requested by the Contractor, and will be conformed to by Contractor, except where inconsistent with original plans and specifications. The plans, drawings and details, and the specifications are intended to supplement one another, and any Work or materials shown, mentioned or reasonably implied in one and not in the others shall be furnished by the Contractor without extra charge. The enumeration of particular items in this Contract or in the other Contract Documents as hereinafter defined shall not be construed to exclude other items. The intention of the Contract Documents is to include all labor, materials, engineering, equipment, transportation, tools, plant, appliances, appurtenances and other facilities, whether specified herein or not, necessary for the proper execution and completion of the Work. This Contract includes, and this Contractor shall perform, all work commonly performed by this trade, whether or not shown on the plans and specifications in detail. The Contractor shall not receive any additional compensation by reason of any alleged incompleteness of the Contract Documents, or lack of coordination amongst the Contract Documents, or inconsistencies amongst the Contract Documents. Should there be any conflict or inconsistency in or among the Contract Documents, the Engineer shall have the right to resolve such conflict as it may elect in its sole discretion, which determination shall be binding upon Contractor, and the Authority shall have the right to the most costly or burdensome alternative, without an increase to the Lump Sum. The furnishing of equipment and plant, however, shall be subject to the provisions of the clause hereof entitled "Agency for Rental of Construction Equipment".

The Authority agrees to pay to the Contractor and the Contractor agrees to accept from the Authority, in full consideration for the performance by the Contractor of his duties and obligations under this Contract and the whole thereof, a compensation of:

Forty-Nine Million Two Hundred Ninety Thousand Dollars and Zero Cents ($49,290,000.00)[3]

(throughout this Contract called the "Lump Sum"), and such compensation only, subject only to the express provisions of this Contract specifically setting forth actual, defined additions to or deductions from such compensation.

The enumeration in this Form of Contract and in the Specifications of particular things to be furnished or done at the Contractor's expense, or without cost or expense to the Authority, or without additional compensation to the Contractor shall not be deemed to imply that only things of a nature similar to those enumerated shall be so furnished and done; but the Contractor shall perform all Work as required without other compensation than that specifically provided, whatsoever changes may be made in the Contract Drawings and Specifications, whatsoever Work may be required in addition to that required by the Contract Drawings and Specifications in their present form, and whatsoever obstacles or unforeseen conditions may arise or be encountered.

22. AUTHORITY ACCESS TO RECORDS

The Authority and the Construction Manager shall have access during normal business hours to all records and documents of the Contractor relating to any amounts for which the Contractor has been compensated, or claims he seeks to be compensated by the Authority by payment determined on any basis other than by payment of a lump sum or unit price amount agreed upon in writing by the Contractor and the Authority; provided, however, such access shall extend to certified payroll records as described in the clause of the Form of Contract entitled "Prevailing Rate of Wage" regardless of the method by which the Contractor is compensated under this Contract. The Contractor shall obtain for the Authority similar access to similar records and documents of subcontractors. Such access shall be given or obtained both before and within a period of six years after Final Payment to the Contractor.

No provision in this Contract giving the Authority a right of access to records and documents is intended to impair or affect any right of access to records and documents which the Authority would have in the absence of such provision.
To the extent that the Contractor is working on more than one construction project located at the World Trade Center, Contractor agrees that it shall maintain separate financial and time records for all labor and materials provided to each such project.

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[3] For sales tax exemptions, see clause entitled "Exemptions from New York State and New York City Sales Taxes".

23. AGENCY FOR RENTAL OF CONSTRUCTION EQUIPMENT

A. General Provisions

The Contractor further agrees to act as the agent of the Authority, subject to the provisions of this numbered clause relating to such agency for the rental of all construction equipment necessary or desirable for or incidental to the performance of the Contract (other than construction equipment owned and also used by the Contractor or owned and also used by any subcontractor) and, in the exercise of such agency, to assume all the obligations and duties imposed upon him by this Contract. The Contractor may authorize any subcontractor to act as his subagent for rental of such equipment for use by such subcontractor, subject to all the provisions of this Contract. "Construction equipment" as used in this numbered clause shall include plant.

The Authority will pay the rental charges for said equipment directly to the lessors thereof, but the charges so paid shall be deducted from the compensation payable to the Contractor under the Contract; provided, however, that the Authority will pay such charges, and the Contractor is authorized by the Authority to act as such agent, to the extent only that the charges payable for such rental do not exceed the compensation payable to the Contractor under the Contract; and provided further that the Contractor performs all the obligations relating to said agency imposed upon him by this Contract.

The Authority will provide the Contractor with a statement to be furnished by him and the subcontractors to such lessors which will identify this Contract as the one under which the Contractor is authorized to rent said equipment and which will identify the site to which delivery must be made. The Contractor shall arrange for delivery of said equipment directly to the construction site. Payment of the rental charges therefore shall be made by the Authority on the basis of invoices made out to the Authority in which is contained the place of delivery and on which the Contractor has certified by endorsement that such construction equipment is being or has been used in the performance of the Contract, said invoices to be submitted through the Contractor to the Authority at the time said equipment is put into use at the construction site. In the event said invoices are not submitted promptly, at the time stated above, but are submitted at a time when, by reason of prior advances and payments to the Contractor or for his account, the amounts still payable to the Contractor in connection with the Contract are insufficient to pay said invoices, then the Authority shall not be liable to the lessors for any amounts in excess of said amounts still payable to the Contractor which remain in the possession of the Authority.

Notwithstanding the above agency arrangement, the Authority shall not be liable to lessors of construction equipment for any amounts except rental charges based on time of use of such equipment, and the Contractor's agency is limited accordingly. All obligations incurred by the Contractor or subcontractors for any other expenses, including repairs and damages for breach of the rental agreement, shall be obligations incurred by the Contractor or subcontractors as principal not as agent of the Authority. Moreover, as between the Authority and the Contractor, the Contractor shall be responsible for all amounts due to lessors of construction equipment notwithstanding the above agency arrangement.

The Contractor shall indemnify the Authority and the FTA against any claim of any kind whatsoever made against the Authority or the FTA by a lessor of construction equipment and the Contractor assumes the risk of all claims against him by any lessor of construction equipment, including in both cases, claims in connection with a subcontractor.

The agency provided for under this numbered clause shall not relieve the Contractor of any of his duties and obligations elsewhere provided for under this Contract.

B. Option Not to Act as Agent

Notwithstanding the provisions of A above, the Contractor shall have the right to elect not to act as the agent of the Authority for the rental of any particular item or items of said construction equipment, in which event, with regard to any such rentals by the Contractor as principal and not agent, the provisions of A of this numbered clause shall be inapplicable as well as those provisions of the clause of the Form of Contract entitled "Exemption From New York State and New York City Sales Taxes", which relate to rental of construction equipment.

24. SALES TAX EXEMPTION

The Contractor (and its subcontractors and consultants, if any) should familiarize itself with New York's tax laws and regulations ("NY Tax Law"), including Form ST-120.1, *Contractor Exempt Purchase Certificate* issued by the New York State Department of Taxation and Finance ("Department"), as they apply to the Work. Contractor should also seek guidance from its tax advisor or legal counsel to ensure that it fully understands the contractor's Sales Tax exemptions described in the NY Tax Law.

The Port Authority of New York and New Jersey ("Authority") is an Exempt Organization as defined in the NY Tax Law. The Authority is also the owner of the property upon which the Work is to be performed and of all improvements made or to be made thereon.

The NY Tax Law provides contractors certain exemptions from New York sales and compensating use tax ("Sales Tax") relating to their purchases of tangible personal property and services to improve real property owned by Exempt Organizations ("Exempt Purchases"), including the Authority.

Exempt Purchases include:

(i) tangible personal property sold to a contractor to create a building or structure or to improve real property, or to maintain, service or repair a building, structure or real property owned by an Exempt Organization (e.g. the Authority) *when such tangible personal property will become an integral component part of such building, structure or real property;*

(ii) certain trash removal services being performed for the Work; and

(iii) tangible personal property to be installed in the Work but which remains tangible personal property after installation.

The Contractor shall **not** include Sales Tax for Exempt Purchases in its price proposal.

Tax exemption numbers and Form ST-119.1, *Exempt Organization Exempt Purchase Certificate* are not issued to the Authority or to other New York State governmental entities (see letter from the Department attached to Exhibit III). Contractor (and its subcontractors and consultants, if any) must execute and provide its vendors with a properly completed Form ST-120.1 *Contractor Exempt Purchase Certificate* when effectuating Exempt Purchases. This fully executed Contract and a properly completed and signed Form ST-120.1, evidences the tax exempt status of the Exempt Purchases.

The Contractor **shall** include in its price proposal Sales Tax applicable to purchases, other than Exempt Purchases, required under this contract.

The parties acknowledge that the Authority may choose to purchase property not to be incorporated into the Work and services (including the rental of equipment) for the Work exempt from Sales Tax through an agent that is properly appointed by it to act on its behalf. Contractor hereby agrees to accept such agency designation at the Authority's election, and to execute all forms and agreements necessary to accomplish the same. In such event, the Contractor will be required to execute a deduct change order with the Authority to reflect the change in the Contractor's price proposal after subtracting any Sales Tax and/or other costs not incurred by Contractor.

25. PERFORMANCE BOND

The Contractor shall furnish a bond for the faithful performance of all obligations imposed upon him by the Contract and also for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of the Contract. Such bond shall be in the form bound herewith entitled, "Performance Bond", shall be in a penal sum equal to one hundred per cent (100%) of the Lump Sum and such bond shall be signed by one or more sureties[4] satisfactory to the Authority. The bond may be executed on a separate copy of such form not physically attached to this Contract booklet. In any case, both the form of bond bound herewith and any unattached executed copy thereof shall form a part of this Form of Contract as though herein set forth in full.

At any time after the opening of Proposals, the Authority may give notice to one or more bidders to advise the Authority as to the names of their proposed sureties. Within forty-eight hours thereafter each bidder so notified shall so advise the Authority. The giving of such notice to a bidder shall not be construed as an acceptance of his Proposal, and omission to give such notice shall not be construed as an election by the Authority not to require a bond.

The Contractor shall deliver such bond to the Authority within seven days after receipt by him of the acceptance of his Proposal, and the sureties thereon shall be as proposed by him, provided, that if the Authority has theretofore given notice to him that his proposed sureties or any of them are not satisfactory, the bond shall be executed by other sureties satisfactory to the Authority.

The Authority shall give notice to the Contractor within ten (10) days after receipt of the Performance and Payment Bond as to whether or not such bond is satisfactory.
In the event of a default by the Contractor in his obligation to furnish a satisfactory bond within seven (7) days after he received an acceptance of his Proposal, such default shall entitle the Authority in its discretion to terminate this Contract at any time within forty-five (45) days after the acceptance of the Proposal, without any liability on the part of the Authority. Inasmuch as the damages to the Authority resulting from a termination by it upon the failure of the Contractor to furnish a satisfactory bond will include items whose accurate amount will be difficult or impossible to compute, such damages shall be liquidated in the sum of the following amounts:

A. The excess, if any, of the Lump Sum in the Proposal finally accepted over that in the Proposal of the Contractor; and

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[4] Sureties must be corporations (commonly known as "surety companies"), authorized to do business as sureties in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States in effect at the time of submission of the Performance and Payment Bond to the Authority as acceptable as sureties to the Treasury Department. In addition, the aggregate underwriting limitations on any one risk as set forth in the aforementioned list of the Treasury Department of the sureties shall equal or exceed the penal sum of the Performance and Payment Bond.

B. The expense of such new advertisement of the Contract, if any, as may be deemed necessary by the Authority; and

C. The sum of $15,000 for each day after the receipt by the Contractor of the acceptance of his Proposal that the performance of the Contract is not commenced by reason of the failure of the Contractor to furnish the required bond.

In the recovery of the damages above specified, the Authority may proceed against the sum represented by the certified check deposited with it or against the Bid Bond and take such other action as it may deem best in the public interest.

If the Contractor furnishes a bond in accordance with the requirements of the Authority under this numbered clause, the Authority shall reimburse the Contractor for the net amount actually paid by him to the surety or sureties as the premium on such bond. The Contractor shall deliver to the Engineer receipts from the surety or sureties evidencing such payment and the amount thereof. Within fifteen days after receipt of such evidence satisfactory to the Engineer, the Authority shall pay to the Contractor by check the amount provided in this numbered clause.

If at any time the Authority shall be or become dissatisfied with any surety or sureties then upon any bond furnished in accordance with the requirements of the Authority, or if for any other reason such bond shall cease to be adequate security to the Authority, the Contractor shall, within five days after notice from the Authority so to do, substitute a new bond in such form and sum and signed by such other sureties as may be necessary in the opinion of the Authority to constitute adequate security.

26. PAYMENT BOND

The Contractor shall furnish a bond for payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of this contract. Such bond shall be in the form bound herewith entitled, "Performance Bond", shall be in a penal sum equal to 100% of the Lump Sum and such bond shall be signed by one or more sureties[5] satisfactory to the Authority. The bond may be executed on a separate copy of such form not physically attached to this Contract booklet. In any case, both the form of bond bound herewith and any unattached executed copy thereof shall form a part of this Form of Contract as though herein set forth in full.

At any time after the opening of Proposals, the Authority may give notice to one or more bidders to advise the Authority as to the names of their proposed sureties. Within forty-eight hours thereafter each bidder so notified shall so advise the Authority. The giving of such notice to a bidder shall not be construed as an acceptance of his Bid, and omission to give such notice shall not be construed as an election by the Authority not to require a bond.

The Contractor shall deliver such bond to the Authority within seven days after receipt by him of the acceptance of his Bid, and the sureties thereon shall be as proposed by him, provided, that if the Authority has theretofore given notice to him that his proposed sureties or any of them are not satisfactory, the bond shall be executed by other sureties satisfactory to the Authority.

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5 Sureties must be corporations (commonly known as "surety companies"), authorized to do business as sureties in the state(s) in which the construction site is located, whose names appear on the current list of the Treasury Department of the United States in effect at the time of submission of the Performance and Payment Bond to the Authority as acceptable as sureties to the Treasury Department. In addition, the aggregate underwriting limitations on any one risk as set forth in the aforementioned list of the Treasury Department of the sureties shall equal or exceed the penal sum of the Performance and Payment Bond.

The Authority shall give notice to the Contractor within ten (10) days after receipt of the Performance Bond as to whether or not such bond is satisfactory.

In the event of a default by the Contractor in his obligation to furnish a satisfactory bond within seven (7) days after he received an acceptance of his Bid, such default shall entitle the Authority in its discretion to terminate this Contract at any time within forty-five (45) days after the acceptance of the Bid, without any liability on the part of the Authority. Inasmuch as the damages to the Authority resulting from a termination by it upon the failure of the Contractor to furnish a satisfactory bond will include items whose accurate amount will be difficult or impossible to compute, such damages shall be liquidated in the sum of the following amounts:

A. The excess, if any, of the Lump Sum in the Proposal finally accepted over that in the Bid of the Contractor; and
B. The expense of such new advertisement of the Contract, if any, as may be deemed necessary by the Authority; and
C. The sum of $15,000 for each day after the receipt by the Contractor of the acceptance of his Bid that the performance of the Contract is not commenced by reason of the failure of the Contractor to furnish the required bond.

In the recovery of the damages above specified, the Authority may proceed against the sum represented by the certified check deposited with it or against the Bid Bond and take such other action as it may deem best in the public interest.

If the Contractor furnishes a bond in accordance with the requirements of the Authority under this numbered clause, the Authority shall reimburse the Contractor for the net amount actually paid by him to the surety or sureties as the premium on such bond. The Contractor shall deliver to the Engineer receipts from the surety or sureties evidencing such payment and the amount thereof. Within fifteen days after receipt of such evidence satisfactory to the Engineer, the Authority shall pay to the Contractor by check the amount provided in this numbered clause.

If at any time the Authority shall be or become dissatisfied with any surety or sureties then upon any bond furnished in accordance with the requirements of the Authority, or if for any other reason such bond shall cease to be adequate security to the Authority, the Contractor shall, within five days after notice from the Authority so to do, substitute a new bond in such form and sum and signed by such other sureties as may be necessary in the opinion of the Authority to constitute adequate security.

CHAPTER II
ADJUSTMENTS AND PAYMENTS

27. ADJUSTMENTS OF LUMP SUM

If any Work required by the Contract Drawings and Specifications in their present form shall be countermanded or reduced by the Director in his sole discretion, the Director 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.

Notwithstanding the foregoing, the Director may, in his sole discretion, elect and 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.

28. COMPENSATION FOR EXTRA WORK

The Director shall have authority to agree in writing with the Contractor on behalf of the Authority upon lump sum or other compensation for Extra Work in lieu of the compensation for which provision is hereinafter made in this numbered clause. The amount set forth in any change order shall be the full compensation to Contractor for all Extra Work required regarding the change order, including without limitation all acceleration, delay, loss of efficiency, inconvenience, additional supervision, or any other costs or expenses.

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 direct cost in money of the labor and materials required for such Extra Work, plus an amount equal to a reasonable percentage, as determined by the Engineer of Construction, not to exceed fifteen percent (15%), applied to the Engineer's final estimate of the direct cost in money for labor and materials as required for such Extra Work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer of Construction deems reasonable.

B. In the case of Extra Work performed by a subcontractor, an amount equal to the direct cost in money of the labor and materials required for such Extra Work, plus an amount equal to a reasonable percentage, as determined by the Engineer of Construction, not to exceed fifteen percent (15%), applied to the Engineer's final estimate of the direct cost in money for labor and materials for such work, plus such rental for equipment (other than small tools) required for such Extra Work as the Engineer of Construction deems reasonable, plus an amount equal to a reasonable percentage, as determined by the Engineer of Construction , not to exceed five percent (5%) of the sum of the foregoing cost, percentage of cost, and rental. In no case shall the amount of the aggregate markup for the Contractor and all of its Subcontractors at every tier exceed 20.75% of the direct cost of the Extra Work.

"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 Engineer of Construction'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; however, all wages actually paid that are in excess of the prevailing wages in the performance of Extra Work shall be subject, on each occasion, to the initial and continuing approval of the Engineer of Construction in advance of the performance of such Extra Work; 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 Authority 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 Engineer of Construction on the basis of the following:

A

1.) Hourly rental for those items of equipment listed in the "Rental Rate Blue Book" (published by Machinery Information Division, K-III Directory Corporation, 1735 Technology Drive, Suite 410, San Jose, California 95131-2398), (hereinafter called "the Blue Book") shall be 100% of the applicable rates as listed in said book, reduced to an hourly basis (see formula below) except that such applicable rates shall be reduced by 50% for all hours of rental payable hereunder in excess of 8 hours each day. The edition of this publication to be used shall be the one in effect on the date of the actual rental of the equipment. The "Estimated Operating Cost per Hour" as set forth for such item of equipment in the Blue Book shall be added to the hourly rental for each hour that such equipment is actually engaged in performing Extra Work. No amount for operating cost will be allowed during periods when such equipment is not actually engaged in performing Extra Work (i.e. standby rental time). None of the provisions of the Blue Book shall be deemed referred to or included in this Contract except as specifically set forth in this Section.

2.) If no listing of rental rate and/or hourly operating cost for the item of equipment is in the Blue Book, the Engineer shall determine the reasonable rate of rental and/or hourly operating cost of the particular item of equipment by such other means as he finds appropriate.

3.) In the event the Contractor is directed by the Engineer to immediately perform Extra Work within 24 hours of the direction to proceed, the Engineer shall determine the reasonable rate of rental and/or hourly operating cost of the items of equipment necessary to perform such Extra Work by such means as he finds appropriate. However, if the equipment is owned by the Contractor or owned by a subsidiary of the Contractor, the Blue Book rates will apply as set forth in this clause.

B. When utilizing the rental rates appearing in the Blue Book, the Engineer shall determine the applicable rate and the hourly rental determined therefrom by applying the following criteria:

1.) The rate to be applied for an item of equipment used on a particular Extra Work order shall be the monthly rates from the foregoing publication.

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 monthly rental.	1/176 of monthly rental from Blue Book

2.) The rental rate shall be multiplied by the applicable regional adjustment factor shown for such item of equipment in the Blue Book. The adjustment factor shall not apply to the hourly operating cost.

3.) If the Engineer 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 Engineer 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 on the smallest or least elaborate equipment determined by the Engineer to have been suitable for the performance of the Extra Work.

C. In the case of equipment utilized only for Extra Work: (a) in addition to amounts determined as provided in subparagraphs A and B above, there will be added to the rental as computed above the reasonable cost of transporting such equipment to and from the construction site, including applicable tolls, 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 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 cover items of cost and expense to the Contractor of any type whatsoever, including administration, overhead, taxes (other than those enumerated above), clean-up, consumables 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 Construction Manager (a) daily time slips showing the name and 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, listing the actual hours of operation for each piece of equipment, together with the rental claimed therefor. Such memoranda and time slips are for the purpose of enabling the Engineer to determine the amounts to be paid by the Authority under this numbered clause; and accordingly, they shall constitute a condition precedent to such payment and the failure of the Contractor or his subcontractors to furnish Construction Manager 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. The Contractor's compensation for Extra Work shall be subject to audit review by the Authority. The Engineer or Construction Manager will notify the Contractor that an audit review will be conducted no later than 90 days from the date of such notification. The Engineer or Construction Manager will also provide the Contractor with an estimated duration of the audit. During the audit review, the Contractor shall provide records to substantiate the memorandum and time slips submitted to the Construction Manager. Failure to provide such Contractor or subcontractor records may result in a reduction or total denial of material, equipment and labor costs for Extra Work. Upon completion of the audit review, the Contractor will be provided with the audit findings of the Authority. If the Contractor disagrees in whole or in part with the audit findings, the Contractor shall notify the Authority of such disagreement in writing within 30 days of receipt of said audit findings or the Authority will deem the audit findings to be final and acceptable to the Contractor. 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.

29. COMPENSATION FOR PREMIUM TIME

Where the Engineer or Construction Manager directs that the Contractor perform Work at times other than those elsewhere specified in the Contract, and the Contractor directly or through a subcontractor is obligated by the provisions of its applicable collective bargaining agreement to pay premium time rates for such Work then, the Contractor shall be compensated for the cost differential between regular time rates and premium time rates at an amount equal to the total of the following:

A. For premium time rates paid by the Contractor to its own forces, an amount equal to the premium time portion of the salaries and wages which the employer is required to pay and actually pays to its employees pursuant to the terms of its applicable collective bargaining agreement for the overtime period or periods described above, plus a proper proportion, if any, computed upon the basis of premium time salaries and wages of (1) taxes actually paid by the employer pursuant to law, (2) vacation allowances, other fringe benefits and union dues and assessments which the employer actually pays pursuant to contractual obligations, and (3) increased premiums paid by the Contractor personally, specifically allocable to the insurance required by this Contract, plus an amount not to exceed five per cent (5%) of such premium portion.

B. For premium time rates paid by a subcontractor, an amount equal to the premium time portion of the salaries and wages which the employer is required to pay and actually pays to its employees pursuant to the terms of its applicable collective bargaining agreement for the overtime period or periods described above, plus a proper proportion, if any, computed upon the basis of premium time salaries and wages of (1) taxes actually paid by the employer pursuant to law, (2) vacation allowances, other fringe benefits and union dues and assessments which the employer actually pays pursuant to contractual obligations, and (3) increased premiums paid by a subcontractor, specifically allocable to the insurance required by this Contract, plus an amount not to exceed five per cent (5%) of such premium portion, plusan amount not to exceed two per cent (2%) of the foregoing cost.

All additions to the Contractor's compensation provided for in this clause require the prior written approval of the Engineer and are conditioned on the Contractor's verifiable by the Authority payment of such amounts to his subcontractor.

The additions to the Contractor's compensation provided in this clause shall not apply where the Engineer or Construction Manager directs the Contractor to perform work at times other than those specified elsewhere in the Contract and also determines that such work is required to mitigate previous delays in the Contractor's performance of Work.

30. COMPENSATION FOR EMERGENCY DELAYS

If the Contractor is specifically directed by the Engineer or Construction Manager to suspend his operations as stipulated in the Specifications entitled "Conditions and Precautions" or if the Contractor is specifically directed not to start his operations at a time when operations are permitted to start as stipulated in such Section, and if solely because of such suspension or direction not to start any of the Contractor's or subcontractor's employees or equipment then engaged in or about to start such Work are necessarily kept idle at the construction site, during the hours when they would otherwise be engaged in the performance of the Work, then the Contractor's compensation shall be increased by an amount equal to the salaries and wages in amounts approved by the Engineer which the employer is required to pay and actually pays to such employees for the period or periods of such idleness, plus a proper proportion of (a) taxes actually paid by the employer pursuant to law upon the basis of such salaries and wages, and (b) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligations upon the basis of such salaries and wages, and in addition thereto such rental as the Engineer deems reasonable for such equipment during the period or periods of such idleness. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Idle Salaried Men and Equipment".

In the event that the Contractor deems that any payment should be made pursuant to this numbered clause, he shall give prompt written notice to the Construction Manager stating the reasons why he believes such payments should be made and shall moreover, furnish to the Construction Manager at the end of each day, a memorandum showing the name, payroll title, salary rate and employer of each of the workingmen, and description, owner and claimed rental rate for each item of equipment claimed to have been kept idle. Said notice and memorandum are for the purpose of enabling the Construction Manager to verify the Contractor's claim at the time. Accordingly, notwithstanding any other provisions hereof, the failure of the Contractor to furnish such notice and memorandum shall constitute a conclusive binding determination on his part that he is not entitled to compensation as provided herein and shall constitute a waiver by the Contractor of all claims for such payment, such notice and memorandum being conditions precedent to payment under this numbered clause.

31. PROGRESS PAYMENTS

The Director shall (upon receipt from the Contractor of such information as he may require, including a certification in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause) estimate and certify to the Authority the approximate amount of Work performed and compensation earned by the Contractor up to that time showing separately:

A. The amount of Work (other than Extra Work) performed by the Contractor up to that time and a sum bearing the same proportion to the Lump Sum as the Work performed (other than Extra Work) bears to the Work performed and to be performed (other than Extra Work).

B. The increases, if any, in the Contractor's compensation for which provision is specifically made elsewhere in this Contract.

The Contractor shall submit to the Construction Manager an acknowledgment of payment to the date of the last payment, the Authority's form of partial waiver and release of liens and claims, as well as a statement of any back charges and credits to which the Authority is entitled, a sworn statement of any claim for charges or extras due to the Contractor (such claim not to be valid unless made at the time and in the manner set forth in this Contract). Provided that the Contractor has submitted all such documentation to the Construction Manager, as an aid to the Contractor and to facilitate his performance, the Authority shall, within thirty days after the receipt of each such monthly certificate, direct Construction Manager, as agent of the Authority, to pay to the Contractor from the Authority's funds by check the sums so certified, minus, however, either ten per cent (10%) of the sum certified pursuant to subparagraph A of this numbered clause or five percent (5%) of the Lump Sum, whichever is less, and minus all prior payments to the Contractor or for his account and minus payments by the Authority to lessors of construction equipment.

Within seven days of receipt of any sum attributable to Work performed by a subcontractor or materialman or within such later period as is provided in the subcontract or purchase agreement, the Contractor shall advance to the subcontractor or materialman said sum, less such amount, if any, as the Contractor is authorized to retain under the subcontract or purchase agreement.

Notwithstanding the above, the Authority shall have the right, at its sole discretion, to directly pay the subcontractors and material suppliers who perform Work for or furnish materials to the Contractor in connection with the Work of this Contract.

Prior to certifying any amount for payment hereunder, the Contractor shall also submit a certification accurately and fully setting forth the total amount due and payable to each subcontractor and supplier for Work performed or materials provided by such subcontractor or supplier in connection with the Work of this Contract as part of its progress payment application. Any payment made by the Authority to a subcontractor or supplier pursuant to the provisions of this numbered clause shall be made in reliance upon such certification and all such payments shall be considered as advances to the Contractor of the compensation payable hereunder. No such payment shall relieve the Contractor of any of its obligations hereunder.

Furthermore, within fifteen (15) days of the Contractor's receipt of the Authority acceptance of the Contractor's Proposal, the Contractor shall submit to the Construction Manager a listing of all subcontract and material supply agreements entered into by the Contractor for the performance of Work required by this Contract. Such listing shall include the names and addresses of each such subcontractor and supplier and the amounts payable under each such agreement. As and when any modifications are made to such agreements or any additional subcontracts or supply agreements are entered into, the Contractor shall inform the Engineer of such and shall indicate the amounts payable thereunder.

Nothing contained herein shall be deemed to create any additional rights in such subcontractors or suppliers or to alter the rights of the Authority as such are set forth in the clause hereof entitled "Withholding of Payments". Contractor acknowledges and agrees that Construction Manager is acting only as agent for the Authority and Construction Manager is not liable to Contractor for payment hereunder.

Contractor shall meet the requirements of Exhibit XIII.

32. RELEASE OF MONIES PREVIOUSLY WITHHELD FROM MONTHLY ADVANCES UPON RENDITION OF A CERTIFICATE OF SUBSTANTIAL COMPLETION

After the rendition of the Certificate of Substantial Completion and with the approval of the Engineer, an amount up to 80% of the total amount of monies withheld from the Contractor's monthly advances in accordance with the preceding clause may be released to the Contractor. If, in the Engineer's judgment, no monies, or less than 80% of the total amount of monies withheld should be released it will be based on, but not limited to, the estimated value of the remaining Work, unresolved claims by subcontractors, the estimate of possible audit adjustments and an assessment of the risks to the Authority in making such a release of monies. This clause does not create a right to such a release of monies or to any specific percentage release, all of which shall remain purely the discretionary decision of the Engineer.

Prior to the release of any amount withheld from the Contractor's monthly advances by the Authority, the Contractor shall submit to the Construction Manager a certification of all unresolved requests for additional compensation including all items in dispute and potential claims which the Contractor had actual knowledge of or by reasonable inspection and inquiry should have known of, to the date of the certification. Any such items not made known to the Authority by inclusion in the certification of additional compensation requests submitted by the Contractor will be deemed to have been released by the Contractor. Notwithstanding the above provisions, before making any release of monies the Engineer may require the Contractor to submit further information for the Engineer's review and analysis, and shall require the Contractor to execute a separate written release of claims as described above in a form acceptable to the Authority.

Nothing contained herein shall be deemed to alter or diminish the rights of the Authority as such are set forth in the clauses hereof entitled "Withholding of Payments", "Final Payment", "Monthly Advances" or under any other clause of this Contract relating to compensation to the Contractor, any release of monies hereunder being purely at the discretion of the Engineer.

33. FINAL PAYMENT

After the rendition of the Certificate of Final Completion and upon receipt from the Contractor of such information as may be required, including without limitation, (i) all Contractor's "as built" drawings, copies of all test data, records and related data; (ii) final surveys, operation and maintenance manuals, all guaranties and warranties to which the Authority is entitled hereunder or elsewhere in the Contract Documents; (iii) all permits, licenses, approvals, certificates and authorizations required by any authority having jurisdiction; (iv) a general release from the Contractor on the Authority's form in favor of the Authority and Construction Manager; (v) final releases and waivers of lien from all subcontractors, vendors and union fringe benefit funds; (vi) consent of surety to final payment; and (vii) proof satisfactory to Authority and the Construction Manager that all claims, including taxes, regarding the Work performed hereunder and any liens filed or recorded regarding the Work, have been released, the Director shall certify in writing to the Authority and to the Contractor the total compensation earned by the Contractor. As a condition precedent to certification by Director, the Contractor shall deliver to Authority all spare material, finishing materials, "attic stock," and equipment required to be furnished under the Contract.

The Contractor shall (i) certify to the Authority in writing, in such form as may be required pursuant to the clause hereunder entitled "Prevailing Rate of Wage", that he has paid and caused his subcontractors to pay at least the prevailing rate of wage and supplements required by such clause and (ii) furnish to the Authority and the Construction Manager a detailed sworn statement of all claims, just and unjust, of subcontractors, materialmen and other third persons then outstanding and which he has reason to believe may thereafter be made on account of the Work.

Within thirty days after issuance of such certificate of total compensation earned (or within thirty days after receipt of the documents provided for in the immediately preceding paragraph, if required), the Authority shall direct the Construction Manager, as agent of the Authority, to pay to the Contractor from the Authority's funds 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, as agent of Authority, to advance to the Contractor from the Authority's funds

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 Authority of all claims and of all liability to the Contractor and Construction Manager for all things done or furnished in connection with the Contract and for every act and neglect of the Authority 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 Bonds.

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 Authority or the Engineer.

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 any 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 judgment 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 judgment 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 judgment 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 6% per annum for the period, if any, in which such interest is due.

34. WITHHOLDING OF PAYMENTS

If (1) the Contractor fails to perform any of his obligations under this Contract or any other agreement between the Authority and the Contractor (including his obligation to the Authority 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 Authority) or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Authority and the Contractor is made against the Authority or its agent or (3) any subcontractor under this Contract or any other agreement between the Authority 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 Authority and the Contractor or if in the opinion of the Chief Engineer or Construction Manager any of the aforesaid contingencies is likely to arise, then the Authority 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 Chief Engineer 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 Chief Engineer 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 Authority 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 Authority does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Authority to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Authority shall create any obligation of any kind to such materialmen, 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 Authority under this numbered clause.

In the event that wages and/or supplements have been paid in an amount less than as required by this Contract, the Authority shall also have the right to withhold from the Contractor out of any payment, final or otherwise, on this, or any other open contract that the Contractor has with the Authority, so much as may be necessary to pay to laborers, mechanics, architects, draftsmen, engineers and technical workers, and others employed on the Work, the difference between the sums such persons should have received as wages and/or supplements and the amounts they actually received, and to pay such sums over to such persons. All such payments shall be deemed to be payments for the Contractor's account. In addition, the Contractor shall be required to pay to the Authority an amount equal to the Authority's cost of any investigation conducted by or on behalf of the Authority, that discovers a failure to pay wages and/or supplements as required by this Contract by the Contractor or its subcontractors, the cost of such investigation to be determined by the Chief Engineer personally. If the Contractor fails or refuses to pay for the cost of any such investigation after demand by the Authority, the Authority may deduct from any amount payable to the Contractor by the Authority, under the Contract or under any other open contract between the Contractor and the Authority, an amount equal to the cost of such investigation.

If, however, the payment of any amount due to the Contractor shall be improperly delayed by the fault of the Authority, the Authority shall pay the Contractor interest thereon at the rate of six percent (6%) 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

35. TIME FOR COMPLETION AND DAMAGES FOR DELAY

The Contractor shall complete the performance of all Work under this Contract as defined on Attachment A – Scope of Work.

The Contractor shall commence the Work in accordance with the written Notice to Proceed from Authority or Construction Manager and shall diligently and continuously prosecute and complete the Work and coordinate the Work with the other work being performed on the Project, in accordance with the Project Schedules as may be issued from time to time during the performance of the Work and any other scheduling requirements listed in this Contract, so as not to delay, impede, obstruct, hinder or interfere with the commencement, progress or completion of the whole or any part of the Work or other work on the Project.

Even though the Contractor has received a Notice to Proceed, the Contractor shall not commence the performance of the Work until the later of the following dates:

A. The date of receipt by him of notice from the Authority that the Performance and Payment Bond furnished by him is satisfactory;
B. The date of receipt by him of notice from the Authority that the insurance procured by him pursuant to said clause is satisfactory, as evidenced by the certificate to be furnished in accordance with said 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 Authority shall give notice to the Contractor within ten days after receipt of the Performance and Payment Bonds or certificate of insurance as to whether or not such bonds or insurance is satisfactory.

The Contractor recognizes that the Work under this Contract is part of a program of construction, including the work of many others, to renovate and develop the Project, which is situated in an existing structure with dated and connected installations and concealed conditions that may affect the Work. Given the complexity of the Project, the nature of the Site, and high-quality of the work required of all entities, among other factors, the Contractor agrees to afford the Authority the discretion to modify the Project Schedule without any increase to the Contract Price, consistent with the prompt and cost-efficient completion of the entire Project as determined by the Authority, consistent with the Contract Documents, but subject, however, to all of the aforementioned conditions and considerations that may or will affect the progress of the Work.

The Contractor's obligations for the performance and completion of the Work within the 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 times hereinbefore stipulated, or within the later time or times if extended in accordance with the provisions of the Clause 36 of the Contract entitled "Extensions of Time". Inasmuch as the damage and loss to the Authority which will result from delay in completing the performance of the Work within the times herein stipulated will include items of loss whose amount will be incapable or very difficult of accurate estimation, the damages to the Authority for

each calendar day by or in which the Contractor does not complete the performance of the Work within the times stipulated or within such times as extended in accordance with the provisions of the Clause 36 of the Contract entitled "Extensions of Time" may be liquidated and if so in the sum of the amounts, if any, as shown in Attachment A – Scope of Work. Any such liquidated damages shall be cumulative and are not the sole remedy for delays.

Inasmuch as the completion of the Project within the prescribed limit of time is dependent largely upon the close and active cooperation of all those engaged therein, it is therefore expressly understood and agreed that the Contractor shall lay out and install all work at such time or times and in such manner as not to delay or interfere with the carrying forward of the work of other contractors. In the event of any dispute arising as to possible or alleged interference between the various contractors which may retard the progress of the work, the dispute shall be adjudicated by the Director, whose decision as to the party or parties at fault and as to the manner in which the matter may be adjudicated, shall be binding and conclusive on all parties.

36. EXTENSIONS OF TIME

The time above provided for 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 Engineer the Contractor is necessarily delayed in completing such part by such time solely and directly by a cause which meets all the following conditions:

A. Such cause is beyond the Contractor's control and arises without his fault.

B. Such cause comes into existence after the opening of Proposals on this Contract andneither was nor could have been anticipated by investigation before such opening.

There will be no Extensions of Time granted to the extent the Contractor is deemed responsible for a concurrent delay.

Variations in temperature and precipitation shall be conclusively deemed to have been anticipated before opening of such Proposals on this Contract except to the extent that the actual monthly average temperature varies from a temperature which is 10 per cent (10%) above or below the monthly normal 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 days 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 and Damages for Delay" (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 Engineer. 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:

Month	Normal number of days per month on which precipitation exceeds 0.1 inch
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 or for other delay for which the Contractor is not entitled to an extension of time.

Any reference herein to the Contractor shall be deemed to include its 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.

Delays shall not automatically result in an extension of the time inasmuch as a delay may not necessarily affect existing critical activities or cause non-critical activities to become critical. The period of any extension of time shall be granted only to the extent that the time adjustments to the activity or activities affected by the delays extends the critical path, it being understood and agreed that any float in the Project Schedule is for the use of either party, for the benefit of the Project as determined by the Engineer. The Engineer may defer all or part of his decision on an extension and any extension may be rescinded or shortened if it subsequently is found that the 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 Engineer and Construction Manager 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 Authority 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 Authority, and since, with sufficient opportunity, the Authority 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 timely 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 Engineer 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.

37. IDLE HOURLY MEN AND EQUIPMENT

If any hourly men or equipment of the Contractor or any subcontractor are necessarily kept continuously idle and wholly unoccupied at the construction site for a full day on each of two or more full days on which they would be engaged in the performance of the Work but for causes due solely to acts or omissions of the Authority or the Director occurring after the opening of Proposals on this Contract, and if such idleness is not due to any cause within the control of the Contractor or of any of his subcontractors or materialmen or his or their employees, then the Authority shall pay to the Contractor and the Contractor shall accept (in addition to any sums otherwise payable under this Contract, and in full satisfaction of and in liquidation of all claims for damages because of such act or omission of the Authority or the Director) an amount equal to that which the employer actually pays such hourly employees during such full days of idleness, plus a proper proportion of vacation allowances and union dues and assessments actually paid by the employer pursuant to contractual obligations on the basis of such salaries, and a proper proportion of the taxes actually paid by the employer pursuant to law upon the basis of such salaries and plus such rental for such idle equipment as the Director deems reasonable. The rental for idle equipment shall be computed by the Engineer in accordance with the provisions of the clause of the Form of Contract entitled "Compensation for Extra Work"; provided, however, that the amount not to exceed five percent (5%) of the rental to be paid in accordance with said clause in the case of equipment utilized by subcontractors shall not be payable in connection with such idle equipment; and provided further that the provisions of subparagraph C of said clause shall not be applicable to such idle equipment.

The Contractor shall give written notice to the Engineer before the end of the second of the above mentioned 2 or more full days (whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for payment under this numbered clause), specifically stating that hourly men or equipment have been kept idle under circumstances which might result in payment under this numbered clause; and he shall furnish with such notice, for all the days that have occurred, and shall in addition furnish at the end of each additional day of the above mentioned 2 or more full days, (a) a memorandum showing the name, payroll title, salary rate and employer of each of the salaried men

claimed to have been kept idle at the construction site, and taxes based upon their salaries and the holiday and vacation allowances and union dues and assessments which the employer must actually pay pursuant to contractual obligations based on their salaries, and (b) a memorandum of the equipment claimed to be kept idle, together with the amount claimed as rental therefor. Said notice and memoranda are for the purpose of enabling the Engineer to verify the Contractor's claim at the time, and of enabling him to take such steps as may be necessary to remedy the conditions upon which the claim is based. The furnishing of such notice and memoranda shall be a condition precedent to payment under this numbered clause, so that the day on which notice is given shall be counted as not later than the second of the above mentioned 2 or more full days and no subsequent day shall be counted for which the above memoranda are not furnished at the end of such day.

38. DELAYS TO CONTRACTOR

As between the Contractor and the Authority, 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 acts or omissions of the Authority and Construction Manager, their respective officers, 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 except to the extent, if any, that compensation may be agreed to by the Director in writing pursuant to the clause hereof entitled "Compensation for Extra Work" for impact costs incurred by the Contractor in connection with the performance of Extra Work. Subject only to such exceptions, 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 Authority 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 Authority 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 Authority as to the time of such performance and the delay of the Authority in fulfilling such requirement shall not result in liability of any kind on the part of the Authority 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.

39. CANCELLATION FOR DELAY

If the performance of the Contract or any portion of it shall, in the opinion of the Director, 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 Authority's own ability to perform it, either directly or through others, the Authority 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 Authority. In the event of such cancellation, no allowance shall be made for anticipated profits.

39.1 TERMINATION FOR CONVENIENCE

The Director may terminate this Contract, in whole or in part, at any time by written notice to the Contractor when it is in the Authority's best interest. Upon receipt of the notice of termination, Contractor shall:

A. Stop Work on the date and to the extent specified in the notice of termination;

B. Place no further purchase orders or subcontracts for materials, service or facilities except as may be necessary for completion of such portion of the Work as is not terminated;

C. Unless directed otherwise by Engineer or the Construction Manager, terminate all purchase orders and subcontracts to the extent that they relate to the performance of Work terminated by the notice of termination;

D. Assign to Authority, in the manner, at the times, and to the extent directed by Engineer, all of the right, title and interest of Contractor under the purchase orders and subcontracts so terminated, in which case the Authority shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such purchase orders and subcontracts;

E. To the extent required and approved by Authority, settle all outstanding liabilities and all claims arising out of such termination of purchase orders and subcontracts;

F. Transfer title to Authority and deliver in the manner, at the time, and to the extent, if any, directed by the Authority (i) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the Work terminated, and (ii) return to the Authority the completed or partially completed plans, drawings, information, and other property which, if the Work had been completed, would have been required to be furnished;

G. Use its best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Authority, any property of the types referred to in clause (F) above provided, however, that the Authority (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed and at a price or prices approved by Authority; and provided, further, that the proceeds of any such transfer or disposition shall be applied to reduce any payments to be made by Authority to the Contractor or shall otherwise be credited to the price or cost of the Work or paid in such other manner as the Authority may direct;

H. Complete performance of such part of the Work as shall not have been terminated; and

l. Take such action as may be necessary, or as Authority may direct, for the protection and preservation of the property related to the Contract which is in the possession of Contractor and in which Authority has or may acquire an interest.

The Contractor will be compensated for work performed in accordance with the terms of the contract up to the date of termination. The Contractor will also be compensated for reasonable contract termination costs subject to acceptance and written pre-approval by the Director of such termination costs. In no case shall the Contractor be compensated for anticipated profit, i.e.: profit on work not performed by the Contractor prior to termination. Any Authority property in the Contractor's possession at the time of termination shall be turned over to the Authority as or disposed of by the Contractor as the Director directs. If the Authority terminates this Contract for cause and it is ultimately decided by the Chief Engineer or a court of law that Contractor should not have been terminated for cause, then such termination shall be treated as a Termination for Convenience pursuant to this section and Contractor's rights and remedies regarding said termination shall be limited to those set forth in this section.

CHAPTER IV
CONDUCT OF CONTRACT

40. AUTHORITY OF DIRECTOR

Inasmuch as the public interest requires that the project to which this Contract relates shall be performed in the manner which the Authority, acting through the Director, deems best, the Director 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. The absolute authority of the Director shall include but not be limited to approval of all compensation due to this Contractor under this Contract including the authorization of Extra Work and schedule modifications.

If at any time it shall be, from the viewpoint of the Authority, impracticable or undesirable in the judgment of the Director, to proceed with or continue the performance of the Contract or any part thereof, whether or not for reasons beyond the control of the Authority, the Director shall have authority to suspend performance of any part or all of the Contract until such time as the Director may deem it practicable or desirable to proceed. Moreover, if at any time it shall be, from the viewpoint of the Authority impracticable or undesirable in the judgment of the Director to proceed with or continue the performance of the Contract or any part thereof whether or not for reasons beyond the control of the Authority, the Director 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 of the parties arising out of portions already performed, but no allowance shall be made for anticipated profits.

In the event the Director cancels this Contract as to any or all portions not yet performed and as to any materials not yet installed even though delivered under his authority set forth above, such cancellation shall be deemed a Termination for Convenience, pursuant to and in accordance with Clause 39.1 of Chapter III, entitled "Termination for Convenience" of this Contract.

41. AUTHORITY OF CHIEF ENGINEER

In the performance of the Contract, the Contractor shall conform to all orders, directions and requirements of the Engineer and shall perform the Contract to the satisfaction of the Engineer 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 Engineer shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Contract Drawings and Specifications. The Contractor shall employ no equipment, materials, methods or men to which the Engineer objects, and shall remove no materials, equipment or other facilities from the construction site without permission. Upon request, the Engineer shall confirm in writing any oral order, direction, requirements or determination.

In the exercise of this authority, the Engineer, acting on the behalf of the Director, shall have power to alter the Contract Drawings and Specifications; to require the performance of Work not required by 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.

The Contractor is requested to orally advise the Engineer of questions as they arise. Although such advice will not substitute for the written notice and information for which requirements are set forth elsewhere herein, it is anticipated that it will facilitate prompt decisions on the part of the Engineer and others.

The enumeration herein or in the Specifications of particular instances in which the opinion, judgment, discretion or determination of the Engineer shall control or in which the Contract 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, but without exception the entire Contract shall be so governed and so performed.

To resolve all disputes and to prevent litigation the parties to this Contract authorize the Chief Engineer 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 or any subcontract, purchase or other agreement entered into by the Contractor for the performance of Work required by 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. In connection with any subcontract, purchase or other agreement entered into by the Contractor for the performance of Work required by this Contract, the Chief Engineer will resolve disputes only if such dispute has a monetary value greater than ten percent (10%) of the compensation provided for in the subcontract, purchase or other agreement and only after the Contractor and the subcontractor, materialman or other contracting party have made a reasonable attempt to resolve such dispute. The Chief Engineer, in his sole discretion, will determine if "a reasonable attempt to resolve such dispute" has been made. The Chief Engineer's 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 the Engineer, Director or 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 Chief Engineer 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 Authority relating to any such question the

Contractor must allege in his complaint and prove such submission, which shall be a condition precedent to any such action. No evidence or information shall be introduced or relied upon in such an action that has not been so presented to the Chief Engineer.

This numbered clause shall be governed by and construed in accordance with the law of the State of New York, without giving effect to its choice of law provisions.

Notwithstanding the fact that a dispute, controversy or question shall have arisen in the interpretation of any provision of this Contract, the performance of any Work, the delivery of any material, the payment of any moneys to the Contractor, or otherwise, the Contractor agrees that it will not directly or indirectly stop or delay its Work pending the determination of such dispute or controversy.

The Contractor shall be required to insert this provision in all his subcontracts, purchase and other agreements for the performance of Work required by this Contract.

42. NOTICE REQUIREMENTS

No claim against the Authority 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:

A. In the case of any claims for Extra Work, extension of time for completion, idle salaried men 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.

B. In the case of all other types of claim, notice shall have been given to the Engineer , 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. A copy of such notice shall also be submitted to Construction Manager. Such information shall be supplemented with any 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 Engineer, personally.

The above requirements for notices and information are for the purpose of enabling the Authority to avoid waste of public 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 Authority.

The above referred to notices and information are required whether or not the Authority is aware of the existence of any circumstances which might constitute a basis for a claim and whether or not the Authority 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 either a written statement signed by the Executive Director of the Authority or a resolution of the Commissioners of the Authority expressly stating that a waiver is intended as to any particular provision of this numbered clause, and more particularly no discussion, negotiations, consideration, correspondence, or requests for information with respect to a claim by any Commissioner, officer, employee or agent of the Authority 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 Authority representative above designated to receive it may not be sufficient to come to the attention of the representative of the Authority 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.

43. 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 Authority as part of the bid or negotiation of this 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 for 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 State's 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 the 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 Authority 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 Authority or other public authority or agency of the State, 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 designee. 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 provisions 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 Authority 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 by the Authority, the Contractor shall promptly so notify the General Counsel to the Authority, requesting him to intervene and protect the interests of the Authority.

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 the benefit of such parties, as well as for the benefit of the Authority, and said Commission, Commissioner and the Attorney General shall have a direct right of action against the Contractor to effectuate the intent of this clause.

44. 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 at the time and in the locality in which the Work is being performed in accordance with the provisions of the clause entitled "Davis-Bacon and Copeland Anti-Kickback Acts - Contracts Exceeding $2,000" as determined by the Engineer.

For purposes of this Contract, the Engineer has determined that the prevailing rates of wage and supplements are those established by the Secretary of Labor of the United States pursuant to the Davis-Bacon Act (40 U.S.C.A. 276a) for the locality in which the Work is to be performed. The schedule of wages and supplemental benefits which are currently in effect is attached hereto. However, the applicable rates shall be those which are in effect at the time the work is performed. Although the wage and supplements determination of the Secretary may change during the term of this Contract, and the Contractor shall be bound to pay the revised amounts, no change in lump sum, unit price or combination of lump sum and unit price compensation to the Contractor shall be due based upon a change in the Secretary's determinations of wages or benefits. The provisions 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 Authority; and if the Contractor or any subcontractor shall pay or provide any such workman, 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 workman, 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 Authority shall not be a necessary party to any action brought by any workman, laborer or mechanic to obtain a money judgment 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 herein before prescribed. All wages actually paid that are in excess of the prevailing wages in the performance of Extra Work shall be subject, on each occasion, to the initial and continuing approval of the Engineer in advance of the performance of such Extra Work.

The Contractor shall post at the Work site, in a place that is prominent, accessible and visible to all employees of the Contractor and its subcontractors during the daily time period that the Contractor and/or subcontractor performs Work at the site, the appropriate prevailing wage and supplement schedules. The Contractor must inform all employees, including those of its subcontractors, that they may obtain a copy of the prevailing wage and supplement schedule from the Contractor.

The Contractor and every subcontractor shall make and maintain weekly payroll records during the course of the Work and for the period set forth in the clause hereof entitled "Authority Access to Records" for all employees employed in the Work. Such records shall contain the name, address and social security number of each such employee, the employee's correct payroll classification, rate of pay and supplements, daily and weekly number of hours worked, deductions made and actual wages and supplements paid. The Contractor shall submit these weekly payroll records to the Authority (on forms furnished by the Authority) of all his payroll records and those of each of his subcontractors as the Authority may require with the Contractor's monthly Payment Application, together with an affidavit by the Contractor and by each subcontractor to the effect that such payroll records are correct and complete, the wage and supplement rates contained therein are not less than those required by the provisions of this Contract, and the classifications set forth for each employee conform with the work performed. Such copies and summaries and the original payroll records shall be available for inspection by the Authority (including its Inspector General), and the Contractor and its subcontractors shall permit such representatives to interview employees during working hours on the job site.

The Engineer may at any time request the Contractor to prepare a daily report on the Authority form entitled *Contractor Daily Sign-In Sheet*, copies of which can be obtained from the Engineer, The *Contractor Daily Sign-In Sheet* shall be completed as follows:

1.) At the beginning of each workday the Contractor shall:
   a. fill in the top of the *Contractor Daily Sign-In Sheet*, including the location, date, contractor/subcontractor name and contract number;
   b. ensure that each employee, including those of subcontractors, has printed and signed his or her name and indicated his or her work classifications, the last four digits of his or her social security number, and his or her starting time;
2.) At the end of each workday, the Contractor shall:

a. ensure that each employee, including those of subcontractors, has signed out and indicated his or her ending time;

b. sign the Certification Statement at the bottom of the form to indicate that the information contained in the *Contractor Daily Sign-In Sheet* is true and accurate; and

c. submit the original completed form to the Engineer's representative.

In an area of his office at the Site of the Work which is accessible to his employees, the Contractor shall display such printed material as may be provided by the Engineer setting forth information for the employees of the Contractor and his subcontractors concerning the wage and supplemental benefit requirements set forth in this numbered clause. The Contractor shall also cause each of his subcontractors to display such material in a similarly accessible place in any office which the subcontractor maintains at the Site of the Work.

The Contractor's failure to comply with any provision of this numbered clause shall be deemed a substantial breach of this Contract.

45. MINIMUM WAGE RATES

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 five days after the opening of bids and the award is made within thirty days after bids are opened, or ninety days after the date of 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.

46. EXTRA WORK ORDERS

No Extra Work shall be performed except pursuant to written orders of the Director expressly and unmistakably indicating his intention to treat the Work described therein as Extra Work; and, exclusive of Extra Work expressly authorized by or pursuant to a resolution of the Commissioners of the Authority or its Committee on Construction, the Director shall have authority to order any item of Extra Work, if the cost thereof to the Authority together with the cost of all other Extra Work previously ordered and not expressly authorized as aforesaid will not in the aggregate be 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 as above provided to the extent expressly authorized in a writing signed by the Executive Director of the Authority delegating authority vested in him pursuant to the By-Laws or a resolution of the Commissioners of the Authority or its Committee on Construction.

In the absence of such an order signed by the Director in the case of Extra Work, if the Engineer 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 five days give written notice thereof to the Director and the Engineer with a copy to the Construction Manager, stating why he deems it to be Extra Work, and shall moreover furnish to the Engineer 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 Director 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 Engineer, of affording to the Engineer an opportunity of keeping an accurate record of the materials, labor and other items involved, and generally of affording to the Authority 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 Engineer 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.

Upon issuance of a Notice of Extra Work by the Engineer to the Contractor, the Contractor shall submit to the Engineer a Change Order Proposal indicating the Extra Work revisions to the Contract work and all costs and schedule for performing the Extra Work. The Change Order Proposal shall include accurate and current documentation for each item of the Change Order Proposal to demonstrate reasonableness of the Change Order Proposal to the satisfaction of the Engineer. Such documentation shall contain cost breakdowns of all submitted claimed expenses, including but not limited to material cost, labor cost, labor rates by trade and work classification, and overhead and profit rates used in preparation of the Change Order Proposal.

47. 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.

48. TITLE TO MATERIALS

All materials to become part of the permanent construction shall be and become the property of the Authority 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 the Contractor", subparagraph A.

The Contractor shall promptly furnish to the Authority 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 Authority.

49. 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 the express consent in writing of the Authority shall be void and of no effect as to the Authority, provided, however, that the Contractor may subcontract portions of the Work to such persons as the Engineer 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 Authority a certification or, if a certification cannot be made, a statement by such person, partnership or corporation to the same effect as the certification or statement required from the Contractor pursuant to the clauses of the "Information For Bidders" entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information", "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee" and "Certification of Participation in a State-Registered Apprenticeship Program". For each proposed subcontractor, the Contractor shall ensure that the Background Qualification Questionnaire Package ("BQQP"), available at http://www.panynj.gov/wtcprogress/pdf/PANYNJ_OIG_WTC_BQQP.zip, is completed. The Certification of Participation in a State-Registered Apprenticeship Program shall only be applicable to each subcontractor whose total amount of subcontract under this Contract is greater than $1 Million Dollars. Notwithstanding the aforementioned, for any subcontract or supply contract greater than $25,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in Chapter VII. Paragraph 68 (Certification - Debarment and Suspension) and for any subcontract or supply contract greater than $100,000, the Contractor shall obtain certifications and any necessary disclosure forms from all subcontractors and suppliers as set forth in Chapter VII, Paragraph 69 (Certification - Lobbying Restrictions –Contracts Exceeding $100,000) and forward the originals to the Director of Procurement, Procurement Department, Port Authority of New York & New Jersey, One Madison Avenue, 7th Floor New York, New York 10010. All further subcontracting by any subcontractor shall also be subject to such approval of the Engineer. Approval of a subcontractor may be conditioned on (among other things) the furnishing, without expense to the Authority, of a surety bond guaranteeing payment by the subcontractor 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 Authority or the Engineer shall create any rights in favor of such subcontractor and against the Authority; and as between the Authority and the Contractor, all assignees, subcontractors, and other transferees shall for all purposes, except in regard to acting as an agent of the Authority for sales tax 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 Engineer, the Engineer 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.

The Authority shall have the right to assign this Contract in whole or in part without the consent of the Contractor to third party or parties following advance written notice to the Contractor.

50. CLAIMS OF THIRD PERSONS

The Contractor and its surety undertakes to promptly pay all claims lawfully made against him by subcontractors, materialmen and workmen, and all claims lawfully made against him by other third persons for labor or services performed or materials, supplies, machinery equipment, rentals, fuels, oils, tools, appliances, insurance and other items furnished, used or consumed in connection with the prosecution of the Work provided for in this Contract and any and all modifications thereof, and shall indemnify and save harmless Authority and Construction Manager of and from all liability loss, damage and expense, including interest, costs and attorney fees, which Authority and/or Construction Manager may sustain by reason of Contractor's or its Surety's failure to do so.

51. 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 judgment of the Director 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 Authority for other purposes, the Engineer may render to the Authority 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 Authority 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 Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bonds. Except as provided by this Section, Contractor acknowledges that beneficial occupancy shall not apply to this Contract and Contractor agrees to waive all claims regarding beneficial occupancy.

52. CERTIFICATE OF SUBSTANTIAL COMPLETION

Prior to the rendition of the Certificate of Final Completion, the Director may deem the entire Work to be substantially completed when, in the judgment of the Engineer, the permanent construction has been satisfactorily completed to the point where the Work is fit for its intended purpose and use. The Engineer may, if such a determination of substantial completion is made and at such time, render to the Authority and to the Contractor a certificate in writing to that effect (herein called the Certificate of Substantial Completion), and thereupon or at any time thereafter the Authority may take over and use the permanent construction described in such Certificate and exclude the Contractor therefrom except for access to complete punch list items. Whether to make a determination of a substantial completion as to any portion of the Work, and whether to render such a Certificate, shall be the discretionary determination of the Engineer based upon an examination and appraisal of the completed Work, and no right to such a determination or certification is established in the Contractor by this provision.

The rendition of such Certificate of Substantial Completion shall not relieve the Contractor of his obligation hereunder to complete the Work of this Contract nor shall it 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 Substantial Completion by the Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bonds.

When the Contractor is of the opinion that the Work is substantially complete as described above (except for minor punch list items), the Contractor may submit to the Engineer a written request that the Engineer inspect the Work so as to determine, in the Engineer's sole opinion, whether substantial completion has been achieved. The Contractor's written request shall list the specific punch list items of Work that are incomplete. Upon such a request, the Engineer will respond within 30 days with a Certificate of Substantial Completion or provide a written explanation of the reasons why the Work is not substantially complete including a list of open items necessary to achieve substantial completion. Nothing contained herein shall be deemed to preclude the Engineer from making a determination of substantial completion in the absence of a request therefor by the Contractor.

53. 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 Director shall render to the Authority 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 Engineer, 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 Authority shall not operate to release the Contractor or his sureties from any obligations under or upon this Contract or the Performance and Payment Bonds.

54. NO GIFTS, GRATUITIES, OFFERS OF EMPLOYMENT, ETC.

During the term of this Contract, the Contractor shall not offer, give or agree to give anything of value either to an Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Authority of duties involving transactions with the Contractor on behalf of the Authority, whether or not such duties are related to this Contract or any other Authority contract or matter. Any such conduct shall be deemed a material breach of this Contract.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Contract or any other Authority contract), etc., which might tend to obligate the Authority employee to the Contractor, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Contract or any other Authority contract.

Where used in this clause, the term "Authority" shall be deemed to include all subsidiaries of the Authority. Currently, those subsidiaries are the Port Authority Trans-Hudson Corporation (PATH), the Newark Legal and Communications Center and the New York and New Jersey Railroad Corporation.

In addition, during the term of this Contract, the Contractor shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated as of April 11, 1996 (a copy of which is available upon request to the Office of the Secretary of the Authority).

The Contractor shall include the provisions of this clause in each subcontract entered into under this Contract.

CHAPTER V
WARRANTIES MADE AND LIABILITY ASSUMED BY THE CONTRACTOR

55. CONTRACTOR'S WARRANTIES

The Contractor represents and warrants:

A. That he is financially solvent, that he is 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 Commissioner, officer, agent or employee of the Authority is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder; and

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 Authority, its Commissioners, Construction Manager and their respective 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.

F. Contractor shall keep itself informed of the conditions at the Site, so as not to delay, including without limitation, the delivery of materials or the installation of the Work called for in this Contract and shall cooperate with other contractors working at the Site and afford all other contractors reasonable opportunity for the introduction and storage of their materials and execution of their work. The Contractor recognizes that efficient construction of the Project requires that all the Work thereon be coordinated and therefore agrees to accept the determination of the Authority and/or Construction Manager as to the time when Work of the Contractor shall begin and the manner in which it shall progress in connection with other work involved in the said construction. It further

agrees that the direction of the Authority and/or Construction Manager with respect thereto shall be complied with fully and promptly at no additional cost.

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, unless specifically provided for elsewhere in this Contract.

Nothing in the Contract Drawings or Specifications or any other part of the Contract is intended as or shall constitute a representation by the Authority as to the feasibility of performance of this Contract or any part thereof. Moreover, the Authority 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 Authority 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 Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

56. 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, of the Authority and/or the Construction Manager, 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 Authority subsequent to the opening of Proposals on this Contract with actual and willful intent to cause the loss, damage and injuries described in subparagraphs A through D 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 Authority;

B. The risk of loss, damage to or alterations of the structures to be demolished occurring prior to completion of demolition by the Contractor (such structures being still included, however, in the term "Work"). In the event of such loss, damage or alterations, the Contractor shall nevertheless complete the performance of the Work, including the demolition, without additional cost to the Authority and without compensation for lost salvage value;

C. 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 Authority or Construction Manager 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) or out of or in connection with the Contractor's operations or presence at or in the vicinity of the construction site or Authority premises, including claims against the Contractor or the Authority 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;

D. The risk of loss or damage to any property of the Contractor, and of claims made against the Contractor or the Authority or the Construction Manager 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 Authority premises or the vicinity thereof.

The Contractor shall indemnify the Authority, the MTA and the Construction Manager as well as their respective officers, agents, servants or employees, and affiliates, parents and subsidiaries and the FTA against all claims described in subparagraphs C and D 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 General Obligations Law, Section 5-322.1 or by other applicable law. If so directed, the Contractor shall defend against any claim described in subparagraphs C and D above, in which event he shall not without obtaining express advance permission from the General Counsel of the Authority raise any defense involving in any way jurisdiction of the tribunal, immunity of the Authority, governmental nature of the Authority or the provisions of any statutes respecting suits against the Authority. Unless a claim is one which the Contractor is not required to indemnify the Authority 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 Commissioners, officers, agents and employees of the Authority, so that they shall have all the rights which they would have under this numbered clause if they were named at each place above at which the Authority is named, including a direct right of action against the Contractor to enforce the foregoing indemnity, except, however, that the Authority by action of its Board of Commissioners 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 numbered 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.

The Contractor and its subcontractors of all tiers waive claims against the Authority and the Construction Manager for any consequential, indirect, special or punitive damages that may arise out of the Work performed pursuant to this Contract. For the avoidance of doubt, no third party beneficiary shall have any right against Authority or Construction Manager for such damages. The waiver includes, but is not limited to, damages incurred for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit.

57. 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 use of the words "benefit" or "direct right of action".

58. INSURANCE PROCURED BY THE AUTHORITY

In order to reduce the cost of this Contract, the Authority will procure and will maintain in force and pay the premiums on the WTC Transportation Hub Owner Controlled Insurance Program (OCIP) as follows:

A. Workers' Compensation

A separate standard NYS Workers' Compensation policy will be issued to each Contractor performing Work at the construction site. Coverage will include:

1.) Workers' Compensation, including Occupational Disease, and
2.) Employers' Liability, subject to the laws of New York State;
3.) U.S. Longshore and Harbor Workers' Act, Federal Employers' Liability Act, and Maritime Endorsement, as applicable.

NOTE: Workers' Compensation coverage is not provided for certain types of work performed (e.g., asbestos abatement or Electrical work . However, it is the responsibility of the Contractor to comply with NYS Workers' Compensation law by providing their own coverage for their workers. Please contact P.A. Treasury / Risk Management.

B. Commercial General Liability Insurance

Commercial General Liability Insurance to each Contractor, as follows:

1.) $1,000,000,000 Combined Single Limit (CGL) each one occurrence and aggregate.
2.) General Liability and Excess Liability policies include the following coverages and provisions:

a. Bodily Injury and Property Damage Liability
b. Completed Operations extended for three (3) years from the date of termination of the Insurance Policy or completion of the Contract, whichever comes first. "Completed Operations Liability", means liability for "Bodily Injury" and/or "Property Damage" arising out of the "Insured's" operations or reliance upon a representation or warranty made at any time with respect thereto, but only if the "Bodily Injury" and /or "Property Damage" happens after such operations have been completed or abandoned and happens away from the premises owned by or rented to any "Insured" (other than those premises owned or operated by the named "Insured").
c. Personal Injury Liability
d. Cross Liability in respect to Bodily Injury claims
e. Incidental Malpractice Liability
f. Advertising Liability

C. Builder's Risk Insurance

Builder's Risk Insurance coverages are as follows:

1.) $1,000,000,000 of Hard Costs (subject to a $50,000,000 annual aggregate for Flood and Earthquake damage and $250,000,000 per occurrence as respects Windstorm).

2.) Coverages include, but are not limited to:

a. All property to be used in or incidental to the Contract, including property in the Insured's custody, property in which the insured has an insurable interest, property for which the insured is liable.

And as more fully described in the Lexington Manuscript Completed Value Builders Risk policy form.

3.) The Contractor acknowledges that such insurance does <u>not</u> cover the Contractor's and its subcontractors' tools, equipment or temporary structures.

D. Contractors Pollution Liability

Contractors Pollution Liability coverage is as follows:

1.) Limits - $100,000,000 each combined with a $100,000,000 policy aggregate. The deductible is $10,000 that is the responsibility of the Contractor and subcontractors. The policy has limitations and exclusions.

2.) Bodily injury, property damage, or environmental damage caused by pollution conditions resulting from covered operations (the Contract work) only, and must be unexpected and unintended from the standpoint of the Insured.

3.) The bodily injury, property damage, or environmental damage must occur during the policy period.

E. Terrorism

1.) Limits - $500,000,000

Coverage – Based upon the Terrorism Risk Insurance Act of 2002 and the Terrorism Risk Insurance Extension Act of 2005.

Coverage includes acts considered "certified" and "non-certified" acts of terrorism.

A copy of the Insurance Guide for Contractors, attached hereto as Exhibit XII(A), contains a general outline of the Owner Controlled Insurance Program.

Determination in any instance as to the appropriateness of the included coverage described in A.1, 2 and 3 above will be made based upon information to be provided by the Contractor relating to the mode of performance of work to be done under the Contract.
The policy described in A above will not provide coverage for any workers' compensation for the Contractor and/or subcontractors who perform any asbestos work or Electrical work -. In such cases, the Contractor or subcontractors shall procure and maintain, at their own expense, the workers' compensation insurance in accordance with the requirements of law in the state(s) where the work will take place, along with employer's liability insurance (in limits of not less than $1 million per occurrence). Should the Contractor and/or subcontractors be required to procure the workers' compensation insurance, within ten days after the acceptance of its Proposal the Contractor shall deliver to the General Manager, Risk Management, The Port Authority of NY & NJ, Treasury Department, 225 Park Avenue South, 12th Floor, New York, N.Y. 10003 (Attn: The WTC Coordinator), an original certificate, stating the Contract number, from the insurer. A duplicate certificate evidencing the above insurance shall also be delivered to the Engineer. With regard to insurance required to be procured by a subcontractor, the Contractor shall deliver the certificate described above at least ten days before the subcontractor commences Work.

The requirements for insurance procured by the Contractor or subcontractors shall not in any way be construed as a limitation on the nature or extent of the obligations of the Contractor or subcontractors.

The current policies described in A through E of this numbered clause are on file and available for examination by appointment in the office of the General Manager, Risk Management, The Port Authority of NY & NJ, Treasury Department, 225 Park Avenue South, 12th Floor, New York, N.Y. 10003. Please contact Boris Pisman at 212-435-5855 to schedule an appointment. The policies under A and E above are subject to certain coverage exclusions. The Contractor and subcontractors shall comply with all obligations of the insured under or in connection with all of the policies described in A through E above. The Contractor warrants and represents that it has had the opportunity to read and analyze copies of the OCIP insurance policies and that it understands the contents thereof. Any reference in the Contract, the Insurance Guide for Contractors or elsewhere in any other Contract Document as to amount, nature, type or extent of coverage provided under the OCIP and/or potential applicability to any potential claim or loss is for reference only and the Contractor warrants and represents that it has not relied upon said reference but solely upon their own independent review and analysis of the OCIP insurance policies in formulating any understanding and/or belief as to amount, nature, type or extent of any coverage provided by the OCIP insurance policies and/or its potential applicability to any potential claim or loss. The obligation to read and analyze copies of the OCIP insurance policies shall be included by the Contractor in all of its subcontracts.

The Authority shall have the right at any time and from time to time at its option to procure insurance substituting in whole or in part for any or all of the policies described in A through E above or to require that the Contractor and the subcontractors themselves obtain insurance substituting in whole or part for that above referred to, provided always, however, that the Contractor and the subcontractors shall be afforded coverage as stipulated by the Authority and the Authority shall either pay the premiums on such substitute insurance or reimburse the Contractor and the subcontractors therefor.

Neither the procurement of the above insurance or any substitute insurance nor the extent of the coverage or the limits of liability thereunder shall be construed to be a limitation on the nature or extent

of the Contractor's obligations, or to relieve the Contractor of any such obligations, and the procurement of the above insurance is only for the purpose of reducing the cost of the Contract without constituting any representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on the Contractor by law (except the New York State Workers' Compensation Law) or by this or any other Contract.

Notwithstanding any provision of this clause, however, no subcontractor shall be or have the right to be covered under the policies of insurance above referred to until the subcontractor has been expressly approved in writing by the Engineer, as required under this Contract, and such approval may be withheld, among other reasons, until execution by the subcontractor of agreements affirming its obligations provided in this clause with respect to the above insurance.

The provisions of this numbered clause are not intended to create any rights for the Contractor other than rights, which may be available to the Contractor under said policies themselves, whatever such rights may be. Moreover, the Authority makes no representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty, either by the provisions of this numbered clause or otherwise, as to the effect of or the coverage under said policies, and no employee or agent of the Authority is authorized to make any such representation or guaranty or to offer any interpretation of or information on said policies.

The Contractor warrants and represents that it has examined and is familiar with the above stated coverages and that in submitting its Proposal it has relied solely on its own interpretation thereof and not on any representations or statements, oral or written, of the Authority, its Commissioners, officers, agents, employees, consultants or contractors.

All negotiations and adjustments with any insurer concerning payment for any loss, the risk of which is borne by the Contractor under this Contract, shall be the responsibility of and shall be conducted by the Contractor unless the applicable policy provides otherwise. The Contractor shall, however, inform the Engineer of the progress of all such negotiations and notify the Engineer sufficiently in advance of all meetings thereon so that the Engineer or designated representatives may attend said negotiations if they so desire.

The Authority shall be entitled to all returned premiums, dividends and credits which may become payable at any time for any reason whatsoever in connection with the aforementioned insurance. The Contractor hereby assigns to the Authority all such returned premiums, dividends and credits and the subcontractors shall be deemed to have assigned to the Authority all such returned premiums, dividends and credits by becoming subcontractors under this Contract. The Contractor shall execute and cause the subcontractors to execute any instrument necessary or convenient to evidence the Authority's right to such returned premiums, dividends and credits.

Notwithstanding any payment by the Authority of any insurance premiums, the Authority shall not be deemed the employer of any employees hired by the Contractor or any subcontractor covered by such insurance nor shall it be liable for any of the obligations of such employer.

The Contractor and the subcontractors shall cooperate to the fullest extent with the Authority in all matters relating to the aforementioned insurance and shall comply with all requirements of all insurance policies procured by the Authority. They shall also at their own expense furnish the Engineer or a duly authorized representative with copies of all payrolls, correspondence, papers, records and other things necessary or convenient for dealing with or defending against any claims and for procuring or administering the aforementioned insurance including furnishing the name of any of their employees, officers, or agents whose presence or testimony is necessary or convenient in any negotiations or proceedings involving such insurance.

59. INSURANCE PROCURED BY CONTRACTOR

The following types of contractors and/or subcontractors shall not be eligible for coverage in the Owner Controlled Insurance Program (OCIP): Consultants, - electricians (not eligible for Workers Compensation only, but will be enrolled for all other coverages), suppliers (that do not perform or subcontract installation), vendors, materials dealers, guard services, janitorial services, and truckers (including trucking to the project where delivery is the only scope of work performed). Contractor shall mean any contractor or subcontractor of any tier. Unless otherwise directed by Construction Manager or Owner, contractors not enrolled in the OCIP shall be required to maintain their own insurance, of the type and with the limits set forth below or such other types and limits as they customarily carry, at their own expense, and shall promptly furnish the Construction Manager and Owner, or its designated representative, certificates of insurance giving evidence that all required insurance is in force.

The Contractor, in its own name as insured, shall maintain and pay the premiums on the policy or policies of insurance for coverage(s) as hereinafter described, which shall cover its operations hereunder, shall be effective throughout the effective period of this contract, and shall afford coverage(s) in not less than the amounts set forth below:

A. Statutory Workers' Compensation and Occupational Disease Insurance in accordance with the applicable law or laws: Employer's Liability Insurance with Limit of Liability as at least $1,000,0000.

B. Commercial General Liability (together with any excess liability or umbrella liability insurance coverage) with a combined Bodily Injury and Property Damage limit of not less than Twenty-Five Million Dollars ($25,000,000) per occurrence and in the aggregate. Coverage must include the following:

1. Contractual Liability for liability assumed under this Contract and all other contracts relative to the Project.
    a. Delete contractual exclusion, or any other policy exclusions, for Work done within 50 Feet of a Railroad, Lightrail, subway or similar tracked conveyance.
2. Completed Operations/Products Liability with three (3) year extension beyond completion and acceptance of the Project
3. Broad Form Property Damage
4. "XC&U" Perils Covered, where applicable
5. Personal Injury Liability (A, B & C) and Advertising Injury Coverage

6. Independent Contractors

7. Additional Interest/Insured Endorsement (CG2010 November 1985 version, or its equivalent) must be furnished reflecting the inclusion of the interests of those parties listed on Schedule 1 hereto, together with their respective parent companies, corporations and/or partnerships and their owned, controlled, affiliated, associated and subsidiary companies, corporations, and/or partnerships and the respective agents, consultants, principals, partners, servants, officers, stockholders, directors and employees of each and all other indemnities named in the Contract as Additional Insureds. The endorsement must specifically include Completed Operations coverage for the Additional Insureds.

8. Coverage is to be endorsed to reflect that the insurance provided is to be primary and non-contributory for the Port Authority of New York and New Jersey, Construction Manager, and all other Additional Insureds named in Schedule 1.

9. Coverage is to be provided on an "occurrence" basis with carriers licensed and admitted to do business in the State of New York or otherwise acceptable to the Authority and Construction Manager, and shall have an A.M. Best Rating of A - X or better.

10. A copy of the policy and/or endorsement(s) and any other documents required to verify such insurance are to be submitted with the appropriate certificate(s), or upon the request of Construction Manager.

Commercial Automobile Liability Insurance covering "any vehicles on the broadest commercially available form:

a. Combined single limit for bodily injury and property damage liability – $5 Million each accident. In the event a Contractor is performing Hazardous Material(s) Work appropriate coverages to meet DOT and EPA requirements shall be included

D. **Commercial Professional Liability Insurance (CPLI)** covering the Architect, Design and Engineering Services required by contract of at least Five Million Dollars ($5,000,000).

E. Where an Off Project Site property exposure exists, the Contractor at its sole expense shall furnish to the Port Authority and Construction Manager, Certificates of Insurance and other required documentation evidencing "All Risk" Property Damage Insurance for the replacement value of said property and which shall provide for those entities listed on Schedule 1 to each be a Loss Payee as its interest shall appear, and shall contain a provision requiring the insurance carriers to waive their rights of subrogation against all Additional Insureds and indemnities named in the Contract.

F. The Contractors and Subcontractors performing Work or services in connection with the Project shall maintain "All Risk" Property Insurance for Temporary Structures and Contractor's Tools and Equipment at the site until completion of their Work. Coverage is to be provided on a replacement cost basis including the perils of Flood, Earthquake and Terrorism (TRIA) and which shall provide for those entities listed on Schedule 1 to each be a Loss Payee as its interest shall appear, and shall contain a provision requiring the insurance carriers to waive their rights of subrogation against the Additional Insureds listed in Schedule 1 below.

G. The above insurance shall each contain the following wording verbatim and provide these two endorsements on the insurance certificate:

1. **"The Port Authority and Construction Manager are interested in the maintenance of this insurance and it is agreed that this insurance will not be canceled, materially changed or not renewed without at least thirty (30) days' advance written notice to The Port Authority of New York and New Jersey, having an office at 225 Park Avenue South, New York, New York, 12th Floor, 10003, Attn: Boris Pisman, and Tishman Construction Corporation, 666 Fifth Avenue, New York, New York 10103, Attn: Risk Management Department, by certified mail-returned receipt requested."**

2. **"The insurance carrier(s) shall not, without obtaining the express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority."**

H. The amount of insurance contained in aforementioned insurance coverages, shall not be construed to be a limitation of liability on the part of the Contractor or any of its Subcontractors, and the carrying of the insurance described shall in no way be interpreted as relieving the Contractor of any responsibility of liability under the Contract.

I. The Contractors shall file certificates of insurance prior to the commencement of Work and with the Authority and Construction Manager which shall be subject to the Authority's and Construction Manager's approval of adequacy of protection and the satisfactory character of the Insurer.

In the event of failure of the Contractor to furnish and maintain said insurance and to furnish satisfactory evidence thereof, the Authority and/or Construction Manager shall have the right (but not the obligation) to take out and maintain the same for all parties on behalf of the Contractor who agrees to furnish all necessary information thereof and to pay the cost thereof to the Authority and/or Construction Manager immediately upon presentation of a bill.

J. Any type of insurance or any increase of limits of liability not described above which the Contractor requires for its own protection or on account of statute shall be its own responsibility and at its own expense.

K. Subrogation.

a. Any policies effected by the Contractor on its owned and/or rented equipment and Materials shall contain a provision requiring the insurance carriers to waive their rights of subrogation against the Authority, the Construction Manager, and all other Additional Insureds and indemnities named in the Contract.
b. Workers' Compensation policy and all liability policies except Commercial Professional Liability Insurance (D) shall contain a provision requiring the insurance carriers to waive their rights of subrogation against the Authority, the Construction Manager, and all other Additional Insureds and indemnities named in the Contract.

L. Should the Contractor engage a Subcontractor, the same conditions will apply under this Contract to each Subcontractor, however, the Subcontractor shall be required to maintain limits of liability of not

less than Five Million Dollars ($5,000,000) per occurrence, or such greater limits as may be required by the Contractor.

The Contractor shall deliver certified copies of the policy(ies) described above or certificate(s) of insurance evidencing the existence thereof to the Construction Manager at the location where the work will be performed, within ten (10) days after the acceptance of its Proposal. Such policy(ies) or certificate(s) shall state the contract number and shall contain a valid provision or endorsement that the policy(ies) may not be canceled, terminated, changed or modified without giving thirty (30) days written advance notice thereof to the Authority.

Certified copies of all renewal policies or certificates evidencing their existence shall be delivered to the Engineer at the location where the work will be performed at least ten (10) days prior to the expiration date of each expiring policy. If at any time any of the certificates or policies shall be or become unsatisfactory to the Authority as to form or substance, or if the carrier issuing any such certificate or policy shall be or become unsatisfactory to the Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy. Upon request of the General Manager, Risk Management, the Contractor shall furnish the Authority with a certified copy of each policy stated above.

The requirements for insurance procured by the Contractor shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on them by law or by this or any other Contract.

Schedule 1 – Indemnitees and Additional Insureds:

a) The Port Authority of New York and New Jersey
b) WTC Retail LLC
c) 1 World Trade Center LLC
d) The Port Authority Trans-Hudson Corporation
e) STV Construction, Inc.
f) NYS Department of Transportation
g) Tishman Construction Corporation
h) Tishman Realty & Construction Co., Inc.
i) Tishman Construction Corporation of New York
j) Silverstein Freedom Tower Development LLC, and its Affiliates
k) 2 World Trade Center LLC
l) 3 World Trade Center LLC
m) 4 World Trade Center LLC
n) World Trade Center Properties LLC
o) 1 WTC Holdings LLC
p) 2 WTC Holdings LLC
q) 3 WTC Holdings LLC
r) 4 WTC Holdings LLC
s) Silverstein Properties, Inc.
t) Silverstein East WTC Facility Manager LLC
u) WTC Redevelopment LLC
v) Silverstein WTC Mgmt. Co. LLC
w) Silverstein WTC Mgmt. Co. II LLC
x) Silverstein WTC Properties LLC
y) Silverstein WTC LLC
z) Silverstein 2/3/4 WTC Redevelopment LLC
aa) Spring World Inc.
bb) Spring WTC Holdings Inc.
cc) WTC Investors LLC
dd) Net Lessees' Association of the World Trade Center
ee) WTC Management and Development LLC
ff) Silverstein WTC Management and Development LLC
gg) WTC Investors Management and Development LLC
hh) Larry A. Silverstein
ii) The City of New York
jj) The Lower Manhattan Development Corporation
kk) The World Trade Center Memorial Foundation
ll) Metropolitan Transportation Authority
mm) Turner Construction Company
nn) Tishman/Turner, A Joint Venture

CHAPTER VI
RIGHTS AND REMEDIES

60. RIGHTS AND REMEDIES OF AUTHORITY

The Authority shall have the following rights in the event the Director 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 equitable remedy.
D. The right to money damages.
E. The right to suspend the Work or any part thereof.

For the purpose of this Contract, breach shall include but not be limited to the Contractor's failure to procure insurance satisfactory to the Authority within the time limit specified in Paragraph 59 of Chapter III entitled "Insurance Procured by Contractor" and 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 Authority 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; any false certification at any time by the Contractor as to any material item certified pursuant to the clauses of the Information For Bidders entitled "Certification of No Investigation (Criminal or Civil Anti-Trust), Indictment, Conviction, Suspension, Debarment, Disqualification, Prequalification Denial or Termination, Etc; Disclosure of Other Required Information", "Non-Collusive Bidding and Code of Ethics Certification; Certification of No Solicitation Based on Commission, Percentage, Brokerage, Contingent Fee or Other Fee", and "Certification of Participation in a State-Registered Apprenticeship Program" any false certification at any time by the Contractor or a subcontractor pursuant to the clause "Prevailing Rate of Wage Certification" set forth in the Information for Bidders, or the willful or fraudulent submission of any signed statement pursuant to such clauses which is false in any material respect; or the Contractor's incomplete or inaccurate representation of its status with respect to the circumstances provided for in such clauses.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Authority shall not be deemed to limit any other rights or remedies which the Authority would have in the absence of such enumeration; and no exercise by the Authority 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.

61. RIGHTS AND REMEDIES OF CONTRACTOR

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Authority, the Contractor expressly agrees that no default, act or omission of the Authority or the Construction Manager, shall constitute a material breach of this Contract, entitling him to cancel or rescind it or (unless the Director shall so direct) to suspend or abandon performance.

62. 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 Authority", the Authority 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 Authority.

In the certificate of total compensation earned, for which provision is made in the clause hereof entitled "Final Payment", the Director will separately state the amount of Work performed by the Authority as agent for the Contractor, credit to the Authority the cost thereof, and credit to the Contractor the compensation earned thereby; and the difference between them shall be payable by the Contractor to the Authority, or vice versa as the case may be. If such difference is in its favor, the Authority may deduct it from any moneys due the Contractor, and if such moneys be insufficient, the balance thereof shall be payable to it on demand; if in the Contractor's favor, it shall constitute part of the Final Payment.

The exercise by the Authority 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 and/or the Payment Bond.

63. NO ESTOPPEL OR WAIVER

The Authority shall not be precluded or estopped by any acceptance, certificate or payment, final or otherwise, issued or made under this Contract or otherwise issued or made by it, the Director, the Construction Manager or any officer, agent or employee of the Authority or Construction Manager, 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 Authority 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 his part to comply strictly with this Contract, and any moneys 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 Authority, the Director, or any officer, agent or employee of the Authority or the Construction Manager, nor any permission or direction to continue with the performance of Work, nor any performance by the Authority of any of the Contractor's duties or obligations, nor any aid lent to the Contractor by the Authority in his performance of such duties or obligations, nor any other thing done or omitted to be done by the Construction Manager, the Authority, its Commissioners, or the officers, agents or employees of the Authority or Construction Manager shall be deemed to be a waiver of any provision of this Contract or of any rights or remedies to which the Authority may be entitled because of any breach thereof, excepting only a resolution of its Commissioners, 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 money damages to which the Authority may be entitled because of such breach. Moreover, no waiver by the Authority of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

CHAPTER VII
FEDERAL TRANSIT ADMINISTRATION REQUIREMENTS

64. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION TERMS

This Contract is anticipated to be partially funded by the Federal Transit Administration, pursuant to the Agreement entitled, "United States of America Department of Transportation Federal Transit Administration – Master Agreement for Lower Manhattan Recovery Grants", dated October 1, 2006 ("Master Agreement").

Anything to the contrary herein notwithstanding, all FTA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests which would cause the Authority to be in violation of the FTA terms and conditions.

Each and every provision required by the FTA 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 herein. If any provision of this Contract shall be such as to effect non-compliance with any FTA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

65. FEDERAL CHANGES

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FTA issues a written determination otherwise. All standards or limits within the Master Agreement are minimum requirements, unless modified by the FTA.

66. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal Assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

67. ORGANIZATIONAL CONFLICT OF INTEREST

A. This Contract may give rise to a potential for an organizational conflict of interest. An organizational conflict of interest exists when the nature of the work to be performed under the contract may, without some form of restriction on future activities; result in an unfair competitive advantage to the Contractor.

1.) The Contractor shall have access to confidential and/or sensitive Authority information in the course of contract performance. Additionally, the Contractor may be provided access to proprietary information obtained from other contracted entities during contract performance. The Contractor agrees to protect all such information from disclosure unless so authorized, in writing, by the Authority and to refrain from using such information for any purpose other than that for which it was furnished.

2.) To the extent that the Contractor either (a) uses confidential and/or sensitive Authority information or proprietary information obtained from other Authority contractors to develop any form of document, report, or plan that is determined by the Authority to be the basis, in whole or in part, of any subsequent solicitation issued by the Authority or (b) develops written specifications that are used in any subsequent solicitation issued by the Authority, the Contractor agrees that it shall not be eligible to compete for such subsequent solicitation(s) as a prime or principal contractor or as part of any teaming arrangement unless the Authority provides, in writing, a specific waiver of this restriction. The duration of any restriction imposed under this subparagraph shall not exceed the length of the initial performance period of any subsequently awarded contract for which the Contractor was ineligible to compete.

B. The Contractor, by submitting its bid or proposal, agrees to the above stated conditions and terms and further agrees to perform all duties under the contract and, in doing so, not to enter into contractual agreements with Authority prime contractors and first-tier subcontractors in such a way as to create an organizational conflict of interest.

C. If the Authority determines that the Contractor has violated any term of this numbered clause, the Authority may take any appropriate action available under the law or regulations to obtain redress to include, but not be limited to, requiring the Contractor to terminate any affiliation or contractual arrangement with an Authority prime contractor or first-tier subcontractor at no cost to the Authority; determining the Contractor ineligible to compete for or be awarded any subsequent or "follow-on" contracts that may be based upon the Contractor's actions under this Contract or violations of this numbered clause, or terminating this Contract, in whole or in part.

68. CERTIFICATION - DEBARMENT AND SUSPENSION

This Contract is a covered transaction for purposes of 2 CFR Parts 180 and 1200. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 2 CFR 180.995, or affiliates, as defined at 2 CFR 180.905, are excluded or disqualified as defined at 2 CFR 180.935 and 180.940.

The Contractor is required to comply with 2 CFR 180, Subpart C and must include the requirement to comply with 2 CFR 180, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the Port Authority of New York and New Jersey. If it is later determined that the proposer knowingly rendered an erroneous certification, in addition to remedies available to the Port Authority of New York and New Jersey, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The proposer agrees to comply with the requirements of 2 CFR 180, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

A. FTA requires that each potential Contractor, for major third party contracts, complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" for itself and its principals and requires each Subcontractor or Supplier [for Subcontracts and Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently $25,000)] to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions" for itself and its principals. Copies of the required Certification forms and accompanying instructions are set forth following the clause herein entitled "Integrity Monitor".

B. In the event that the Contractor has certified prior to award that it is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.

C. The Contractor shall obtain certifications from all known potential Subcontractors and Suppliers [for which payments are expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently $25,000)] and submit such certifications to the address set forth in E below.

D. Prior to the award of any Subcontracts or Supplier agreements expected to equal or exceed the Federal procurement small purchase threshold fixed at 10 U.S.C. 253(g) (currently $25,000), regardless of tier, any prospective Subcontractor or Supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form set forth following the clause herein entitled "Integrity Monitor" which will be deemed a part of the resulting Subcontract and Supplier agreement.

E. The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10010.

F. The Contractor shall not knowingly enter into any Subcontracts or Supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.

G. As required by FTA, the Contractor and its Subcontractors or Suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written notice to the Authority if, at any time, it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

69. CERTIFICATION - LOBBYING RESTRICTIONS –CONTRACTS EXCEEDING $100,000

A. Definitions as used in this Clause69:

1.) "Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1). As used in the Certification set forth following the clause herein entitled "Integrity Monitor" t, it also includes any other public agency.

2.) "Covered Federal action" means any of the following Federal actions:

a. The awarding of any Federal contract;

b. The making of any Federal grant;

c. The making of any Federal loan;

d. The entering into of any cooperative agreement; and

e. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. As used in the above referenced Certification, it includes the award of the contract with which it is associated.

3.) "Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan natives are included under the definitions of Indian tribes in that Act.

4.) "Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

5.) "Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government. It also includes a bi-state agency.

6.) "Officer or employee of an agency" includes the following individuals who are employed by an agency:

a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;

b. A member of the uniformed services as defined in section 101(3), title 37, United States Code;

c. A special government employee as defined in Section 202, title 18, United States Code;

d. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2; and

e. An employee of a bi-state agency.

7.) "Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

8.) "Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

9.) "Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

10.) "Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

11.) "Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.

12.) "State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition

1.) Section 1352 of title 31, United States Code provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. For the purposes of the Certification included herein following the clause entitled "Integrity Monitor", it includes the award of the associated contract.

2.) The prohibition does not apply as follows:

a. Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B.1.) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or the contract associated with the certification if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.

(ii) For purposes of subparagraph B. 2.) a.(i) of this Section, providing any information specifically requested by an agency or Congress is allowable at any time.

(iii) For purposes of subparagraph B. 2.) a.(i) of this Section, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.

(a.) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,

(b.) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) For purposes of paragraph B. 2)a.(i) of this Section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:

(a.) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(b.) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(c.) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(v) Only those activities expressly authorized by subparagraph B. 2)a. of this Section are allowable under subparagraph B. 2)a.

b. Professional and Technical Services by Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract or the contract associated with the certification if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that contract.

(ii) For purposes of subparagraph B. 2.) b. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subparagraph B. 2.) b. this Section are allowable under subparagraph B. 2.) b.

c. Reporting for Own Employees.

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. Professional and Technical Services by Other than Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. l.) of this Section, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) d. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(v) Only those services expressly authorized by subparagraph B. 2.) d. of this Section are allowable under subparagraph B. 2.) d.

C. Disclosure

1.) Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth following the clause herein entitled "Integrity Monitor" that the person has not made, and will not make, any payment prohibited by subparagraph B. of this Clause.

2.) Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth following the clause herein entitled "Integrity Monitor", if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B. of this Clause if paid for with appropriated funds.

3.) Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph C.2) of this Section. An event that materially affects the accuracy of the information reported includes:

a. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

4.) Any person who requests or receives from a person referred to in subparagraph C.1) of this Section a subcontract exceeding $100,000 at any tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.

5.) All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in subparagraph C.1) of this Section. That person shall forward all disclosure forms to the Authority.

D. Agreement

6.) In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this Clause.

E. Penalties

7.) Any person who makes an expenditure prohibited under subparagraph A of this Clause shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure.

8.) Any person who fails to file or amend the disclosure form to be filed or amended if required by the Clause, shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

9.) Contractors may rely without liability on the representations made by their Subcontractors in the certification and disclosure form.

F. Cost Allowability

Nothing in this Clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this Clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

70. ACCESS TO RECORDS AND REPORTS

The Contractor agrees to provide the Authority, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees, pursuant to 49 CFR 633.15 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the contract to the Authority, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.
This requirement is independent of the Authority's requirements for record retention contained elsewhere in the contract documents.

71. CIVIL RIGHTS

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

1.) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 *et seq.*, (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. 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 forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

2.) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

3.) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

72. CARGO PREFERENCE - USE OF UNITED STATES FLAG VESSELS

If this Contract involves equipment, materials, or commodities which may be transported by ocean vessels, the Contractor herein agrees:

A. To utilize privately owned United States-flag commercial vessels to ship at least fifty percent (50%) of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this Contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

B. To furnish within twenty (20) days following the date of loading for shipments originating within the United States or within thirty (30) working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) above to the FTA Administrator and grantee (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20230.

C. To include these requirements in all subcontracts issued pursuant to this Contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

73. DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS – CONTRACTS EXCEEDING $2000

The Davis-Bacon and Copeland Acts are codified at 40 USC 3141, *et seq.* and 18 USC 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 USC 3145(a), 29 CFR 5.2(h), 49 CFR 18.36(i)(5). The Acts apply to any construction contract over $2,000. 40 USC 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below and are applicable if this Contract is a construction contract (as delineated above) over $2000.

A. Minimum Wages

1.) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), 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 (29 CFR part 3)), 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, if applicable, is attached hereto and made a part hereof (the attachment is the most current determination), regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Determinations may change

during the term of the Contract, and the wages and fringe benefits required by the most recent determination of the Secretary of Labor are those to be used.

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 such laborers or mechanics, subject to the provisions of paragraph (A)(4) 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 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 classifications and wage rates conformed under paragraph (A)(2) 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.

2.)

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:

(i) Except with respect to helpers as defined as 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;

(ii) The classification is utilized in the area by the construction industry; The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(iii) 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.

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, 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 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 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 paragraphs A (2)(ii) (b) or (c) of this Section, 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.

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 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.

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 therefor only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(ii) The classification is utilized in the area by the construction industry; and

(iii) 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 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, 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 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 with 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 paragraphs A (2)(ii)(b) or (c) of this Section, 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.

B. Withholding

The Authority 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 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 the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the Authority 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.

C. Payrolls and Basic Records

1.) 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 (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). 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)(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 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.

2.)

a. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Authority for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 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, 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:

(i) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(ii) That each laborer or 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 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;

(iii) 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 incorporated into the contract.

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 C(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 or subcontractor shall make the records required under paragraph C(1) of this Section available for inspection, copying, or transcription by authorized representatives of the Federal Transit 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 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.

D. 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 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 journeymen 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 the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor 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 less 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 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.

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.

E. 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.

F. 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 Transit 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.

G. 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.

H. 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.

I. 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.

J. 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 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).

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 U.S. Criminal Code, 18 U.S.C. 1001.

74. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT – CONTRACTS EXCEEDING $100,000

The Contract Work Hours and Safety Standards Act applies to grantee contracts and subcontracts under 40 USC 3701(b)(1)(B)(iii) and (b)(2), 29 CFR 5.2(h), 49 CFR 18.36(i)(6) for contracts for construction, and non-construction projects that employ "laborers or mechanics on a public work, where the contract amount is greater than $100,000.

A. 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.

B. Violation; liability for unpaid wages; liquidated damages

In the event of any violation of the clause set forth in paragraph A of this Section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States 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 paragraph A of this Section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph A of this Section.

C. Withholding for unpaid wages and liquidated damages

The Authority 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 paragraph B of this Section.

D. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs A through D of this Section 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 subcontractor with the clauses set forth in paragraphs A through D of this Section.

75. SEISMIC SAFETY

If this is a contract for the construction of new buildings or additions to existing buildings, the Contractor agrees that any new building or addition to an existing building will be constructed in accordance with standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance. The completed certification of compliance is to be submitted to the Engineer. The seismic safety standards applicable to this Contract are contained in Section 2312 ICBO Uniform Building Code (UBC), as modified by the Appendix to Title 27, Chapter 1 (Volume 7), of the Administrative Code and Charter of the City of New York at RS 9-6 Earthquake Loads.

76. ENERGY CONSERVATION

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the requirements of this Section.

77. CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING $100,000

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC §1251 et seq.

B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

C. The Contractor also agrees to include the requirements of this Article in all subcontracts exceeding $100,000 issued pursuant to this Contract.

78. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING $100,000

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §7401 et seq. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include the requirements of this Clause in all subcontracts exceeding $100,000 issued pursuant to this Contract.

79. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for this Contract unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, "Use of United States Flag Air Carriers," 41 C.F.R. §§ 301-10.131 through 301-10.143.

80. INTENTIONALLY OMITTED

81. PREFERENCE FOR RECYCLED PRODUCTS

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recover Act (RCRA), as amended (42.U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

82. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 CFR Part 31, apply to its actions pertaining to this Project. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.The Contractor agrees to include the above two clauses in each subcontract related to this Contract. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

83. TRANSIT EMPLOYEE PROTECTIVE REQUIREMENTS

To the extent that FTA determines that transit operations are involved, the Contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this Contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the conditions stated in that U.S. DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. § 5311.

83.1 ADA ACCESS

Facilities to be used in public transportation service must comply with 42 U.S.C. Sections 12101 *et seq.* and DOT regulations, "Transportation Services for Individuals with Disabilities (ADA)," 49 CFR Part 37; and Joint ATBCB/DOT regulations, "Americans with Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 CFR Part 1192 and 49 CFR Part 38.

CHAPTER VIII
MISCELLANEOUS

84. SUBMISSION TO JURISDICTION

The Contractor hereby irrevocably submits himself to the jurisdiction of the Courts of the State of New York in regard to any controversy arising out of, connected with, or in any way concerning the Proposal or this Contract. The Contractor agrees that service of process on the Contractor in relation to such jurisdiction may be made, at the option of the Authority, either by registered or certified mail addressed to the applicable office as provided for in the clause hereof entitled "Service of Notices on the Contractor", by registered or certified mail addressed to any office actually maintained by the Contractor or by actual personal delivery to the Contractor if the Contractor be an individual, to any partner if the Contractor be a partnership or to an officer, director or managing or general agent if the Contractor be a corporation.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

85. 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 the application of either party, the Contract shall forthwith be physically amended to make such insertion.

86. 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.

87. NON-LIABILITY OF THE AUTHORITY REPRESENTATIVES

Neither the Commissioners of the Authority nor any officer, agent, or employee of the Authority or of the Construction Manager 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.

88. 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, except to the extent, if any, otherwise provided in the clause entitled "Submission to Jurisdiction". Until further notice to the Authority 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.

89. 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 charged 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 to cancel, modify or waive any provision of the Form of Contract, and no officer or other representative of the Authority shall have the power so to do unless and until hereafter so authorized by or pursuant to a resolution of the Commissioners of the Authority or by or pursuant to a resolution of their appropriate Committee.

90. PUBLIC RELEASE OF INFORMATION

The Contractor and all his subcontractors shall not issue or permit to be issued any press release, advertisement, or literature of any kind, which refers to the Authority or the services performed in connection with this Contract, without first obtaining the written approval of the Director. Such approval may be withheld if for any reason the Director believes that the publication of such information would be harmful to the public interest or is in any way undesirable. This provision shall survive termination or expiration of this Contract.

91. INTERACTION WITH THE MEDIA AND PUBLIC

The Authority reserves the right to review and approve all Authority-related copy prior to publication. The Contractor shall not allow Authority-related copy to be published in the Contractor's advertisements or public relations programs until submitting the Authority-related copy to and receiving prior approval from the Director. The Contractor shall ensure that all published information shall be factual and shall in no way imply that the Authority endorses the Contractor's firm, service, or product.

The Contractor shall not respond to inquiries from the news media, but shall refer all questions to the Director.

The Contractor shall designate a staff person to keep the Director informed of all impacts on the community resulting from construction.

If the Contractor receives a complaint from a citizen or the community, it shall immediately inform the Director and advise what action has been taken to alleviate the situation.

If the Authority plans to conduct a site tour of the construction area, the Director will coordinate the tour with the Contractor.

If the Contractor notifies the community or general public via written notice (e.g., for emergency road closures), six (6) copies of such notices shall be provided to the Director.

92. WAIVER OF CLAIMS

The Contractor acknowledges and agrees and will, as part of each subcontract, require its subcontractors to acknowledge and agree (i) that the role of the Construction Manager is to function solely on behalf of and for the benefit of the Authority and (ii) that the Contractors and its subcontractors of all tiers waive all claims, whether in contract, tort or otherwise, they may have against the Construction Manager.

93. IMMIGRATION AND NATIONALITY ACT

The Immigration and Nationality Act as amended by the Immigration Reform and Control Act of 1986 (IRCA) makes it illegal for employers to knowingly hire persons who are not authorized to work in the United States. For all employees, employers are required to complete an Employment Eligibility Verification form I-9 which requires the prospective employee to produce documentation that establishes identity and employment eligibility. For more information visit www.uscis.gov, or speak to your attorney. The Contractor and its subcontractors of all tiers are to be in compliance with federal requirements regarding the use E-Verify, an Internet-based system that allows an employer, using information reported on an employee's Form I-9, to determine the eligibility of that employee to work in the United States. Each Contractor is solely responsible for properly completing Employment Eligibility Verifications for their own employees and for ensuring that its subcontractors of all tiers have a properly completed Form I-9 for each of their employees.

Contractor acknowledges represents and warrants that Contractor is aware of and understands IRCA, that Contractor is in compliance with IRCA, and that Contractor and its subcontractors of all tiers are not knowingly employing workers who are not authorized to work in the United States. Contractor agrees that Contractor and its subcontractors of all tiers will not employ any worker performing work under this Contract for whom Contractor or its subcontractor has not completed and maintained I-9 verification including the use of E-Verify. Contractor agrees that if Contractor acquires knowledge (constructive or otherwise, including receipt of a "no match" letter from Social Security Administration) indicating that one of Contractor's or its subcontractors' workers on this project may not be authorized to work in the United States, despite I-9 verification, that Contractor and its subcontractors will exercise due diligence as required by law to confirm authorization status and take appropriate action which may include termination of employment. Contractor represents and warrants that they will not subcontract

to or utilize labor sources that it knows or has reason to know violate IRCA.

94. CONTRACTOR OBLIGATIONS

The Contractor, hereby accepts and assumes exclusive liability for and shall indemnify, protect and save harmless Construction Manager and the Authority from and against the payment of:

A. All contributions, taxes or premiums (including interest and penalties thereon) which may be payable under the Unemployment Insurance Law of any State, Federal Social Security Act, Federal, State, County and/or Municipal Tax Withholding Laws, or any other law, measured upon the payroll of or required to be withheld from employees, by whomsoever employed, engaged in the Work to be performed and furnished under this Contract.

B. All sales, use, personal property and other taxes (including interest and penalties thereon) required by any Federal, State, County, Municipal or other law to be paid or collected by the Contractor or any of its subcontractors or vendors or any other person or persons acting for, through or under it or any of them, by reason of the performance of the Work or the acquisition, ownership, furnishing or use of any materials, equipment, supplies, labor, services or other items for or in connection with the Work.

C. All pension, welfare, vacation, annuity and other union benefit contributions payable under or in connection with labor agreements with respect to all persons, by whomsoever employed, engaged in the Work to be performed and furnished under this Agreement.

In furtherance of, and in addition to the agreements, duties obligations and responsibilities of the Contractor with respect to the payment of sales, use, personal property and other taxes set forth, the Contractor agrees to reimburse and otherwise indemnify Authority and the Construction Manager for any expenses, including legal fees and litigation arising from, or related to the Contractor's failure to pay any sales, use, personal property or other taxes based upon labor, services, materials, equipment or other items acquired, performed, furnished or used for or in connection with the Work.

95. ORDER OF PRECEDENCE

Except to the extent that any Section in this Contract provides otherwise, the following order of precedence shall be followed in the event of conflicts or discrepancies between or among the Contract Documents:

a. The Contract
b. Attachment A to the Contract (Scope of Work)
c. Exhibit I to the Contract (Division I Specifications - General Provisions)
d. The Contract Drawings
e. The Contract Specifications

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned[6] Contractor and surety company (or companies), as principal and surety (or sureties), respectively,

Contractor	Surety

[6] Insert names of the Contractor and surety company (or companies) in the appropriate columns. If space is insufficient add rider.

If the Contractor is a corporation, give the state of incorporation, using also the phrase "a corporation organized under the laws of _____".

If the Contractor is a partnership, give full names of partners, using the phrase "co-partners doing business under the firm name of _____".

If the Contractor is an individual using a trade name, give individual name, using also the phrase "an individual doing business under the trade name of _____.".

are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of
Dollars

and _____Cents (_____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, representatives, executors, administrators, successors and assigns. Each surety, however, if there is more than one, shall be jointly and severally liable for said penal sum.

Signed this _____ day of _____ 20

The condition of the above obligation is that

WHEREAS, the above named principal has entered into a Contract in writing with the Authority, a copy of which is hereby made a part of this bond as though herein set forth in full and which is designated Contract WTC- 264.614 – "Transit Hall HVAC", and

WHEREAS, the Authority has required this bond for the faithful performance of all obligations imposed by said Contract;

NOW, if the said principal shall well and faithfully do and perform the things agreed by him to be done and performed according to the terms and true intent and meaning of said Contract, then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that, provided the sureties shall comply with the provisions hereof, the aggregate liability of all sureties for any and all claims hereunder shall in no event exceed the penal amount of this obligation as hereinbefore stated.

This undertaking is for the benefit of the Authority and all subcontractors, materialmen and workmen having lawful claims arising out of the performance of said Contract, and all such subcontractors, materialmen and workmen (as well as the Authority itself) shall have a direct right of action upon this bond; but the rights and equities of such subcontractors, materialmen and workmen shall be subject and subordinate to those of the Authority.

The sureties, for value received, hereby stipulate and agree that the obligations of said sureties and their bond shall be in no way impaired or affected by any extensions of time, modification, omission, addition or change in or to the said Contract or the construction to be performed thereunder, or by any supervision or inspection or omission to supervise or inspect the construction, or by any payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent), or by any assignment, subletting or other transfer thereof or of any part thereof or of any construction to be performed or any moneys due or to become due thereunder; and said sureties do hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to said sureties as though done by or in relation to said principal.

The sureties shall give the General Counsel of the Authority the following notices:

A. Written notice of an intent to pay any claim of a subcontractor, materialman or workman hereunder;

B. Written notice within five days of the institution of an action by a subcontractor, materialman or workman hereunder.

The sureties shall not pay the claim of any subcontractor, materialman or workman hereunder until the expiration of thirty days after receipt by said General Counsel of notice under either subparagraph A or B above, describing the claim to be paid.

IN WITNESS WHEREOF, the principal and the sureties have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____

Principal

(Seal) By [7]

_____

_____

Surety

By[8]

_____

APPROVED AS TO ACCEPTABILITY OF SURETIES:

_____

Credit Manager

_____20

[7] If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

[8] Add signatures of additional sureties, if any.

ACKNOWLEDGMENT OF PRINCIPAL, A CORPORATION

State of _____

_____ SS:

County of _____

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

(Notary Seal)

_____

(Notary Signature)

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

_____ SS:

County of _____

On this _____. day of _____, 20 , before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

_____

(Notary Signature)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

_____ SS:

County of _____

On this _____. day of _____, 20 , before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

_____

(Notary Signature)

ACKNOWLEDGMENT OF SURETY COMPANY

CONTRACT WTC- 264.614

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned[9] Contractor and surety company (or companies), as principal and surety (or sureties), respectively,

Contractor	Surety

[9] Insert names of the Contractor and surety company (or companies) in the appropriate columns. If space is insufficient add rider.

If the Contractor is a corporation, give the state of incorporation, using also the phrase "a corporation organized under the laws of _____".

If the Contractor is a partnership, give full names of partners, using the phrase "co-partners doing business under the firm name of _____".

If the Contractor is an individual using a trade name, give individual name, using also the phrase "an individual doing business under the trade name of _____.".

are hereby held and firmly bound unto The Port Authority of New York and New Jersey (herein called the "Authority") in the penal sum of
Dollars

and _____Cents (_____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, representatives, executors, administrators, successors and assigns. Each surety, however, if there is more than one, shall be jointly and severally liable for said penal sum.

Signed this _____ day of _____ 20

The condition of the above obligation is that

WHEREAS, the above named principal has entered into a Contract in writing with the Authority, a copy of which is hereby made a part of this bond as though herein set forth in full and which is designated Contract WTC- 264.614 - "Transit Hall HVAC", and

WHEREAS, the Authority has required this bond for the payment of all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract;

NOW, if all lawful claims of subcontractors, materialmen and workmen arising out of the performance of said Contract are paid, then this obligation shall be void, otherwise the same shall remain in full force and effect; it being expressly understood and agreed that, provided the sureties shall comply with the provisions hereof, the aggregate liability of all sureties for any and all claims hereunder shall in no event exceed the penal amount of this obligation as hereinbefore stated.

This undertaking is for the benefit of the Authority and all subcontractors, materialmen and workmen having lawful claims arising out of the performance of said Contract, and all such subcontractors, materialmen and workmen (as well as the Authority itself) shall have a direct right of action upon this bond; but the rights and equities of such subcontractors, materialmen and workmen shall be subject and subordinate to those of the Authority.

The sureties, for value received, hereby stipulate and agree that the obligations of said sureties and their bond shall be in no way impaired or affected by any extensions of time, modification, omission, addition or change in or to the said Contract or the construction to be performed thereunder, or by any supervision or inspection or omission to supervise or inspect the construction, or by any payment thereunder before the time required therein, or by any waiver of any provision or condition thereof (whether precedent or subsequent), or by any assignment, subletting or other transfer thereof or of any part thereof or of any construction to be performed or any moneys due or to become due thereunder; and said sureties do hereby waive notice of any and all of such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby expressly stipulate and agree that any and all things done and omitted to be done by and in relation to assignees, subcontractors and other transferees shall have the same effect as to said sureties as though done by or in relation to said principal.

The sureties shall give the General Counsel of the Authority the following notices:

A. Written notice of an intent to pay any claim of a subcontractor, materialman or workman hereunder;

B. Written notice within five days of the institution of an action by a subcontractor, materialman or workman hereunder.

The sureties shall not pay the claim of any subcontractor, materialman or workman hereunder until the expiration of thirty days after receipt by said General Counsel of notice under either subparagraph A or B above, describing the claim to be paid.

IN WITNESS WHEREOF, the principal and the sureties have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____

Principal

(Seal)

By [10] _____

_____

Surety

By[11]

_____

APPROVED AS TO ACCEPTABILITY OF SURETIES:

_____

Credit Manager

_____,20

---

10 If bond is signed by an officer or agent, give title; if signed by a corporation, affix corporate seal.

11 Add signatures of additional sureties, if any.

ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of _____

_____ SS:

County of _____

On this _____day of _____, before me personally came and appeared _____, to me known and known to _____, a corporation, described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Notary Seal)

_____

(Notary Signature)

(Seal)

ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP

State of _____

_____ SS:

County of _____

On this _____. day of _____, 20 , before me personally came and appeared _____, to me known, and known to me to be one of the members of the firm of _____ described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

_____

(Notary Signature)

ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

State of _____

_____ SS:

County of _____

On this _____ day of _____, 20 , before me personally came and appeared _____, to me known and known to me to be the person described in and who executed the foregoing instrument and he acknowledged to me that he executed the same.

(Seal)

_____

(Notary Signature)

AFFIX ACKNOWLEDGMENT AND JUSTIFICATION OF SIGNETY

Attachment B
Not Used
World Trade Center Site – Transportation Hub
New York City, NY

Trade: **Transit Hall HVAC**

NOT USED
INTENTIONALLY OMITTED

Attachment D
Not Used
World Trade Center Site – Transportation Hub
New York City, NY

Trade: Transit Hall HVAC

NOT USED
INTENTIONALLY OMITTED

Attachment H
Not Used
World Trade Center Site – Transportation Hub
New York City, NY

Trade: Transit Hall HVAC

NOT USED
INTENTIONALLY OMITTED

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DIVISION 15

SECTION 15945

HVAC INSULATION

PART 1. GENERAL

1.01 SUMMARY

This Section specifies insulation requirements for heating, ventilation, and air-conditioning (HVAC) sheet metal ductwork, piping and equipment.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Design and performance of components and methods specified herein shall comply with all applicable Federal, State, and Local laws, ordinances, regulations and codes, and the latest industry standards including, but not limited to, the entities listed below.

New York City Building Code
New York State Energy Conservation Construction Code
American Society of Heating, Refrigerating and Air-Conditioning Engineers
American Society for Testing and Materials (ASTM)
National Fire Protection Association (NFPA)
Underwriters Laboratories Inc. (UL)

In addition, specific provisions cited herein shall govern for the associated specific application.

B. All insulation, including jackets or facings, adhesives, mastics, cements, tapes and glass cloth for fittings shall have composite fire and smoke hazard ratings as tested by ASTM E 84, NFPA 255, and UL 723 procedures, not exceeding a "Flame Spread" of 25 and "Smoke Developed" of 50.

C. Any treatment of jackets or facings to impart flame and smoke safety shall be permanent. The use of water-soluble treatments is prohibited.

1.03 QUALITY ASSURANCE

A. Insulation materials and accessories, of types and sizes required, shall have been satisfactorily used for purposes similar to those intended herein for not less than three years.

B. Entities performing the Work of this Section shall have experience on at least two projects involving complexities similar to those required under this Contract.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver insulation, coverings, cements, adhesives, and coatings to the construction site in manufacturer's sealed containers with manufacturer's stamp or label affixed, showing fire hazard indexes of products.

B. All insulation components shall be stored at the construction site on pallets or raised platforms with suitable shed enclosures to protect against foreign matter and rain.

C. Before moving insulation materials from storage to the construction site, all insulation sections and component materials shall be inspected for damage. Remove damaged materials from the construction site and replace damaged materials, to the satisfaction of the Engineer, at no cost to the Authority.

1.05 SUBMITTALS

Refer to Appendix A.

PART 2. PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with requirements of this Section, provide insulation materials of one of the following manufacturers, or approved equal:

Johns Manville
Certain - Teed Corp./Insulation Group
Owens - Corning Fiberglas Corp.
Knauf Fiber Glass

As standard, catalog numbers/trade names of Johns Manville are indicated herein as basis for quality of insulation desired.

2.02 MATERIALS

A. Sheet Metal Ductwork Insulation

1. HVAC Supply, Return and Transfer Air Ductwork - concealed in hung ceilings, shafts and furred spaces.

a. Insulation shall be two-inch thick flexible blanket fiberglass with factory-applied foil-scrim-kraft (FSK) facing.

b. Flexible blanket fiberglass insulation shall conform with ASTM C 553, Type I, Class B-3.

c. Insulation shall conform to the following: maximum service temperature 250°F, thermal conductivity 0.27 btu-in/hr-sq ft-°F at 75°F (25% compression), vapor permeability 0.02 perm-inch.

d. The insulation shall be Johns Manville "MICROLITE" Type 75 ductwrap with FSK facing, or approved equal.

2. HVAC Supply, Return, Transfer Air, Outside Air Supply Ductwork and Plenums-exposed in mechanical equipment rooms, crawl spaces, all unconditioned areas, and outdoors

   a. Insulation shall be 1-1/2-inch thick rigid fiberglass board with factory-applied all purpose (AP) white facing for indoors, and two-inch thick for outdoors.

   b. Rigid fiberglass board insulation shall conform with ASTM C 612, Class 1 except that the density shall not be less than 6 lbs. per cubic foot.

   c. The insulation shall conform to the following: maximum service temperature 450°F, thermal conductivity 0.22 btu-in/hr-sq ft-°F at 75°F, vapor permeability 0.02 perm-inch.

   d. The insulation shall be Johns Manville "817 SPIN-GLAS" with AP white facing, or approved equal.

   e. Finish and weatherproofing are specified in 3.02 B.2.

B. HVAC Piping Insulation

1. Insulation Thickness

PIPE, FITTINGS AND VALVES
INSULATION MINIMUM THICKNESS (INCHES)

Piping System	Fluid Temp Range, Deg. F	Run-Out* Up to 2"	PIPE SIZES (NPS) Up to2"	2-1/2" to 4"	5"-6"	8" and Larger
		Cooling Systems				
Chilled Water Make-up, City & Cold Water	40-60	0.5	1.0	1.0	1.5	1.5
Refrigerant	Below 40	1.0	1.5	1.5	1.5	1.5

*Maximum Length 12 ft; above 12 ft. length, insulation thickness shall comply with adjacent columns.

2. All Cooling Systems - Indoor Locations

   a. Insulation shall be molded fiberglass insulation with factory-applied all purpose (AP) facing.

   b. Molded fiberglass insulation shall conform with ASTM C 547, Class 1.

   c. Insulation shall conform to the following: maximum service temperature 850°F, thermal conductivity 0.23 btu-in/hr-sq ft-°F at 75°F, vapor permeability 0.02 perm-inch, jacket puncture resistance 50 beach units.

   d. Insulation shall be Johns Manville "MICRO-LOK" with APT facing, or approved equal.

   e. Fitting, valve, and flange insulation requirements are specified in 3.02 C.1.

3. Cooling Systems - Outdoor Locations

   a. Insulation shall be molded fiberglass with aluminum jacket (ASTM B 209, 3003 Alloy, H-14 Temper).

b. Insulation shall conform to the following: maximum service temperature 850°F, thermal conductivity 0.23 btu-in/hr-sq ft-°F at 75°F, vapor permeability 0.02 perm-inch, jacket puncture resistance 50 beach units.

c. Molded fiberglass insulation shall conform with ASTM C 547, Class 1, and shall be Johns Manville "MICRO-LOK" with APT facing, or approved equal.

d. Insulation jacket shall be 0.016-inch thick aluminum for pipes up to 4 inch, and 0.020-inch thick for pipes 4 inches and and larger with a built-in isolation felt. All seams and joints shall be weatherproof.

C. Equipment Insulation

1. Insulation Thickness

		Insulation	
Equipment	Fluid Temp., Degrees F	Thickness (inches)	Material Type
Expansion Tank - Chilled Water	Up to 55	3/4	A
Chillers	Up to 55	3/4	A
Plate & Frame Heat Exchangers	Up to 90	3/4	A
Refrigerant Pump-down unit	Up to 55	3/4	A
Chilled Water Pumps	Up to 55	3	B

2. Insulation Material

a. Type A: Flexible, elastomeric, closed cell sheet or roll insulation

Insulation shall be flexible, elastomeric, closed cell insulation. Maximum service temperature shall be 180°F. Thermal conductivity k shall be 0.25 btu-in/hr-sq ft-°F at 75°F with a vapor permeability of 0.05 perm-inch. The insulation shall meet the requirements of Section 1.02.B at the thickness installed. The insulation shall be Armacell "AP Armaflex", or approved equal.

b. Type B: Rigid fiberglass board insulation

Rigid fiberglass board insulation shall conform with ASTM C 612, Class 1 except that the density shall not be less than 6 lbs. per cubic foot. The insulation shall conform to the following: maximum service temperature 450°F, thermal conductivity 0.22 btu-in/hr-sq ft-°F at 75°F, vapor permeability 0.02 perm-inch. The insulation shall be Johns Manville "817 SPIN-GLAS", or approved equal.

PART 3. EXECUTION

3.01 PREPARATION

A. Duct insulation shall be applied after testing of duct system has been completed and approved by the Engineer. Piping insulation shall be applied only after the piping systems have been hydrostatically tested and approved by the Engineer.

B. Install insulation subsequent to installation of heat tracing and any coating or painting.

C. Surfaces shall be clean of rust, scale, dirt, dust, grease and other foreign matter and shall be dry before application of insulation.

D. All metal fasteners shall be made of galvanized steel or other approved corrosion-resistant materials.

3.02 INSTALLATION

A. General

1. Install insulation products in accordance with this Section and manufacturer's installation procedures.

2. Install insulation materials with smooth and even surfaces. Insulation shall be continuous and be carefully fitted with side and end joints butted tightly and staggered. Install each continuous insulation course with full-length units of insulation, with single cut piece to complete run. Do not use multiple cut pieces or scraps abutting each other.

3. All openings, joints, laps and end strips shall be sealed against moisture penetration with fire-retardant vapor barrier.

4. Maintain integrity of vapor-barrier jackets on insulation, and protect to prevent puncture or other damage. Staples and similar fastening methods are prohibited for securing vapor barriers on insulation.

5. Extend insulation without interruption through walls, floors, roofs, ceilings and similar penetrations.

6. Where ducts and pipes pass through walls, floors or partitions, the space around the insulated duct or pipe shall be sealed with Thermafiber semi-rigid blanket manufactured by U.S. Gypsum, or approved equal.

7. For double layer insulation, apply each layer of insulation using staggered joint method. Apply each layer of insulation separately.

8. Do not apply seal or cement until all previous application of cements and adhesives have thoroughly dried.

9. Fill in scored block, seams, chipped edges and depressions, and cover over wire netting and joints with insulation cement of sufficient thickness to remove surface irregularities and properly embed netting.

10. The finish, including any vapor barrier treatment, shall lap adjacent sections at both the transverse and longitudinal joints.

11. When supplementary load-bearing material is required at hangers and supports to resist compression of the insulation, the load-bearing thermal insulation shall be the same thickness as the normal pipe thermal insulation. The material shall conform to the "Flame Spread" and "Smoke Developed" ratings as specified in 1.02 B.

12. Do not insulate equipment end head pivots, handholes, cleanouts, ASME stamp, and manufacturer's nameplate. Provide neatly beveled edge at interruptions of insulation.

13. Provide removable insulation sections to cover parts of equipment which must be opened periodically for maintenance. These shall include metal vessel covers, fasteners, flanges, frames and accessories.

14. All ductwork angle joints and reinforcement shall be insulated.

15. Where internal ductwork insulation is required, the exterior duct insulation may be omitted, provided that the equivalent "R" factor for the internal duct insulation is the same as the external duct insulation requirements.

16. Valves, fittings, strainers, and other piping appurtenances shall be insulated to match those of the systems to which they are connected.

17. All insulation and exterior jackets that are damaged shall be replaced with new material as specified, to the satisfaction of the Engineer.

18. Insulation on all piping at hangers and supports shall be provided with galvanized protection shields or saddles to prevent crushing of insulation and damage to vapor barrier.

19. Hangers and supports that are directly connected to cold surfaces must be adequately insulated and vapor-sealed to prevent condensation.

B. Sheet Metal Ductwork Insulation

1. Flexible (Blanket) Fiberglass Insulation

a. Wrap insulation tightly on ductwork with all transverse joints butted and longitudinal joints overlapped a minimum of 2 inches.

b. Seal all joints with 3-inch wide vapor-barrier strips using an approved adhesive. All cuts and tears shall be sealed with strips of vapor-barrier jacket applied with adhesive.

c. Secure insulation in place with 18-gauge copper clad wire loops, 12 inches on centers. All joints shall be lapped and sealed in place with Foster (H.B. Fuller Co./Foster Products Div.) "85-20" adhesive, or approved equal. Adhesive shall be applied so that insulation conforms to duct surfaces uniformly and firmly.

d. In addition to the requirements of a, b, and c above, secure all ductwork larger than 36 inches in width or depth with welded or adhesive type clips on top and bottom or sides of duct, spaced 18 inches on centers along the center line of duct. Cut off exposed portion of fastening pin as close to the clip as possible and seal with 3-inch wide vapor barrier with Foster "85-20" adhesive, or approved equal.

2. Rigid Fiberglass Board Insulation

a. All insulation shall be applied with edges tightly butted.

b. Impale insulation over stick clips or pins welded to duct with protruding ends of pins cut off flush, after the stick clips have been applied.

c. Spacing of pins, to hold insulation firmly in place, shall be a minimum of one pin per square foot.

d. Seal all joints and penetrations with a three-inch wide strip of the same material, applied with approved adhesive to both surfaces.

e. Where welded pins cannot be installed, the insulation shall be secured to the duct with approved adhesive and 18-gauge copper clad wire loops.

f. Finish

Apply a tack coat of approved adhesive on all corners. Embed reinforcing mesh into wet adhesive and smooth out to eliminate wrinkles. Overlap all reinforcing mesh seams a minimum of two inches. Apply finish coat of approved mastic to entire reinforcing mesh fabric.

C. Piping Insulation

1. Molded Fiberglass Insulation

a. Longitudinal lap joints and butt joints shall be sealed with approved adhesive. Butt joints shall be wrapped with a minimum three-inch wide strip of same material as pipe jacket.

b. Fittings, valves, flanges and accessories shall be insulated with compressed fiberglass of two lbs. per cubic foot density and of the same thickness as pipe insulation, wired in place with 18-gauge galvanized steel wire. Apply a uniform coat of fire retardant vapor barrier coating to the entire surface, then cover with a factory-fabricated pre-formed insulated fitting cover, with sealed joints. The fire retardant vapor barrier shall be compatible with said insulation cover material.

c. For cooling systems in outdoor locations, apply outer metal jacket over insulation. All seams and joints shall be weatherproof. Fittings, valves, flanges and accessories shall be covered with either a fabricated metal jacket or matching aluminum fitted cover, with sealed weatherproof joints.

D. Equipment Insulation

1. Type A

a. Insulation shall be applied to surfaces of equipment to prevent "sweating" or condensation on the cold surfaces of the equipment in accordance with the equipment manufacturers recommendations.

b. Adhesive shall be used to attach the insulation to the equipment and at seams in the insulation. Adhesive product to be used shall be based on the insulation manufacturer recommendation for compatibility with the insulation.

2. Type B

Insulate pumps with removable aluminum boxes, insulated with 3-inch insulation, mechanically fastened to the metal enclosure. All joints and exposed edges shall be sealed and reinforced with a glass cloth and approved adhesive. An aluminum nosing shall be installed on all exposed edges of the enclosure to protect the insulation.

Removable aluminum boxes shall be of required size to clear all components of the pumps. All holes and slots shall have hemmed edges.

END OF SECTION

SECTION 15945

HVAC INSULATION

APPENDIX A

SUBMITTAL REQUIREMENTS

A. Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS.

1. Catalog cuts of insulation.
2. Product data and installation procedures for each type of insulation.
3. Schedule showing product number, k-value, material thickness and furnished accessories for each HVAC system requiring insulation.

B. Submit sample of each insulation type required. Affix label on sample, completely describing product.

END OF APPENDIX "A"

DIVISION 15

SECTION 15992

TESTING, ADJUSTING, AND BALANCING OF AIR AND HYDRONIC SYSTEMS

PART 1. GENERAL

1.01 SUMMARY

A. This Section specifies requirements for testing, adjusting and balancing of all air and hydronic fluid distribution systems, including the equipment and devices associated with each system.

B. The Work includes setting speed and flow, adjusting equipment and devices installed for systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to the mechanical installations specified in other Sections of the Specifications.

C. The following related work is specified in other Sections of the Specifications, and is not part of the Work of this Section:

1. Installation and start-up of equipment and devices to be tested, adjusted, and balanced.
2. Pressure testing of piping and ductwork systems.
3. Testing of boilers and pressure vessels.
4. Specifications for materials and installation of adjusting and balancing devices. If devices must be added to achieve proper balancing, refer to the respective system sections for materials and installation requirements.
5. Piping and ductwork system leakage tests.
6. Electrical hook-up and wiring of equipment and devices to be tested, adjusted, and balanced.

1.02 PERFORMANCE REQUIREMENTS

A. Procedures, measurements, instruments and test reports for testing, adjusting and balancing work shall comply with all applicable Federal, State and Local laws, ordinances, regulations and codes, and the latest industry standards including, but not limited to the entities listed below.

American Society of Heating, Refrigerating and Air- Conditioning Engineers (ASHRAE)

Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

National Environmental Balancing Bureau (NEBB)

Associated Air Balance Council (AABC)

In addition, specific provisions cited herein shall govern for the associated specific application.

B. The air delivery or intake of each diffuser, grille and register shall be as designed or within five percent of the air flow rates shown on the Contract Drawings.

C. The fan air flow rate and static pressure rise across the fan shall be within 10 percent above the design value at design speed.

1.03 JOB CONDITIONS

A. The Contractor shall have the testing and balancing specialist review his work with the respective manufacturers of the equipment and devices involved, and shall coordinate and schedule all Work.

B. The Contractor shall furnish and install balancing dampers, pressure taps, gauges, valves, and other components as required for a properly balanced system, whether or not specified herein or shown on the Contract Drawings, all at no additional cost to the Authority. Adjustment or replacement of parts recommended by the testing and balancing specialist shall be made in strict accordance with the respective equipment manufacturer's recommendations.

C. The Contractor shall have the control manufacturer's representative set the adjustment of the automatically operated dampers and control valves to operate as required.

1.04 QUALITY ASSURANCE

A. Entities performing the work of this Section shall have had experience similar to that required for this Project for not less than three years.

B. Entities performing the Work of this Section shall be certified by NEBB or AABC and shall have experience on at least two projects involving complexities similar to those required under this Contract.

1.05 SUBMITTALS

Refer to Appendix A.

PART 2. PRODUCTS

2.01 PATCHING MATERIALS

Unless otherwise shown on the Contract Drawings, use same products as originally installed for patching holes in insulation, ductwork and housings which have been cut or drilled for test purposes, including access for test instruments, attaching jigs, and similar purposes.

PART 3. EXECUTION

3.01 EXAMINATION

A. Obtain design drawings and specifications (or as-built drawings and specifications, if such exist), and become thoroughly acquainted with design intent.

B. Obtain copies of approved shop drawings of all air handling and hydronic equipment, air outlets (supply, return and exhaust), manual valves, automatic valves and the temperature control diagrams, including intended sequence of operation.

C. Examine installed work and conditions under which testing is to be done to ensure that work has been completed, cleaned, and is operable. Do not proceed with testing, adjusting and balancing until unsatisfactory conditions have been corrected in a manner approved by the testing and balancing specialist.

D. Examine the air systems to see that they are free from obstructions. Determine that all dampers and registers are open, moving equipment is lubricated, clean filters are installed, and automatic controls are functioning; and perform other inspection and maintenance activities necessary for proper operation of the systems.

E. Examine the hydronic systems to see that they are free from abnormal obstructions, and that all piping, valves and equipment have been properly made fully operational. Determine that all equipment and control systems are performing correctly by functional testing.

3.02 TESTING, BALANCING, AND ADJUSTING

A. Cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of test procedure.

B. Testing and balancing specialist shall perform tests and compile test data for all air systems and hydronic systems.

C. Data shall include a schematic diagram locating the air inlets, outlets, fans, equipment, dampers and regulating devices for air systems, and a schematic diagram for location of balancing valves, flow indicators, equipment, and devices for hydronic systems.

D. All instruments used shall be provided by the entity performing the work of this section, and shall be accurately calibrated and maintained in good working order.

E. Air Systems

The testing, adjusting and balancing of air systems shall be in accordance with the detailed procedures outlined in the referenced standards; and shall include but not be limited to the following:

1. Test, record and adjust fan rpm to design requirements.
2. Test and record motor full load amperes.
3. Make pitot tube traverse of main supply ducts and obtain design flow rate at fans.
4. Test and record system static pressure, velocity pressure and total pressure.
5. Test and adjust system for design supply, transfer and return air flow rate.

6. Test and adjust system for minimum and maximum design flow rates of outside air.

7. Test and record return air temperatures.

8. Test and record entering mixed air temperatures.

9. Test and record coil and fan leaving air temperatures.

10. Adjust all main supply, return, relief, and exhaust air ducts to proper design flow rate.

11. Adjust all zones to proper design flow rate for supply, return, transfer, relief and exhaust air.

12. Test and adjust each diffuser, grille and register.

13. Each grille, diffuser and register shall be identified as to location and area on the schematic diagram.

14. Size, type and manufacturer of diffusers, grilles and registers and all tested equipment shall be identified and listed in the final report. Manufacturer's data on all equipment shall be used to make required calculations for testing, adjusting and balancing. Readings and tests of diffusers, grilles and registers shall include design required velocity and test resultant velocity, required flow rate and test resultant flow rate after adjustments.

15. All diffusers, grilles and registers shall be adjusted to minimize drafts in all areas.

16. Dampers shall be permanently marked after air balance is complete so that they can be restored to their correct position, if disturbed later.

17. Openings in ductwork for pitot tube insertion shall be sealed with snap-in plugs after air balance is complete.

F. Hydronic Systems

The testing, adjusting and balancing of hydronic systems shall be in accordance with the detailed procedures outlined in the referenced standards; and shall include but not be limited to the following:

1. Preliminary procedure prior to balancing:

   a. Examine water in systems and determine if water has been treated and cleaned.

   b. Check expansion tank to determine that it is not air bound and the system is completely full of water.

   c. Purge all air vents at high points of water systems, check automatic air vents and determine if they are operating properly.

   d. Coordinate with control manufacturer for required cooling and heating temperature controls and corresponding, automatic valve operation settings.

   e. Open all normally open valves to full open position. Set automatic valves to full coil flow.

   f. Complete air balance shall have been accomplished before final water balance begins.

   g. Check water pumps for pump rotation and for proper flow rate delivery against manufacturer's pump curves.

h. Set all balancing valves for required flow delivery at mains and branch mains to cooling and heating elements.

i. Upon completion of flow readings and adjustments of balancing valves, mark all settings and record data, so that they can be restored to their correct "balanced" position, if disturbed later.

2. Final balancing shall include the following:

a. After required cooling and heating temperature controls and automatic valve operation settings are made, recheck pump flow requirements and readjust system as required.

b. Record pressure drop through coil at set flow rate of coil for full cooling and on full heating. Set pressure drop across bypass valve to match coil pressure drop.

c. Record and check the following items at each cooling and heating element:

(1) Inlet water temperatures and static pressure at connections.

(2) Leaving water temperatures and the pressure drop of each coil.

(3) Flow rate through coil with control valve stroked manually wide open.

d. Record operating suction and discharge pressures of each pump and final total dynamic head and rated amperage versus actual amperage of pump motors.

e. Record entering and leaving water temperatures and flow through all equipment and devices.

f. Check and record all flow rates at all locations in the piping system with flow meters.

G. Upon completion of air and hydronic systems testing, patch insulation, ductwork and housings, using materials identical to those removed (refer to Section 2.01).

H. Final testing, adjusting and balancing shall be performed during summer season for air conditioning systems and during winter season for heating systems, including operation when outside conditions are within 5 degrees F wet bulb temperature of maximum summer design condition, and within 10 degrees F dry bulb temperature of minimum winter design condition.

I. Retest, adjust, and balance systems subsequent to system modifications. Resubmit test results.

END OF SECTION

DIVISION 15

SECTION 15992

TESTING, ADJUSTING, AND BALANCING OF AIR AND HYDRONIC SYSTEMS

APPENDIX A

SUBMITTAL REQUIREMENTS

A. Submit proof that the prepared testing, adjusting and balancing agency meets the requirements of Section 1.04, "Quality Assurance" above, and all other specified requirements.

B. Prior to performing the work, submit sample blank forms of the test reports that will be submitted by entity performing the work of this Section, indicating all data and parameters to be included.

C. Submit certified test reports, signed by the authorized representative of the testing and balancing specialist. The reports shall be certified proof that the systems have been tested, adjusted and balanced in accordance with the selected reference standards (NEBB or AABC); are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at completion of the testing, adjusting and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Submittal of test report shall be in the following format:

1. Draft Report: Upon completion of testing, adjusting and balancing procedures, prepare draft reports on the approved forms. Draft report may be handwritten, but must be complete, factual, accurate and legible. Organize and format draft reports in the same manner specified herein below for the final reports. Submit two complete sets of draft reports. Only one complete set of draft reports will be returned.

2. Final Report: Upon verification and approval of draft reports, prepare final reports, type written and organized and formatted as described herein below. Submit two complete sets of final reports.

   a. Report Format: Report forms shall be the standard forms prepared by the referenced standard for each respective item and system to be tested, adjusted and balanced. Include schematic systems diagrams. Enclose the report contents in a 3-ring binder. Divide the contents into the below listed divisions, separating them by divider tabs with titles descriptive of the contents:

      (1) General Information and Summary

      (2) Air Systems

      (3) Hydronic Systems

b. Report Contents: Provide the following minimum information, forms and data:

(1) General Information and Summary: the inside cover sheet shall identify the testing, adjusting and balancing Agency, Contractor, Owner, Engineer, and Project. Include addresses, and contact names and telephone numbers. Include a certification sheet containing the seal and name, address, telephone number and signature of the Agency's responsible certified Test and Balance Engineer. Include in this division a listing of the instrumentation used for the procedures, along with the proof of calibrations.

(2) The remainder of the reports shall contain the appropriate forms containing, as a minimum, the information indicated on the standard report forms prepared by AABC and NEBB, for each item of equipment and system. Prepare a schematic diagram for each item of equipment and system, to accompany each respective report form.

c. Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified in the referenced standards within a period not exceeding six months prior to conducting the test procedures.

END OF APPENDIX "A"

DIVISION 15

SECTION 15999

COMMISSIONING MECHANICAL SYSTEMS

PART 1. GENERAL

1.01 SUMMARY

A. The purpose of this section is to specify the Division 15 responsibilities and participation in the commissioning process.

B. Commissioning is primarily the responsibility of the Commissioning Agent (CA), with support for start-up, testing, and commissioning the responsibility of Division 15. The commissioning process does not relieve Division 15 from participation in the process or diminish the role and obligations to complete all portions of work in a satisfactory and fully operational manner.

C. The CA will verify and document the following field tests and observations:

1. Field Installation Verification (FIV). The CA will verify all installed systems for compliance to plans and specification. These inspections are to be described in detail in the commissioning plan.
2. Operation Performance Tests (OPT). The CA will perform operational tests which must verify proper start-up of all equipment and systems. These tests are to be described in detail in the commissioning plan.
3. Functional Performance Tests (FPT). The CA will perform functional system tests that verify all systems are functioning and interacting with other systems correctly includes the use of single point failure analysis. These tests are to be described in detail in the commissioning plan.

D. The CA will review all Testing, Adjusting and Balance (TAB) work.

E. The Division 15 contractor will provide the following during the commissioning phase:

1. Provide personnel for testing and start-up of the equipment and systems.
2. Perform rough testing and balancing within 10% of the specified values. The TAB contractor will make final balancing adjustments.
3. Providing qualified personnel for participation in commissioning tests, including seasonal testing required after the initial commissioning.
4. Providing equipment, materials, and labor necessary to correct deficiencies found during the commissioning process, which fulfill contract and warranty requirements.
5. Providing as-built drawings, operation and maintenance information to the CA for verification, organization, and distribution.

6. Providing assistance to the Commissioning Firm to develop and edit system operation descriptions.

7. Providing training for the systems specified in this Division with coordination by the CA.

1.02 COOPERATION

A. Cooperate with the CA in the following manner:

1. Allow sufficient time before final completion dates so that testing and balancing can be accomplished.

2. Provide labor and material to make corrections when required without undue delay. Install balancing dampers/balancing cocks/ Pressure and Temperature (P&T) taps as required by the TAB contractor.

3. Put all systems and equipment into full operation and continue the operation of the same during each working day of testing and balancing.

4. Include the costs of equipment modification, including the cost of exchange components as required to properly operate the system per the CA requirements.

5. Provide test ports where directed or necessary for measurements and for balancing of the air and water systems. Test ports will be provided with an approved removable plug, cap or seal.

6. Provide P&T taps as noted on construction documents and as required by the CA to adequately test and/or balance the hydronic systems.

B. The Contractor will have the testing and balancing specialist coordinate and review his work with the CA.

C. The Contractor will have the equipment manufacturer's representative on site during commissioning to start-up and/or troubleshoot issues which may occur during the process detailed in this Section.

D. The Contractor will have the control manufacturer's representative on site during commissioning to adjust and set automatically operated control valves and dampers to operate as required.

1.03 QUALITY ASSURANCE

A. Entities performing the commissioning support described in this Section must have had Division 15 work related experience similar to that required for this Project for not less than three years.

B. Entities performing the commissioning support described in this Section shall be certified by the equipment manufacturer and must have experience on at least two projects involving complexities similar to those required under this Contract.

1.04 SUBMITTALS

Refer to Appendix A.

PART 2. PRODUCTS

2.01 TEST EQUIPMENT

A. Division 15 contractor will provide all test equipment for mechanical systems testing. Equipment will be provided as necessary for start-up, test, and commission the mechanical systems equipment.

2.02 TEST EQUIPMENT – PROPRIETARY

A. Proprietary test equipment required by the manufacturer, whether specified or not, will be provided by the manufacturer of the equipment prior to the commencement of commissioning phase. Manufacturer will provide the test equipment, demonstrate its use, and assist the CA in the commissioning process. Proprietary test equipment shall become the property of The Port upon completion of commissioning.

PART 3. EXECUTION

3.01 WORK PRIOR TO COMMISSIONING

A. Complete all phases of work so the system can be started, tested, balanced, and otherwise commissioned. Division 15 has primary startup responsibilities with obligations to complete systems, including all sub-systems so they are functional. This includes the complete installation of all equipment, materials, pipe, duct, wire, insulation, controls, etc. per the contract documents and related directives, clarifications, change orders, etc.

B. The CA will develop a commissioning plan. Upon request of the CA, Division 15 shall provide assistance and consultation. Division 15 is obligated to assist the CA in preparing the commissioning plan by providing all necessary information pertaining to the actual equipment and installation.

C. If system modifications/clarifications are in the contractual requirements of this and related sections of work, they will be made at no additional cost to the Owner. If Contractor initiated system changes have been made that alter the commissioning process, the CA will notify the Port in writing.

D. The CA will complete all FIV (Field Installation Verification) check sheets prior to rotational checks or contractor start-up of any equipment or systems.

E. Specific pre-commissioning responsibilities of Division 15 are as follows:

1. Factory start-up or Contractor start-up of all equipment and systems installed under Division 15000.

2. Normal start-up services required bringing each system into a fully operational state. This includes motor rotational check, cleaning, filling, purging, control sequences of operation, leak testing, full load, and part load performance, etc. The CA will not begin the OPT (Operational) process until each system is complete, including normal contractor start-up.

3.02 GENERAL

A. Prior to final turnover, the following items listed in Section 3.02 B below shall be complete. The contractor shall demonstrate that all systems and equipment are in compliance with manufacturer recommendations, code requirements, specifications, and design parameters. Specialized and trained manufacturer representatives shall start-up and demonstrate performance of systems and equipment.

B. The contractor will complete the following summary list of equipment and systems operational processes for observation by the CA to complete the OPT (Operational) testing. The following list is only a summary of the work under this contract; the contractor will comply with the design document requirements, manufacturer's recommendations and detailed specifications wherever they are more stringent.

1. Miscellaneous Mechanical:

   a. All hydrostatic and pneumatic tests witnessed, approved and signed off.

   b. All piping systems painted, insulated and labeled as required. All valves tagged, valve charts delivered.

   c. All piping systems flushed, all strainers cleaned.

   d. Piping systems chemically cleaned, passivated or sanitized as specified.

2. Chilled, Condenser and River Water Pumps:

   a. All pumps field aligned.

   b. Manufacturer's representative will verify proper installation per contract documents of each pump.

   c. Factory performance test documentation will be furnished to the Port.

   d. The controls subcontractor will demonstrate the system controls and sequence of operation of each pump. Each pump will be interlocked to the control system.

   e. Flow switches, sensors, relays and other control devices shall be verified for a complete workable chilled, condenser and river water system.

   f. Manufacturer's representative and controls subcontractor shall demonstrate that the chiller plant automation system is capable of monitoring the controls of the chilled, condenser and river water pumps.

3. Chiller and Associated Equipment:

   a. Manufacturer's representative will verify chiller installation and controls are in compliance with design criteria.

   b. Manufacturer's representative will provide leak testing, evacuation, dehydration, and charging of the units prior to start-up.

   c. Factory performance test documentation will be furnished to the Port.

   d. The controls subcontractor will demonstrate the system controls and sequence of operation of each chiller. Each chiller will be interlocked to the control system.

   e. Flow switches, sensors, relays and other control devices shall be verified for a complete workable chilled water system.

   f. Manufacturer's representative and controls subcontractor shall demonstrate that the chiller plant automation system is capable of monitoring the controls of the chillers.

4. Balancing and Testing of Air and Water Systems:

   a. Testing and balancing contractor will perform the tests and balance all systems in accordance with the requirements of Specification Section 15992 – TESTING, ADJUSTING, AND BALANCING OF AIR AND HYDRONIC SYSTEMS.

5. Building Automation System: Temperature control contractor will verify and demonstrate sequence of operation for each point of the following systems:

   a. Chiller Controls
   b. Pump Controls
   c. River Water Systems
   d. Dewatering Systems
   e. Condenser Water System
   f. Chilled Water System
   g. Flow Switches, Temperature Sensors, etc.
   h. Control Valves
   i. Ventilation System
   j. Refrigerant Relief and Purge Systems

6. Miscellaneous Systems: Mechanical contractor will verify and demonstrate that the following systems have been installed and perform in accordance with the drawings and specifications:

   a. Pump House Sump and Pump-Out Systems
   b. Sluice Gates
   c. Water Treatment Systems
   d. Compressed Air Systems
   e. Refrigerant Leak Detection and Purge Systems
   f. Overhead Crane Systems
   g. Ventilations System
   h. Strainers and Filtration Systems
   i. All Valves
   j. Fire Sprinkler Systems

3.03 PARTICIPATION IN COMMISSIONING

A. Provide skilled technicians to start-up and debug all systems within Division 15. These same technicians will be made available to assist the CA in completing the commissioning program as it relates to each system and their technical specialty. Work schedules, time required for testing, etc. will be requested by the CA and coordinated by the contractor. Contractor will ensure the qualified technician(s) are available and present during the agreed upon schedules and of sufficient duration to complete the necessary tests, adjustment, and/or problem resolutions.

B. System problems and discrepancies may require additional technician time, CA time, redesign and/or reconstruction of systems, and system components. The additional technician time shall be made available for the subsequent commissioning periods until the required system performance is obtained at no additional cost to the Port.

C. The CA reserves the right to judge the appropriateness and qualifications of the technicians relative to each item of equipment, system, and/or subsystem. Qualifications of technicians include expert knowledge relative to the specific equipment involved, adequate documentation and tools to service/commission the equipment, and an attitude/willingness to work with the CA to get the job done. A liaison or intermediary between the CA and qualified factory representatives does not constitute the availability of a qualified technician for purposes of this work.

3.04 WORK TO RESOLVE DEFICIENCIES

A. In some systems, mis-adjustments, misapplied equipment and/or deficient performance under varying loads will result in additional work being required to commission the systems. This work will be completed under the direction of the Port or the Port's Engineer, with input from the contractor, equipment supplier, and CA. Whereas all members will have input and the opportunity to discuss, debate and work out problems, the Port per Division 1 will have final jurisdiction on the necessary work to be done to achieve performance.

B. Corrective work is to be completed in a timely fashion to permit the timely completion of the commissioning process. Experimentation to render system performance will be permitted. If the CA deems the experimentation work to be ineffective or untimely as it relates to the commissioning process, the CA will notify the Port indicating the nature of the problem, expected steps to be taken, and the deadline for completion of activities. If the deadline(s) pass without resolution of the problem, the Port reserves the right to obtain supplementary services and/or equipment to resolve the problem. Costs incurred to solve the problems in an expeditious manner will be the contractor's responsibility.

3.05 SEASONAL COMMISSIONING AND OCCUPANCY VARIATIONS

A. Seasonal commissioning pertains to testing under full load conditions during peak cooling season, as well as part load conditions in the spring and fall. Initial commissioning will be done as soon as contract work is completed regardless of season. Subsequent commissioning will be undertaken at any time thereafter to ascertain adequate performance during the different seasons.

B. All equipment and systems will be tested and commissioned in a peak season to observe full load performance. Cooling equipment will be tested during summer design extremes, with a fully loaded system. Each contractor and supplier will be responsible to participate in the initial and the alternate peak season test of the systems required to demonstrate performance.

3.06 TRAINING

A. In addition to the requirements of Division 1, arrange for and participate in the training of Port's engineering, operations and maintenance staff on each system and related components. Training will be conducted in a classroom setting, with system and component documentation, and suitable classroom training aids.

B. Training will be conducted jointly by the CA, the engineers, the equipment vendors, and the contractor. The contractor will be responsible for highlighting system peculiarities specific to this project.

3.07 SYSTEMS DOCUMENTATION

A. In addition to the requirements of Division 1, update contract documents to incorporate field changes and revisions to system designs to account for actual constructed configurations. All drawings shall be redlined on one set of contract documents provided by the contractor. Division 15 as-built drawings shall include elevations and details for all individual mechanical systems in relation to actual building layout.

B. Maintain as built redlines as required in Division 1. Given the size and complexity of this project, redline drawings at completion of construction, based on memory of key personnel, is not satisfactory. Continuous and regular redlining of drawings is considered essential and mandatory.

C. In addition to the requirements of Division 1 for operation and maintenance data, provide five (5) copies of equipment technical literature, operation and maintenance literature, and shop drawings to the CA as soon as they are available. This requirement does not relieve the contractor of submitting the final operating and maintenance data at project closeout.

END OF SECTION

DIVISION 15

SECTION 15999

COMMISSIONING MECHANICAL SYSTEMS

APPENDIX A

SUBMITTAL REQUIREMENTS

A. Prior to performing work described in this section, submit sample blank forms of the test reports which will be submitted by contractor, indicating all data and parameters to be included.

B. Submit certified test reports, signed by the authorized manufacturer's representative of the equipment being tested. The reports shall be certified proof that the equipment and systems have been examined, verified, started and tested in accordance with the manufacturer's requirements; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at completion of the testing; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Submittal of test report shall be in the following format:

1. Draft Report: Upon completion of testing, prepare draft reports on the approved forms. Draft report may be handwritten, but must be complete, factual, accurate and legible. Organize and format draft reports in the same manner specified herein below for the final reports. Submit three (3) complete sets of draft reports. Only one (1) complete set of draft reports will be returned.

2. Final Report: Upon verification and approval of draft reports, prepare final reports, type written and organized and formatted as described herein below. Submit three (3) complete sets of final reports.

   a. Report Format: Report forms shall be the standard forms prepared by the manufacturer for each respective item and system to be tested. Include schematic systems diagrams. Enclose the report contents in a 3-ring binder. Divide the contents into the below listed divisions, separating them by divider tabs with titles descriptive of the contents:

      (1) General Information and Summary

      (2) Individual Component Descriptions

      (3) System Description

   b. Report Contents: Provide the following minimum information, forms and data:

      (1) General Information and Summary: the inside cover sheet shall identify the testing Contractor, Commissioning Agent, Manufacturer, Owner, Engineer, and Project. Include addresses, and contact names and telephone numbers. Include a certification sheet containing the name, address, telephone number and signature of the manufacturer's representative. Include in this division a listing of all instrumentation used for the procedures, along with the proof of calibrations.

(2) The remainder of the reports shall contain the appropriate forms containing, as a minimum, the information indicated on the manufacturer's standard report forms, for each item of equipment and the system. Prepare a schematic diagram for each item of equipment and system, to accompany each respective report form.

c. Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified by the appropriate governing agency standards within a period not exceeding six months prior to conducting the test procedures.

END OF APPENDIX "A"

SECTION 16000
ELECTRICAL GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. Unless otherwise shown on the Contract Drawings, or unless otherwise specified in other Sections of these Specifications, the general requirements specified in this Section are applicable to all electrical work of this Contract. Additional requirements applicable to individual Sections of these Specifications are specified in those Sections, or are shown on the Contract Drawings.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. None

1.03 RELATED SECTIONS

A. Section 01352 - Sustainable Design Requirements.

1.04 REFERENCES

A. American National Standards Institute (ANSI)

1. Z535.4 – Product Safety Signs and Labels

B. Institute of Electrical and Electronics Engineers (IEEE)

1. C2 - National Electrical Safety Code (NESC)

C. ASTM International (ASTM)

1. D178 - Standard Specification for Rubber Insulation Matting

D. National Fire Protection Association (NFPA)

1. 70 - National Electrical Code
2. 70E – Standard for Electrical Safety in the Workplace
3. 130 – Standard for Fixed Guideway Transit and Passenger Rail Systems
4. 502 – Standard for Road Tunnels, Bridges, and other Limited Access Highways

E. Occupational Safety and Health Administration (OSHA)

1.05 SUSTAINABLE DESIGN REQUIREMENTS

A. Sustainable Design General Requirements

1. The Authority requires the Contractor to implement practices and procedures to meet the Contract's sustainable requirements. The Contractor shall ensure that the requirements related to these goals, as defined in Specification Section 01352 and the articles below, are implemented to the fullest extent. Substitutions, or other changes to the Work proposed by the Contractor, shall not be allowed if such changes compromise the stated Sustainable Design Performance Criteria.

B. Sustainable Design Performance Criteria

1. All field-applied adhesives, sealants, paints and coatings relating to Work of this Section shall meet the requirements of Specification Section 01352.

2. All composite wood, engineered wood, or agrifiber products used for rough carpentry (e.g., panel backer-board, etc.) shall contain no added urea-formaldehyde resins. Acceptable resins and binders include, but are not limited to, phenol formaldehyde and methyl diisocyanate (MDI). Certification of these products shall be in accordance with the Submittal Requirements of this Section.

3. All mercury-containing lamps shall be shall pass the U.S. Environmental Protective Agency (EPA) Toxic Characteristic Leaching Procedure (TCLP) and shall be certified TCLP compliant. Any mercury-containing lamps deemed unavailable as TCLP must be reported to the Engineer.

C. Sustainable Design Guidelines Commissioning Requirements shall be undertaken in accordance with Section 01352.

1.06 QUALITY ASSURANCE

A. Any entity performing Work shall have had experience on at least two projects of similar size and scope as this project.

B. All workers performing Work shall be skilled workers of the trade involved. Where specialty work, such as splicing or welding are required, submit proof of training, experience and work history for each worker, for review by the Engineer. Only approved workers shall perform specialty work.

C. All electrical work shall be performed under the supervision of an electrical contractor, licensed in the State in which the work is to be performed. Submit a copy of the qualifying license for review by the Engineer.

D. All calculations required by this and other various Sections of these Specifications, or as shown on the Contract Drawings, shall be certified and sealed by a Professional Engineer

licensed in the State in which the work is to be performed, and shall be submitted to the Engineer for review.

E. Various Sections of these Specifications contain the requirement for the specific material or equipment to be furnished with an experience statement "satisfactorily used for purposes similar to those intended herein" or words of similar intent and a statement that specifies the required experience time. These statements shall mean that the manufacturer of the material or equipment being furnished for the work specified in this Contract shall have manufactured similar material or equipment to that specified, for at least the time specified.

F. In various Sections of this Division there is a statement that refers to the length of required experience that must be satisfied.

G. Polyvinyl Chloride (PVC): PVC conduits shall not be installed in any indoor area or used in any areas subject to the requirements of NFPA 130 or NFPA 502. PVC insulated or jacketed wiring and cabling shall not be installed in areas subject to the requirements of NFPA 130 or NFPA 502.

H. Asbestos

1. Asbestos or items containing asbestos shall not be furnished or installed.

I. Conformance Labels

1. All electrical materials and equipment for which there is a nationally recognized standard shall bear the conformance labeling of the third party inspection authority, such as Underwriters Laboratories Inc., Factory Mutual, Electrotechnical Laboratory (ETL), or approved equal. Where the phrase "where there are established UL standards; shall bear the UL label," or words of similar intent appear in other Sections, the instructions for the conformance label above shall apply.

1.07 SUBMITTALS

A. Submit not less than the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of DIVISION 1 - GENERAL PROVISIONS:

1. Catalog cuts to be reviewed and approved by the Engineer.

a. Conduit and fittings
b. Wire and cable
c. Wiring devices
d. Multi-outlet assemblies
e. "Standard" outlet and junction boxes
f. Medium voltage cable, splicing and termination kits
g. Lightning arresters
h. Capacitors
i. Panelboards and cabinets

j. General purpose transformers
k. Circuit breakers
l. Lighting fixtures
m. Pulling devices and end seals
n. Special pull and junction boxes
o. Supporting devices

2. Shop Drawings

a. Substation and high-voltage transformers
b. Switchgear
c. Switchboards
d. Motor control centers
e. Emergency lighting battery systems

B. Calculations where required by the Specifications or the Contract Drawings.

C. Working drawings for the installation sequence of medium voltage cables, and other systems where shown on the Contract Drawings, including the reel designations for each leg of the installation. Drawings shall include the calculations for pulling tensions and sidewall pressure of all cable pulls, including identification of manhole locations with splices and manholes which will be "pulled-through" without splicing. Calculations must be certified and sealed by a Professional Engineer licensed in the State in which the work is to be performed.

D. A final copy of the records and certified test reports for all tests, to the Engineer for review, for not less than the following:

1. Ground fault circuit breaker and receptacle testing.

2. Setting of all adjustable over-current devices.

3. Setting or size of all overload elements installed, indicating the following:

a. Motor designation
b. Nameplate horsepower, full load current, voltage and phases.
c. Operating current and voltage.
d. Overload element size or setting.

4. Emergency power distribution equipment and system test results.

E. One set of prints of Contract Drawings neatly marked up to show any deviations in the actual installation from the conditions shown on the Contract Drawings as issued, and showing the exact location of all equipment and conduit runs, as actually installed.

F. Nameplate designations

G. Operation and maintenance manuals, where required by the Specifications or the Contract Drawings.

H. Sustainable Design Submittal Requirements:

1. Submit documentation for sustainable design requirement certifications in accordance with the requirements of Specification Section 01352. Sustainable Design submittal shall include the following, as applicable:

   a. A completed Sustainable Design Materials Certification Form (SDMCF), appended to Section 01352. Information to be supplied for this form shall include:

      1) The Volatile Organic Compound (VOC) content of all adhesives, sealants, paints, and coatings applied on site as part of this Work, if any.

      2) Documentation that all plywood, composite wood and agrifiber products installed within the Project's weatherseal, if any, do not contain added urea-formaldehyde resins.

   b. Product cut sheets for materials that meet the SDMCF.

   c. Material Safety Data Sheets (MSDS), for applicable products. Applicable products include, but are not limited to adhesives, sealants, carpets, paints and coatings. Material Safety Data Sheets shall indicate the Volatile Organic Compound (VOC) limits of products submitted. If an MSDS does not include a product's VOC limits, then product data sheets, manufacturer literature, or a letter of certification from the manufacturer can be submitted in addition to the MSDS to indicate the VOC limits.

   d. Product catalog cut-sheet or certification on manufacturer's letterhead stating that all mercury-containing lamps (e.g. fluorescent, HID) are low mercury/low lead as determined by the US Environmental Protection Agency's Toxicity Characteristic Leaching Procedure (TCLP) testing process 1311.

2. The Sustainable Design submittal information shall be assembled into one package arranged by Specification Section or trade, and submitted to the Engineer in accordance with Specification Section 01352.

I. Protection and Safety Submittal Requirements:

   1. Prepare and submit procedures for workplace electrical safety and arc flash protection in accordance with 3.09 of this Section.

   2. Catalog cuts or drawings for arc flash hazard warning labels and signage.

   3. Identification of equipment requiring arc flash labels and locations of arc hazard warning signage.

1.08 CODES AND STANDARDS

A. The electrical installation shall conform to all requirements of IEEE C2, NFPA 70, and the codes and standards specified in other Sections, all local codes and the requirements of OSHA, which would be applicable if the Authority were a private corporation.

B. Standards of technical organizations and regulatory agencies are referenced in other Sections, and unless stricter requirements are indicated, materials and equipment so specified shall be manufactured, tested and installed to conform, as a minimum, to the requirements of such reference standards and publications.

C. In case of conflict between provisions of codes, laws, and ordinances, the more stringent requirement shall apply.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver material in manufacturers' original unopened protective packaging.

B. Store materials in original packaging in a manner to prevent soiling, physical damage, wetting or corrosion prior to installation.

C. Handle in a manner to prevent damage to finished surfaces.

D. Where possible, maintain protective coverings until installation is complete and remove such covers as part of final cleanup.

E. Touch up any damage to finishes to match adjacent surfaces to the satisfaction of the Engineer.

PART 2 - PRODUCTS

2.01 MATERIAL AND EQUIPMENT TO BE FURNISHED

A. Equipment and materials furnished shall be new and unused prior to this installation. Equipment shall be first grade commercial quality and shall be essentially the standard cataloged products of a manufacturer regularly engaged in the manufacture of the products. Only those items specifically shown on the Contract Drawings as existing relocated or Authority furnished shall be reused in this installation. Rebuilt or remanufactured equipment will not be permitted.

2.02 IDENTIFICATION

A. All parts of equipment, such as switchboards, panel boards, safety switches, motor starters, circuit breakers, time clocks, contactors and similar items shall be identified by name, function or control with laminated plastic nameplates consisting of two black sheets with one white sheet bonded to and between the two outer sheets and having letters machine engraved in the face sheet to the depth of the white plastic. Nameplates shall not be smaller than 1 inch by 3 inches with characters not less than 1/4 inch in height. Where letter sizes are not specified, use 1-inch high letters for panel boards, switchboards and motor control centers and ¼-inch high elsewhere. Nomenclature shall be according to a schedule approved by the Engineer.

B. All device plates other than lighting switch plates, telephone and 120 volt, single phase, 15 or 20 ampere receptacles, shall have black or white (as directed) silk-screened

1. System
2. Voltage (where applicable)
3. Number of phases (where applicable)
4. Current rating (where applicable)
5. Frequency (where applicable)

C. Before placing orders for nameplates or silk-screened device plates, submit a typewritten list to the Engineer for review.

D. The outside of the covers of all junction or pull boxes located above hung ceilings and the inside of the covers of all junction or pull boxes exposed shall be labeled with an indelible marker indicating the operating voltage and the system contained therein.

E. All device plates of receptacles connected to a standby or emergency power distribution system shall be labeled with an orange plastic nameplate, engraved with the panelboard and circuit number to which the receptacle is connected. Nameplate character engraved shall be not less than 6 mm in height.

F. Unless otherwise shown on the Contract Drawings, all panel boards, switchboards, switchgear, circuit breakers, switches and transformers connected to a standby or emergency power distribution system shall be finished Federal Safety Orange in color.

2.03 RUBBER MATTING

A. Provide continuous insulated rubber matting not less than 1 m wide and not less than 6 mm thick in one piece in front of:

1. Substation Transformers
2. Switchgear
3. Switchboards
4. Motor control centers
5. Panelboards
6. On each side and end of a standby or emergency generator set
7. Other locations as shown on the Contract Drawings

B. Matting shall conform to ASTM D 178, Type 2.

PART 3 - EXECUTION

3.01 GENERAL

A. Work of this Division shall include all labor, material and apparatus necessary for the completion of all electrical work as shown on the Contract Drawings and as hereinafter specified, left ready for satisfactory operation.

B. Coordinate with Authority operations and construction by other trades.

1. Coordinate with the Work of all trades as necessary to facilitate timely completion, avoid unnecessary cutting and patching and to ensure proper installation and operation of all equipment.

2. Coordinate all components and aspects of the work, in order to minimize power shutdowns to the power distribution systems. Should any part of the Work require an "off-hours" shutdown in excess of eight hours, supply temporary services or feeders as required to maintain operation of the existing systems and equipment.

3. Furnish to appropriate trades, shop drawings, catalog cuts and instructions necessary for construction of concrete bases, concrete encasement, anchor bolts, and other construction required to accommodate installations under other Sections.

4. Obtain all wiring diagrams and other instructions required for proper electrical connection of equipment installed or furnished under other Divisions of these Specifications and coordinate the installation, wiring and connections for equipment furnished under this Division, or other various Divisions.

C. The arrangement of electrical equipment and conduit runs as shown on the Contract Drawings and described in the Specifications is schematic. Locate and install electrical work in coordination with other trades so that all electrical equipment and material is installed with working clearances in accordance with NFPA 70. Route conduit to avoid interference with existing installation and with work to be performed by other trades.

D. The location of equipment and motors shown on the Contract Drawings shall be subject to minor revisions due to field conditions or coordination with other trades without any increase in Contractor's compensation. Prior to roughing-in, verify the exact location of all electrical connections to equipment and motors from reviewed shop drawings and field verification.

E. Maintain records of all inspections, testing, overload and over-current settings throughout the construction and any corrective actions taken, and submit records to the Engineer for review.

F. All electrical work shall be subject to inspection by the Engineer. Correct any deficient work, as required for the approval of the Engineer.

G. Any equipment, materials, wiring or labor that are a necessary part of the electrical work and to its proper performance, although not specifically mentioned herein or shown on the Contract Drawings, shall be furnished and installed as if called for in detail without additional cost to the Authority.

3.02 REMOVALS, RELOCATIONS, RECONNECTIONS, RESTORATIONS

A. Relocate existing equipment and materials as shown on the Contract Drawings.

B. Unless otherwise shown on the Contract Drawings, existing equipment and materials that are to be removed and not required to be relocated under this Contract, will become the property of the Contractor and shall be removed from the property of the Authority, and shall be properly disposed of. Disposal of equipment and materials shall comply with all local, state and Federal laws and regulations as if the Authority was a private corporation.

C. Unless specifically shown on the Contract Drawings, salvaged equipment and materials shall not be reused in the installation.

D. If existing electrical feeders, wiring, conduit, lighting fixtures or equipment interfere with the installation of new construction of any trade, the existing electrical feeder, wiring and conduit shall be rerouted or the equipment relocated in a manner approved by the Engineer to permit installation of the new construction. Where existing circuits or devices, or portions of the existing wiring system are to remain in service, but are interrupted by the construction, continue the existing wiring to maintain the remainder of the wiring system in operation.

E. Notify the Engineer immediately of any damage caused by the Contractor to existing wiring, services or feeders which are to remain in service. Repair the damage in a workmanlike manner to restore to service, at no cost to the Authority.

F. Before shutdown or discontinuation of service on any circuit, system or feeder, coordinate such activities with the Engineer in order to minimize shutdown periods. Provide a minimum of two weeks notice in writing to the Engineer before performing any shutdowns. The minimum period may be reduced with the express written permission of the Engineer.

3.03 LOCATION OF EQUIPMENT

A. Unless otherwise shown on the Contract Drawings, the location of outlets or devices, from finished floor to center of plate or device, shall be as follows:

1. Lighting switches: 48 inches
2. Thermal switches: 48 inches
3. Receptacles: 16 inches
4. Telephone outlets: 16 inches

5. Fire alarm stations: 48 inches
6. Fire alarm horn/light signals: 7 feet, 6 inches
7. Clocks: 7 feet, 8 inches

B. Unless otherwise shown on the Contract Drawings, the location of equipment, from finished floor to top of enclosures shall not exceed 6 feet, 6 inches, and shall not protrude more than 4 inches if higher than 27 inches.

1. In exposed or public locations, panelboards and cabinets shall generally be flush mounted and all covers shall be identical in layout and size, and shall be installed to maintain a level and straight top and bottom alignment.
2. In concealed locations, or in closets or electrical or mechanical rooms, or non-public locations, panelboards and cabinets shall generally be surface mounted and shall be installed to maintain a level and straight top alignment.

3.04 DISSIMILAR METALS

A. Dissimilar metals shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating so as to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

B. Transitions in raceways, from one metal to a dissimilar metal shall only be made at boxes or other enclosures, except where shown on the Contract Drawings.

3.05 NAMEPLATES

A. Secure nameplates on equipment or walls with stainless steel or brass screws.

3.06 RUBBER MATS

A. Install rubber mats in front of each panelboard, switchboard, motor control center, switchgear and substation transformers, and along each side and the end or each generator set, or as shown on the Contract Drawings.

B. Rubber mats when installed shall lay flat without curling.

3.07 CUTTING AND PATCHING

A. Perform all cutting and patching of existing construction required for installation of all materials and equipment as specified in this Division.

B. Perform all patching to match existing adjacent construction to the satisfaction of the Engineer and using the best possible workmanship of the various trades involved.

3.08 FINAL FIELD TESTS

A. The entire electrical installation shall be inspected prior to final acceptance testing, thoroughly cleaned, and damaged finishes touched up after final completion and prior to final acceptance testing being performed. Not less than 30 days prior to the testing, furnish a test plan to the Engineer for review, outlining all aspects of the testing, including tests to be performed and the expected results.

B. Perform the following field test in the presence of the Engineer to demonstrate the reliability of the electrical installation. Give the Engineer a minimum of one week's advanced notice of such tests.

1. Operate all electrical systems and equipment for a period of 24 hours unless in the opinion of the Engineer a different test period is required, to prove the operation and performance of a system and its equipment.

2. Should the foregoing test reveal any defects, promptly correct such defects and re-run the tests until the entire installation conforms to the requirements of these Specifications and the Contract Drawings.

C. Tests requiring certified reports and those requiring factory or field inspection shall be conducted and reported to the Engineer in conformance with standards herein specified.

D. In addition to the tests outlined above, after completion of the electrical system and prior to occupancy:

1. The following equipment and devices, as a minimum, shall be thermographically inspected utilizing a Hughes Aircraft Probeye infrared detector, or approved equal, with videotaping attachment.

a. High voltage cable splices and connections.
b. Switchboard.
c. Transformer.
d. Switchgear.
e. Panelboards.
f. Motor Control Centers.
g. Automatic transfer switch and emergency power system connections.
h. Chiller motor and starter connections.
i. All 600 volt (nominal) cable connections rated 100 amperes (No. 3 AWG) or greater.
j. Other equipment as shown on the Contract Drawings.

2. The inspection shall be made by an independent inspection company such as Infrared Services, Inc, Montville, N.J, General Electric Apparatus Service Division, or approved equal.

3. The inspection shall be made with all equipment, motors, lighting fixtures, and miscellaneous loads operating and with all equipment covers removed.

4. Inspection reports complete with color photographs of the infrared scan and control photographs indicating the ambient temperature and any hot spots of each item inspected, shall be submitted to the Engineer for approval.

5. Any equipment, connections or devices indicated to be operating improperly performing equipment shall be replaced or repaired by the Contractor at no cost to the Authority. The cost of inspection and necessary repairs shall be included in the Contract.

E. The inspection shall be made by an independent inspection company such as Thermo-Scan, Montville, N.J., General Electric Apparatus Service Division, or approved equal. The inspection shall be made with all equipment, motors, lighting fixtures, and miscellaneous loads operating and with all equipment covers removed. Inspection reports complete with color photographs of the infrared scan and control photographs indicating the ambient temperature and any hot spots of each item inspected shall be submitted to the Engineer for approval. Any equipment, connections or devices indicated to be operating improperly performing equipment shall be replaced or repaired by the Contractor at no cost to the Authority. The cost of the inspections and necessary repairs shall be included in the Contract.

F. Demonstrate to the Engineer equipment or systems installed or modified in this Contract.

1. After completion of all testing, and prior to placing equipment or systems in operation, demonstrate the features and operation of the equipment or systems to the Engineer and all other staff as designed by the Engineer, so that operational and maintenance personnel are familiarized with the equipment and systems, as follows:

   a. Switchboards and panelboards.
   b. Transformer.
   c. Switchgear.
   d. Motor control centers.
   e. Fire alarm and smoke detection systems.
   f. Automatic transfer switches.
   g. Standby/Emergency generator sets.
   h. Other equipment as shown on the Contract Drawings.

2. Provide the necessary accessories, test equipment, and personnel, for each demonstration.

3. Coordinate all arrangements for the demonstrations through the Engineer.

4. Upon the completion of each demonstration or instructional session, obtain "sign-off" from the Engineer. The "sign-off" shall state that the demonstration or instructions for use were provided, that they were complete and were given to the designated personnel.

3.09 PROTECTION AND SAFETY

A. During installation, energizing and testing of any equipment that may pose arc flash hazard, the Contractor shall establish and follow Electrical Safety and Arc Flash protection procedures in accordance with NFPA 70E and OSHA, as applicable.

B. Prepare and submit for approval recommended procedures for workplace electrical safety and arc flash protection of any personnel maintaining or working around equipment

subject to arc flash, in accordance with NFPA 70E, OSHA and the equipment manufacturer's recommendations. Include:

1. Recommended arc flash protection boundary area around equipment.
2. Recommended safety related work practices and procedures for operating equipment.
3. Recommended safety related work practices and procedures for maintaining equipment.

C. Provide Arc Flash hazard warning labels on all equipment that may pose arc flash hazard. Provide appropriate Arc Flash Hazard signage in all rooms containing such equipment. Labels and signage shall be in accordance with ANSI Z535.4, NFPA 70, NFPA 70E and OSHA requirements.

END OF SECTION

SECTION 16110
RACEWAYS

PART 1 - GENERAL

1.01 SUMMARY

A. This section specifies requirements for raceways.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Not applicable

1.03 RELATED SECTIONS

A. Section 16190 – Supporting Devices

1.04 REFERENCES

A. American National Standards Institute (ANSI)

1. C80.1 - Specification for Rigid Steel Conduit, Zinc Coated
2. C80.3 - Electrical Metallic Tubing - Zinc Coated
3. C80.6 - Intermediate Metal Conduit - Zinc Coated

B. National Electrical Manufacturers Association (NEMA)

1. FB1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
2. RN1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
3. TC3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing
4. TC6&8 - PBC Plastic Utilities Duct for Underground Installations
5. TC14 - Thermosetting Resin Conduit and Fittings

C. ASTM International (ASTM)

1. E800 Standard Guide for Measurements of Gases Present or Generated During Fires

D. National Fire Protection Association (NFPA)

1. 70 - National Electrical Code

E. Underwriters Laboratories Inc. (UL)

1. 1 - Flexible Metal Conduit
2. 5 - Surface Metal Raceways and Fittings
3. 6 - Rigid Metal Conduit
4. 209 - Cellular Metal Floor Raceways and Fittings
5. 360 - Liquid-Tight Flexible Steel Conduit
6. 514B - Fittings for Conduit and Outlet Boxes
7. 651 - Schedule 40 and 80 Rigid PVC Conduit
8. 651A - Type EB and A Rigid PVC Conduit and HDPE Conduit
9. 797 - Electrical Metallic Tubing
10. 870 - Wireways, Auxiliary Gutters, and Associated Fittings
11. 884 - Underfloor Raceways and Fittings
12. 1242 - Intermediate Metal Conduit
13. 1479 - Standard for Fire Tests of Through-Penetration Firestops
14. 1684 –Reinforced Thermosetting Resin Conduit

1.05 SUSTAINABLE DESIGN REQUIREMENTS

A. Not Applicable

1.06 QUALITY ASSURANCE

A. Deliver material in manufacturer's original, unopened, protective packaging. Protective caps shall be removed only upon installation of conduit.

B. Store materials in a clean, dry space and protect them from weather.

C. Handle in a manner to prevent damage to finished surfaces.

1.07 SUBMITTALS

A. Submit the following in accordance the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

1. Shop Drawings

2. Raceway systems - only when shop drawings are required by the Contract Drawings
3. Catalog Cuts
   a. Conduit and Tubing
   b. Surface Metal Raceway and Accessories
   c. Underfloor Raceway and Accessories
   d. Wireways and Auxiliary Gutters
4. Certifications
   a. For FRE installations utilizing zero-halogen FRE, submit manufacturers certification that all FRE conduit, fittings, and accessories do not exceed the toxicity levels specified in paragraph 2.01 J3 when tested in accordance with ASTM E800.
   b. For FRE /PVC installations, submit proof of installer certification by the FRE /PVC manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. Locations, types and sizes of raceways are shown on the Contract Drawings.
2. Minimum size of conduit shall be 3/4 inch.
3. Conduit shall be supplied in a minimum of 10-foot lengths and accordance with UL.

B. Rigid Metal Conduit

1. RGS - Rigid galvanized steel conduit (Heavy-wall) hot dipped galvanized inside and out, with hot dipped galvanized threads, conduit shall conform to UL 6 and ANSI C80.1.
2. IMC - Intermediate metal conduit, galvanized steel (medium-wall) conduit, threads shall be galvanized and shall conform to ANSI/UL 1242 and ANSI C80.6.
3. All preformed elbows shall be the same in construction to and of a type designed for use with the appropriate conduit and shall conform to UL 6.
4. All fittings shall be threaded and shall conform to NEMA FB1.
5. If threads are cut after the zinc coating has been applied, the threads shall be treated with protective coating of zinc equivalent to hot-dipped process.

C. Electrical Metallic Tubing

1. EMT - Electrical metallic tubing (thin-wall) shall be galvanized steel and shall conform to ANSI/UL 797 and ANSI C80.3

2. All fittings shall be indenter or compression type made of malleable or pressed steel and shall conform to ANSI/NEMA FB1.

D. Polyvinyl Chloride Coated Rigid Galvanized Steel Conduit

1. RGS/PVC shall be PVC coated Rigid Galvanized Steel conduit (heavy wall). All conduit shall be hot dipped galvanized steel inside and out, with hot dipped galvanized threads. Conduit shall be certified as conforming to UL-6 and ANSI C80 prior to application of the PVC coating. All PVC coated conduit boxes, bodies and fittings shall be hot dipped rigid galvanized steel, certified as conforming to UL-514B prior to application of the PVC coating.

2. The interior of all conduits, boxes, bodies and fittings shall have a uniformly applied urethane coating, a minimum of 2 mils thick. The exterior of all conduits, boxes, bodies and fittings shall have a 40 mils thick PVC coating, smoothly and uniformly applied by dipping in liquid plastisol. All conduits shall have a series of longitudinal ribs, 40 mils in thickness, to protect the PVC coating from damage during installation.

3. All PVC coating materials shall be certified as conforming to NEMA RN-1 and UL-6, after application of the PVC coating. The PVC shall be certified as providing the primary corrosion protection, in accordance with UL-6. All materials shall bear the UL label accordingly.

4. The exterior PVC coating and interior urethane coating applied to all conduits shall have sufficient flexibility to permit field bending without cracking, flaking, or chipping of any of the coatings.

5. All PVC coating shall be UV resistant.

E. Cellular Metal Floor Raceway

1. Cellular Metal Floor Raceway and Fittings shall conform to NFPA 70 and ANSI/UL 209.

F. Flexible Metal Conduit

1. FSC - Flexible steel (galvanized) conduit shall conform to ANSI/UL 1.

2. LSC - Liquid-tight flexible metal conduit shall conform to ANSI/UL 360.

3. Fittings shall be of a type designed for use with the respective conduit and shall conform to ANSI/UL 514B.

G. Surface Metal Raceways

1. Surface raceways shall conform to ANSI/UL 5.

2. Surface metal raceways shall come complete with all necessary accessories for installation.

H. Underfloor Raceways

1. Duct, fittings, and accessories shall be suitable for encasement in concrete and shall conform to NFPA 70 and ANSI/UL 884.

2. Underfloor raceways shall come complete with all necessary accessories for installation.

I. Rigid Nonmetallic Conduit

1. PVC Type 40 Standard Wall polyvinyl chloride (PVC) conduit shall conform to ANSI/UL 651 and NEMA TC-3.

2. PVC Type 80 Heavy wall polyvinyl chloride (PVC) conduit shall conform to ANSI/UL 651.

3. PVC Type "A" Light wall polyvinyl chloride (PVC) conduit shall conform to NSI/UL 651A

4. PVC Type EB Light wall polyvinyl chloride (PVC) conduit shall conform to ANSI/UL 651A and NEMA TC-8.

5. PVC Type DB Light wall polyvinyl chloride (PVC) conduit shall conform to ANSI/UL 651A and NEMA TC-8.

6. HDPE Type 40 Standard wall High-Density Polyethylene (HDPE) Conduit shall conform to ANSI/UL 651A and NEMA TC-6.

J. Fiberglass Reinforced Epoxy Conduit (FRE)

1. Fiberglass Reinforced Epoxy conduit (FRE) shall conform to ANSI/UL 870. All FRE conduit installed above ground shall be UL listed as an approved raceway for above ground installations. FRE shall be one of the following, as indicated on the Contract Drawings:

   a. Heavy Wall Fiberglass Conduit (FRE -S): FRE -S conduit wall thickness shall be not less than 70 mils for conduits less than 4 inch trade size, not less than 90 mils for conduits 4 inch trade size and not less than 110 mils for larger than 4 inch trade size. Type FRE -S shall only be used where direct buried or encased in concrete and shall be UL listed for the intended use.

   b. Extra Heavy Wall High Impact/Bullet Resistant Fiberglass Conduit (FRE -XW): FGS-XW shall have a wall thickness not les than 250 mils for all trade sizes. Type FRE -XW shall be used for exposed exterior installations, next to active roadways, where installed on or below bridges and elevated roadway or where subject to physical damage. All FRE -XW shall be UL listed for above ground installation.

2. FRE Conduit installed in exterior locations, inside tunnels or in railroad/subway areas shall not contain any compounds or materials that release halogens when burned. Conduit manufacturer shall submit certification that the conduit and fittings are zero-halogen. Zero-halogen shall be defined as not exceeding the following gas toxicity levels, as tested in accordance with ASTM E800:

Gases	Values (max P.P.M.)
1. Hydrogen Chloride	0
2. Hydrogen Bromide	0

3.	Hydrogen Cyanide	<1
4.	Hydrogen Sulfide	0
5.	Vinyl Chloride	<10
6.	Ammonia	0
7.	Aldehides as HCHO	<10
8.	Oxides of Nitrogen	<50
9.	Carbon Monoxide	<250
10.	Carbon Dioxide	<12,000

K. Cellular Metal Floor Raceway Cellular Metal Floor Raceway and Fittings shall conform to NFPA 70 and UL 209.

L. Fire Stops, Through Penetrations of Conduits

1. Where raceways penetrate wall or floor, fire stops with a fire rating equal or greater than the rating of the penetrated wall or floor shall be provided.

2. All fire stops shall conform to the UL 1479.

M. Wireways

1. Wireways shall be seamless galvanized steel construction, cover to be locked with captive screws and shall conform to ANSI/UL 870.

2. Wireways shall come complete with all necessary accessories for installation.

N. Fastening Devices

1. Provide inserts, clamps, bolts and washers, or any other type of fastening devices conforming to the requirements of Section 16190 required to secure conduits to walls or above hung ceilings. Unless otherwise shown on the Contract Drawings, all fasteners shall be hot dipped galvanized and of sizes and types recommended by the equipment manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. All conduit bends shall be accomplished with a trade approved bending tool and in accordance with the manufacturer's recommendations and NFPA 70.

2. Ream conduit ends free from burrs prior to installation, and draw joints up tight.

3. Make transitions in conduit from one metal to a dissimilar metal only at boxes or other enclosures, unless otherwise shown on the Contract Drawings.

4. Install concealed conduits or tubing in as direct a line as possible.

5. Install exposed raceways, located above hung or accessible ceilings, parallel with or at right angles to the lines of buildings and as close to the ceiling as possible, unless otherwise shown on the Contract Drawings.

6. Install expansion fittings in all conduits that cross expansion joints, where conduits attach to independent structures, or where exposed to large temperature changes.

7. Securely fasten threaded conduits entering enclosures, other than threaded cast boxes, by means of two lock-nuts, one on each side of the enclosure. Terminate the conduits in insulated bushings.

8. Cap all free ends of empty conduit to prevent water entrance.

9. Conduit through roofs and external walls of buildings, manholes and other structures shall be watertight. Contractor shall submit detailed shop drawings for the Engineer's approval.

10. Where portions of an interior raceway system are exposed to widely different temperatures, make provisions to prevent circulation of air from a warmer to a colder section through the raceways.

11. Apply zinc rich paint to all exposed threads after joints have been made up clean and tight.

12. Support all conduits as required in these Specifications under Section 16190.

13. All conduit runs shall leave or enter structures perpendicularly.

14. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.

B. Rigid Metal Conduit

1. RGS shall be used where Fire Alarm Systems are installed.

2. RGS/PVC shall not be used indoors.

3. IMC may not be used in wet locations, or high corrosive area, otherwise NFPA 70 Article 345 fully applies.

C. Electrical Metallic Tubing

1. EMT used for power feeder or branch circuits, shall not exceed 2-inch trade size. EMT used for control circuits and communications systems shall not exceed 4-inch trade size.

D. Polyvinyl Chloride Coated Rigid Galvanized Steel Conduit

1. All conduit mounting channels and supports shall be stainless steel. All new accessories shall be PVC Coated hot dipping rigid galvanized steel. U-bolts shall be specially formed and sized to snug fit the outside diameter of the conduit. All screws and bolts shall have PVC encapsulated heads. All nuts, bolts, screws, etc., which cannot be PVC coated shall be stainless steel.

2. The RGS/PVC conduit system shall be installed in accordance with manufacturer recommendations, using the proper tools specifically manufactured for installation of RGS/PVC conduit systems. The installer shall be certified by the RGS/PVC manufacturer to install PVC coated conduit systems. Any PVC coating damaged during the installation shall be either repaired in accordance with the manufacturers recommended procedures and materials, or the damaged conduit section replaced, as determined by the Engineer.

3. All materials utilized for a RGS/PVC installation shall be by a single manufacturer. The contractor shall not utilize conduits from different manufacturers in a conduit system, or mix conduits, fittings, bodies and clams from different manufacturers.

E. Cellular Metal Floor Raceway

1. Installation limits shall be defined by NFPA 70.

F. Flexible Metal Conduit

1. Install FSC for motor connections and for other equipment connections where subject to movement and vibration. Conduit shall be installed to permit maximum flexibility, without crushing or permanent deformation, and shall not exceed 18 inches in length, without approval of the Engineer.

2. Use LSC for the same installation conditions as FSC above, and where also subjected to one or more of the following conditions:

   a. Exterior locations;
   b. Condensating, moist, wet or humid conditions;
   c. Corrosive atmospheres;
   d. Water spray;
   e. Dripping oil, grease or water.

3. LSC installed within tunnel facilities, ventilation buildings, railroad/subway tunnels, and stations shall have a galvanized steel core with a low smoke, halogen free, polyurethane outer jacket.

4. PVC jacketing may be substituted for the low smoke, halogen free, polyurethane outer jacket only for non-tunnel, outdoor installations. PVC jacketing shall not be accepted as a substitute for installation within the tunnels, ventilation buildings, railroad/subway tunnels and stations.

5. Install FSC and LSC with a separate, insulated copper, code-sized, equipment grounding conductor, installed inside the flexible conduit.

G. Surface Metal Raceways

1. Only metallic surface metal raceways will be permitted, unless otherwise shown on the Contract Drawings. Installation shall be in accordance with manufacturer's written recommendations and instructions accompanying the raceways.

2. Provide surface raceway system with means for assuring a continuous ground path throughout.

3. Use fittings without sharp edges introduced into any part of the raceway system.

H. Underfloor Raceways

1. Install underfloor raceways in accordance with the Contract Drawings NFPA 70, ANSI/UL 884, and the recommendations and requirements of the manufacturer.

I. Polyvinyl Chloride (PVC) Conduit

1. PVC Conduit shall not be used indoors.
2. PVC Conduits Types 40 and 80 conform to NFPA 70 Article 347 except it shall not be used indoors.
3. PVC Conduits Types 40, A and EB shall be used for concrete encasement.
4. PVC Conduit Type DB shall be used for direct burial, sand encased.

J. High-Density Polyethylene (HDPE) Conduit

1. HDPE conduit shall not be used indoors.
2. HDPE Type 40 shall be used for direct burial or encased in concrete.

K. Fiberglass Reinforced Epoxy (FRE) Conduit

1. Shall be installed as described in NFPA 70.
2. All sweeps, bends, or changes in direction shall be done with fittings only.
3. All conduit elbows, joints, bodies, condulets and fittings shall be manufactured from the same materials and of a construction type identical to the conduit.
   a. Where type FRE-XW conduit is installed, type FRE-S bodies and condulets may be utilized for trade size where type FRE-XW conduit bodies are not manufactured.
4. All FRE conduit joints shall be of the epoxy adhesive type. When cured, the epoxy joint shall be as strong as the conduit itself and completely watertight.
5. The FRE conduit system shall be installed in accordance with manufacturer recommendations, using the manufacturers recommended tools and methods. Any part of the FRE conduit system damaged during the installation shall be either repaired in accordance with the manufacturers recommended procedures and materials, or the damaged conduit section replaced, as determined by the Engineer.
6. All materials utilized for a FRE installation, including elbows, fittings, joints and joint epoxy shall be by a single manufacturer. The contractor shall not utilize conduits and associated materials from different manufacturers in a conduit system, or mix conduit, fitting, couplings and joint epoxy from different manufacturers.

L. Dissimilar Metals

1. "Dissimilar metals" shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data.

2. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

3.02 FIELD TESTS

A. Conduit Cleaning and Testing

1. After installation of conduits and accessories and completion of all concreting operations, if any, carefully clean and clear all conduit runs of all obstructions and foreign matter to the satisfaction of the Engineer.

2. Test conduits, in the presence of the Engineer, by pulling through each conduit a flexible cylindrical mandrel having an outside diameter not more than 1/4 inch smaller than the inside diameter of the conduit, but nominally 85 percent of the trade diameter, whichever is larger. Only nylon cable of adequate strength shall be used to pull the mandrel through the conduit system. The use of rope will not be permitted.

B. Connections to Existing Conduits

1. Where conduits installed under this Contract are connected to existing conduits, or conduits installed by others, test the entire run to the nearest box, manhole, handhole, or equipment enclosure as specified in this Section.

2. Report immediately to the Engineer any defect or stoppage found in portions of the conduit system not installed under this Contract. Do not attempt to rectify any defect or stoppage found in conduit not installed under this Contract unless specifically instructed to do so by the Engineer. The Contractor's compensation for the rectifying of such defects or stoppages at the direction of the Engineer will be determined in accordance with the Clause of the Contract providing compensation for Extra Work.

3. The Engineer shall be the sole judge as to whether a defect or stoppage exists. Perform all tests required by the Engineer to enable the engineer to make a decision.

END OF SECTION

SECTION 16135
BOXES AND FITTINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for electrical boxes and fittings.

B. Types of electrical boxes and fittings specified in this Section include:

1. Outlet Boxes
2. Device Boxes
3. Pull Boxes
4. Junction Boxes
5. Conduit Bodies
6. Fittings

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Not applicable.

1.03 RELATED SECTIONS

A. Section 16140 – Wiring Devices

B. Section 16190 – Supporting Devices

1.04 REFERENCES

A. National Electrical Manufacturers Association (NEMA)

1. OS1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports
2. OS2 - Nonmetallic Outlet Boxes, Device Boxes, Covers and Box Supports
3. 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)

B. National Fire Protection Association (NFPA)

1. 70 - National Electrical Code

C. Underwriters Laboratories Inc. (UL)

1. 50 - Enclosures for Electrical Equipment
2. 514A - Metallic Outlet Boxes
3. 514B - Fittings for Conduit and Outlet Boxes
4. 514C - Nonmetallic Outlet Boxes, Flush Device Boxes, and Covers
5. 886 - Outlet Boxes and Fittings for Use in Hazardous (Classified) Locations

1.05 SUSTAINABLE DESIGN REQUIREMENTS

A. Not Applicable

1.06 QUALITY ASSURANCE

A. Boxes and fittings, of types and sizes required, shall have been satisfactorily used for purposes similar to those intended herein for not less than three years.

1.07 SUBMITTALS

A. Submit the following, for approval in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

1. Catalog Cuts
   a. All boxes and fittings.
2. Shop Drawings
   a. Special boxes.
   b. Boxes larger than 12 inches.
   c. Ancillary equipment if shown on Contract Drawings.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver material in manufacturer's original, unopened, protective packaging.

B. Store materials in a clean, dry space and protect them from weather.

C. Handle in a manner to prevent damage to finished surfaces.

D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.

E. Touch up any damage to finishes to match adjacent surfaces.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Provide boxes and fittings by the following manufacturers, or approved equal:

1. Appleton, Electric
2. Crouse Hinds, Co.
3. Hubbell Inc.
4. O-Z/Gedney
5. Square D, Co.

2.02 MATERIALS

A. General

1. Locations, types and sizes of boxes and fittings are shown on the Contract Drawings.
2. Boxes and fittings shall be metallic, unless otherwise shown on the Contract Drawings, and shall conform to NEMA OS1, NEMA 250, UL 50, UL 514A, UL 514B, and NFPA 70.
3. Nonmetallic boxes and fittings, shown on the Contract Drawings, shall conform to NEMA OS2, NEMA 250, UL 50, UL 514C, and NFPA 70.
4. Boxes and fittings to be located in hazardous (classified) areas, as shown by "area plans" on the Contract Drawings shall conform to UL 886 and NFPA 70.
5. All electrical materials and equipment, for which there are established UL standards, shall bear the UL label.
6. Where the sizes or dimensions of a box are not shown on the Contract Drawings, all boxes, whether for use on power, communications, signaling, control, telephone, or other purposes, shall be sized as follows:
   a. In straight pulls, the length of the box shall not be less than eight times the trade diameter (nominal inside diameter) of the largest raceway.
   b. Where angle or "U" pulls are made, the distance between each raceway entry inside the box and the opposite wall of the box shall not be less than six times the trade diameter of the largest raceway. The distance shall be increased for additional entries by the amount of the sum of the diameters of all other raceway entries in any row on the same wall of the box. The distance between raceway entries enclosing the same conductor shall not be less than six times the trade diameter of the larger raceway.
   c. Where a conduit entry is in the wall of a box opposite a removable cover, the minimum distance between the entry and the cover shall be as follows:

Conduit Size	Distance Between Entry and Cover
Up to 1-1/4 inch	4 inches
1-1/4 inch and 1-1/2 inches	6 inches
2 inches and 2-1/2 inches	8 inches
3 inches and larger	12 inches

d. The minimum depth of a box shall be not less than two times the trade diameter of the conduit entries in a single row and not less than 1-1/2 times the sum of the trade diameter of the largest raceway in each row for multiple rows.

7. Weatherproof cast boxes shall be used for exterior or damp locations. Weatherproof boxes shall be hot-dipped galvanized cast-steel or cast-aluminum. Cast boxes shall be threaded conduit entrance type provided with mounting lugs. Materials shall match the type of conduit i.e., galvanized steel or aluminum, used in the conduit run.

8. Covers for boxes located in public spaces or where shown on the Contract Drawings shall be furnished with tamper-resistant hardware.

9. Cover plates for outlet boxes are specified in Section 16140.

B. Interior Outlet and Device Boxes

1. Provide galvanized, flat-rolled, sheet-steel interior outlet wiring boxes, of types, shapes and sizes, including box depths, to suit each respective location and installation; construct boxes with stamped knockouts in back and sides, and with threaded screw holes with corrosion-resistant screws for securing box covers and wiring devices.

2. Outlet boxes shall be of proper sizes and shapes for conduits and wires entering them, and equipped with plaster ring or cover as necessary for the wiring devices to be installed.

3. Boxes for switches and receptacles shall be 4-inch square, minimum 2 1/8-inch deep, for up to two devices; solid, ganged boxes for over two devices; and installed so that device covers shall be tight and plumb with wall finish.

4. Provide suitable barrier in boxes where two or more 277-volt switches are to be installed, to isolate each on its own phase.

5. Boxes for lighting fixture installation shall be 4-inch square, minimum 2 1/8-inch deep, and provided with 3/8-inch studs.

6. Boxes to be installed in ceilings, plenums, or spaces used for supply or return of environmental air shall be UL listed for such use, without holes, openings or penetrations, and complete with gasketed cover plates.

7. Provide all sheet-steel boxes with suitable knockouts.

C. Exterior Outlet and Device Boxes

1. Provide corrosion-resistant, cast metal, weatherproof outlet wiring boxes, of types, shapes and sizes, including box depths, to suit each respective location and installation.

2. For outlet boxes to be installed flush or recessed in exterior walls, provide galvanized, sheet-steel boxes, with suitable depth and tile, plaster or masonry rings for the wall construction.

3. Provide cast-metal faceplates with spring-hinged, waterproof caps suitably configured for each application, including faceplate gaskets and stainless steel or brass screws or fasteners. Faceplate material shall match the type of box i.e., galvanized steel or aluminum.

D. Junction and Pull Boxes

1. General

a. Unless otherwise shown on the Contract Drawings, provide galvanized, code-gauge, sheet-steel junction and pull boxes and covers for interior locations and cast-metal boxes and covers for exterior locations of types, shapes and sizes to suit each respective location and installation, and equipped with stainless steel hinges, nuts, bolts, screws and washers.

b. Junction or pull boxes having any dimension larger than 36 inches shall contain racks or supports for all cables or conductors.

c. Provide pull boxes with suitable insulating barriers where shown on the Contract Drawings or required by code. Vertical-offset pull boxes shall contain cable supports at turns to prevent cables from resting on corners.

d. Where shown on the Contract Drawings, provide boxes with provisions for padlocking.

e. Special boxes shall be as shown on the Contract Drawings.

f. Where shown on the Contract Drawings, catches or vault handles shall be lockable. Locks shall be keyed alike for the same service, such as power, communications, signal or telephone. Each service type shall be keyed differently.

g. All covers in exposed exterior locations, or other areas as shown on the Contract Drawings, shall be gasketed.

h. For covers heavier than 20 pounds or more than 24 inches in any dimension, provide two replaceable studs, located on each side of the box flange, to support the cover during installation.

i. Boxes containing, or designated for, conductors operating at greater than 600 volts (phase-to-phase) shall be constructed of minimum 12-gauge steel.

2. Interior Junction and Pull Boxes

a. Finished Areas

1) Junction and pull boxes, located in finished areas and having any dimension larger than 12 inches, shall be furnished with flush-mounting, lockable, hinged covers, similar to adjacent panelboard cabinets. Locks shall be keyed alike for the same service, such as power, communications, signal or telephone. Each service type shall be keyed differently. Hinged covers shall contain catches to keep covers closed. Covers having any dimension larger than 36 inches and all multiple-section doors shall contain three-point vault handles. Covers shall be furnished shop-primed for field painting, and shall be finished with a color as selected by the Engineer.

2) Boxes having any cover dimension 12 inches or less shall be furnished with flush-mounting, screw-on covers, unless otherwise shown on the Contract Drawings.

b. Unfinished Areas

1) Junction and pull boxes, located in electrical or telephone closets or rooms, in mechanical equipment rooms, in areas above hung or accessible ceilings or in areas shown on the Contract Drawings as "unfinished," shall be furnished with screw-on covers for boxes having any cover dimension 24 inches or less, and with either single or multiple-section hinged covers for boxes having any cover dimension larger than 24 inches.

3. Exterior Junction and Pull Boxes

a. Junction and pull boxes, located in sidewalks, decks and in areas shown on the Contract Drawings as "finished", shall be furnished with flush-mounting, screw-on covers.

1) Boxes having any cover dimension 24 inches or less shall be cast-steel. Boxes shall be furnished with asphaltic paint finish on surfaces to be embedded in earth or concrete.

2) Covers having any dimension larger than 24 inches shall be cast-steel "sidewalk" frames and covers, suitable for installation on a concrete box or handhole.

b. Unfinished Areas

1) Junction and pull boxes, located in areas shown on the Contract Drawings as "unfinished", shall be furnished with screw-on covers for boxes having any cover dimension 24 inches or less, and with hinged, bolt-on covers for boxes having any cover dimension larger than 24 inches.

E. Floor Boxes

1. Provide cast-steel, waterproof, adjustable floor boxes with threaded-conduit entrance hubs, and vertical adjusting rings, gaskets, brass floor plates and flush, screw-on covers. All unused conduit openings shall be closed with appropriate plugs.

F. Conduit Bodies

1. Provide galvanized, cast-metal, conduit bodies, of types, shapes and sizes to suit each respective location and installation; construct with threaded-conduit entrance hubs, removable covers, and stainless steel or brass screws.

G. Bushings, Locknuts and Knockout Closures

1. Provide corrosion-resistant knockout closures and conduit locknuts, and insulated, malleable-iron, conduit bushings and offset connectors, of types and sizes to suit each respective use and installation.

H. Supporting Devices

1. Provide inserts, expansion shield lugs, bolts with nuts and washers, shims or any other type of fastening devices required to secure boxes, in accordance with

Section 16190. Unless otherwise shown on the Contract Drawings, all fasteners shall be hot-dipped galvanized and of sizes and types recommended by the equipment manufacturer and as approved by the Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install boxes and conduit bodies at the locations shown on the Contract Drawings and as required by NFPA 70 at any other location where they are required to facilitate the pulling, supporting or connection of wires and cables.

B. Securely mount all boxes in a manner approved by the Engineer and support the boxes independently of conduits entering them.

C. Install boxes and conduit bodies in classified (hazardous) locations in accordance with their listing or label requirements. Conduit seal fittings shall be packed and filled only after proper operation of equipment and systems has been demonstrated and approved by the Engineer.

D. Paint exteriors of boxes exposed in mechanical equipment rooms or in electrical rooms or closets or spaces shown as "unfinished" on the Contract Drawings, and the exteriors of boxes installed above hung or accessible ceilings, as follows:

1. Emergency: Orange
2. Fire Alarm: Red
3. High Voltage: Red with 1-inch, white block letters reading "HIGH VOLTAGE" on each exposed face and cover.

E. All installations shall conform to NFPA 70.

F. Dissimilar Metals

1. Dissimilar metals" shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data.
2. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

END OF SECTION

SECTION 16190
SUPPORTING DEVICES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for hangers and supports, sleeves and fasteners used to support electrical raceways and equipment, except as specified in B below.

B. Supporting devices, furnished as part of factory-fabricated equipment, are specified as part of equipment assembly in other Sections of the Specifications.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Not applicable

1.03 RELATED SECTIONS

A. None

1.04 REFERENCE

A. American Institute of Steel Construction Inc. (AISC)

1. Manual of Steel Construction

B. American Iron and Steel Institute (AISI)

1. Specifications for the Design of Cold-Formed Steel Structural Members

C. ASTM International (ASTM)

1. A36/A36M – Standard Specification for Carbon Structural Steel

D. American Welding Society (AWS)

1. D1.1 - Structural Welding Code - Steel

E. National Electrical Contractors Association (NECA)

1. Standard of Installation

F. National Fire Protection Association (NFPA)

1. 70 - National Electrical Code

1.05 SUSTAINABLE DESIGN REQUIREMENTS

A. Not applicable

1.06 QUALITY ASSURANCE

A. Supporting devices, of types and sizes required, shall have been satisfactory used for purposes similar to those intended herein for not less than three years.

1.07 SUBMITTALS

A. Submit for approval the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

1. Shop Drawings

a. Submit layout drawings for dimensioned locations of inserts, sleeves and anchors when required by the Contract Drawings.

2. Catalog Cuts

a. Hangers and supports
b. Sleeves
c. Fasteners

3. Submit calculations for the following:

a. Supporting steel sections and channels, properly reflecting installed and future loading, including:
1) Safety factors of not less than 4 to 1.
2) Deflection ratio of not greater than 1/240.
b. Special hangers and supports shown on the Contract Drawings
c. Hangers, supports and fasteners when required by but not specifically shown on the Contract Drawings.

1.08 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original, unopened, protective packaging.

B. Store materials in a clean, dry space and protect them from weather.

C. Handle in a manner to prevent damage to finished surfaces.

D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.

E. Touch up damage to finishes to match adjacent surfaces, including re-coating of galvanized or plated surfaces where damaged, cut or drilled.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements of this Section, provide supporting devices of the acceptable manufacturers as shown on Contract Drawings.

2.02 HANGERS AND SUPPORTS

A. General

1. Unless otherwise shown on the Contract Drawings, provide hangers and supports as specified in this Section.
2. Where more than one type of hanger or support is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.
3. Hangers and supports, for which there are established Underwriters Laboratories Inc. (UL) standards, shall bear the UL label.

B. Raceway Support

1. Clevis Hangers for supporting horizontal conduit; galvanized steel; with hole for treaded steel rod.
2. Riser Clamps for supporting vertical conduits; galvanized steel; with two or three bolts and nuts, and 4-inch ears.
3. Reducing Couplings Steel rod reducing coupling; size as required; galvanized or plated steel.
4. C-Clamps Black malleable iron or galvanized or plated steel; with hole for threaded rod.
5. I-Beam Clamps Galvanized or plated steel, 1-1/4-inch by 3/16-inch stock; 3/8-inch cross bolt; 2-inch flange width.
6. Right Angle or Parallel beam Clamps Galvanized steel clamps for supporting or fastening conduit up to 2-inch trade size.
7. One-Hole Conduit Straps for supporting up to 1-inch conduit or electrical metallic tubing (EMT); galvanized steel.
8. Two-Hole Conduit straps for supporting conduit or EMT larger than 1-inch galvanized steel; ¾ - inch strap width.
9. Hexagon Nuts: galvanized steel
10. Round Steel Rod: galvanized or plated steel; threaded
11. Trapeze Hangers: Same as Specified in this Section.

12. The following types of hangers and supports shall not be used:

    a. Perforated metal strapping;
    b. Slotted, perforated angles;
    c. Spring pressure or torsion clips, hangers or supports.

C. Equipment Supports

1. U-channel strut system shall be 12-gauge, hot-dipped galvanized steel. Provide with drilled or slotted holes as required for the application and with the following fittings which mate and match with U-channel:

    a. Fixture hangers
    b. Channel hangers
    c. End caps
    d. Beam clamps
    e. Wiring stud
    f. Thin wall conduit clamps
    g. Rigid conduit clamps
    h. Conduit hangers
    i. U-bolts

D. Supporting Steel Sections and Channels

1. Supporting steel sections and channels shall be fabricated of ASTM A36 steel in accordance with the appropriate requirements of the AISC, AISI, and AWS publications specified in this Section, and shall be hot-dipped galvanized after fabrication.

E. Cable Supports

1. Provide cable supports with insulating wedging plug for non-armored type electrical cables in risers. Assembly shall include body of galvanized malleable iron with insulating wedging plug.

2. Provide cable supports for armored type electrical cables in risers. Assembly shall include body and pressure plates of galvanized steel.

2.03 SLEEVES AND SEALS

A. General

1. Unless otherwise shown on the Contract Drawings, provide sleeves and seals as specified below.

2. Where more than one type of sleeve or seal is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.

3. Sleeves and seals, for which there are established, UL standard, shall bear the UL label.

B. Pipe Sleeves

1. Provide pipe sleeves for conduits penetrating concrete or masonry floor and walls, as follows:

   a. Steel Pipe
      1) Fabricate from schedule 40, galvanized steel pipe; remove burrs.
   b. Iron Pipe
      1) Fabricate from cast iron or ductile iron pipe; remove burrs.
   c. Plastic Pipe
      1) Fabricate from either fiberglass or Schedule 40, PVC plastic pipe; remove burrs. Fiberglass sleeves may be utilized for interior or exterior usages, but PVC sleeves shall be utilized for exterior usage only.

2. Sleeves shall have a minimum inside diameter as shown below, based on the installed raceway diameter.

Raceway Diameter (inches)	Sleeve Inside Diameter (inches)
1 or less	2
1-1/4 to 2	3
2-1/2 to 3	4
3-1/2 to 4	5
5	6
6	7

3. Where a sleeve encloses only one conductor, phase or polarity, or a ground wire or cable, the sleeve shall be non-ferrous.

C. Interlocking Modular Seals

1. Provide interlocking modular type seals for conduit access located in exterior foundation and pit walls. The seals shall be multi-link, stainless steel bolted connection, high-temperature fittings.

D. Sealing Bushings

1. Provide sealing bushings for conduit access core-drilled through foundation walls or floors. The bushings shall be molded; one-piece neoprene sealing rings with PVC coated steel or uncoated aluminum pressure plates, stainless steel hex socket head cap screws and flat washers.

E. Fire Seals

1. Provide UL listed, three-hour rating, silicone based foam, fire resistive, waterproof joint sealing system to prevent the passage of hot gases and fire.

F. Wall and Floor Seals

1. Provide watertight and pressure-tight wall and floor seals suitable for sealing around conduit passing through exterior concrete floors and walls. Assembly shall include steel sleeves, galvanized malleable iron body, neoprene sealing grommets and rings, metal pressure rings, membrane clamp were required by foundation design and pressure clamps with Type 316 stainless steel hex head

cap screws. Seal sizes shall be maximum published size for conduit to be installed therein.

2.04 FASTENERS

A. General

1. Unless otherwise shown on the Contract Drawings, provide fasteners as specified below.
2. Where more than one type of fasteners is suitable for the intended use, selection is at the Contractor's option, subject to approval by the Engineer.

B. Toggle Bolts

1. Toggle bolts shall be spring head, galvanized or plated steel, 1/4-inch to 1/2-inch sizes, length as required.

C. Expansion Anchors

1. Expansion anchors shall be metallic expansion anchors or shields, including drop-in anchors, wedge and sleeve anchors, and two-piece and three-piece shields for lag screws or machine screws or bolts.

D. Powder Activated Fasteners

1. Powder activated fasteners shall be steel, pin or stud type, selected for proper length and penetration for the equipment, clamp or strap to be installed, and the base material.

E. Bolts, Nuts, Lockwashers and Washers

1. All hardware shall be galvanized or plated steel, unless otherwise shown on the Contract Drawings.
2. Bolts and nuts, 1/4-inch trade size and larger, shall be hex head or hex socket type, standard American sizes.
3. Lockwashers shall match the finish of the furnished bolts and nuts, and generally be installed one-per-bolt, at the nut end of the assembly.
4. Washers shall be standard or fender type, as required, and sized to match the installed bolts or screws.

F. The following types of fasteners shall not be used:

1. Lead anchors or studs;
2. Wooden plugs or anchors;
3. Plastic anchors;
4. "Nail-in" anchors, either of plastic or metal type.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that electrical installations, structural, mechanical and other related Work satisfy the requirements for performance of the Work of this Section in accordance with the Contract Documents.

B. Report immediately to the Engineer any electrical, structural or related construction defects in areas where supporting devices are to be installed, and do not attempt to rectify any defect unless specifically instructed to do so by the Engineer.

3.02 INSTALLATION

A. Before installation the supporting devices, the Contractor shall investigate the site condition to determine, what preparatory work, if any, will be needed.

B. General:

1. Install hangers and supports, sleeves and fasteners in accordance with approved printed manufacturer's installation procedures, and as specified.
2. Coordinate all affected trades and all aspects of the electrical work, including installation of raceways and wiring as necessary to interface installation of supporting devices with other work.
3. Install hangers and supports, and attachments to properly support raceways, equipment and accessories from building structure. Arrange for grouping of parallel runs of horizontal conduits to be supported together on trapeze hangers where possible. Install hangers and supports with maximum spacing not to exceed that permitted by NFPA 70 and NECA Standard of Installation, as applicable, unless otherwise shown on the Contract Drawings.
4. Secure threaded rod couplings, trapeze hangers or supports or similar horizontal elements, using lock washers and jam nuts to prevent loosening.

C. Conduit and Raceway supports

1. Do not support raceways from hung ceiling supports or members, or metal roof deck.
2. Do not support raceways from mechanical ductwork, ductwork supports, piping or piping supports.
3. Threaded rod for the support of conduits, raceways or trapeze hangers of the given size, shall be not less than the following:

Conduit, Raceway, Hanger Size (inches)	Threaded Rod Size (inches)
2 or less	3/8

2-1/2 to 3-1/2	1/2
4 to 5	5/8
6	3/4

4. Where trapeze hangers are used, bolt or clamp the raceways in place to at least every third hanger and to the first hanger on each side of a bend, fitting, junction or pull box or change in direction.

D. Sleeves

1. Unless otherwise shown on the Contract Drawings, extend sleeves for raceways and risers one inch beyond top of finished floor, curb or building element being penetrated.
2. Install sleeves level and plumb, accurately located and positioned to conform to the requirements of the equipment and in accordance with the approved layout drawings.
3. Interlocking modular seals in tandem, one at the interior and one at the exterior face of the pipe sleeve.
4. Tighten sleeve seal nuts until sealing grommets have expanded to form watertight seal.

E. Fasteners

1. Wood screws, lag screws, carriage bolts or machine screws shall be utilized for wood or materials of similar fibrous nature.
2. Welded or blazed threaded studs, bolts or machine screws or clamps shall be utilized for structural and miscellaneous steel, iron or other metals.
3. Metallic expansion shields, wedge anchors or drop-in anchors, with lag screws, bolts or machine screws shall be utilized for solid masonry or concrete.
4. Sleeve anchors, drop-in anchors or toggle bolts shall be utilized for concrete masonry units (CMU). Do not use powder-activated fasteners in CMU.

F. Dissimilar Metals

1. "Dissimilar metals" shall mean those metals which are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data.
2. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

END OF SECTION

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: August 10th, 2010

BID ADDENDUM No. 01

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on September 29th, 2010**

[ ] Originally due on August 25th, 2010

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

EXTENSION OF THE BID DUE DATE:

The Bid due date has been extended to close of business September 29th, 2010.

The RFC deadline date has been extended to close of business September 17th, 2010.

CHANGE IN FORM OF CONTRACT TABLE OF CONTENTS:

Delete current Table of Contents (pages iii thru viii) in its entirety and substitute new Table of Contents (pages iii thru viii), therefor, which is attached hereto and made part hereof.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 33) in its entirety and substitute new Form of Proposal (pages 26 thru 34) with due date of "September 29, 2010 @ Close of Business" therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT A:

Delete Attachment A dated 6/24/2010 (pages 1 thru 28) in its entirety and substitute Attachment A dated 8/10/2010 (pages 1 thru 29), therefor, which is attached hereto and made part hereof.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: August 10th, 2010

CHANGES IN ATTACHMENT E:

Delete Attachment E dated 6/7/2010 (pages 1 thru 17) in its entirety and substitute Attachment E dated 7/19/2010 (pages 1 thru 23), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT G:

Delete Attachment G dated 7/2/2010 (pages 1 thru 29) in its entirety and substitute Attachment G dated 8/9/2010 (pages 1 thru 31), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT I:

Delete Attachment I dated 6/10/2010 (pages 1 thru 38) in its entirety and substitute Attachment I dated 7/1/2010 (pages 1 thru 38), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT J:

Delete Attachment J dated 6/10/2010 (pages 1 thru 45) in its entirety and substitute Attachment J dated 7/1/2010 (pages 1 thru 45), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT M:

Delete Attachment M dated 6/10/2010 (pages 1 thru 8) in its entirety and substitute Attachment M dated 7/1/2010 (pages 1 thru 8), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT N:

Delete Attachment N dated 6/10/2010 (page 1) in its entirety and substitute Attachment N dated 7/1/2010 (page 1), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT O:

Add Attachment O dated 8/2/2010 (page 1), therefor, which is attached hereto and made part hereof.

Add Attachment O(I) dated 7/15/2010 (pages 1 thru 10), therefor, which is attached hereto and made part hereof.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: August 10th, 2010

Add Attachment O(II) dated 8/6/2010 (page 1), therefor, which is attached hereto and made part hereof.

Add Attachment O(III) dated 8/6/2010 (page 1), therefor, which is attached hereto and made part hereof.

Add Attachment O(IV) dated 8/4/2010 (pages 1 thru 9), therefor, which is attached hereto and made part hereof.

Add Attachment O(V) dated 8/4/2010 (pages 1 thru 8), therefor, which is attached hereto and made part hereof.

CHANGES TO THE PROJECT MANUAL:

Delete current Table of Contents (page iv) in its entirety and substitute new Table of Contents (page iv), therefor, which is attached hereto and made part hereof.

Delete Exhibit XIII dated 5/21/2010 (pages 1 thru 19) in its entirety and substitute Exhibit XIII dated 7/16/2010 (pages 1 thru 19), therefor, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Tony Anzalone
On behalf of

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: August 10th, 2010

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

ADDENDUM # 2

Date: August 16, 2010

To: PROSPECTIVE PROPOSERS

From: Larry Boresen, Tishman/Turner, JV

Re: CONTRACT WTC 264.614
WORLD TRADE CENTER TRANSPORTATION HUB
TRANSIT HALL HVAC

PROPOSALS MUST BE RETURNED IN A SEALED ENVELOPE WITH ALL ATTACHMENTS REQUESTED IN THE FORM OF PROPOSAL NO LATER THAN CLOSE OF BUSINESS ON SEPTEMBER 29, 2010.

Written Requests For Clarification (RFC's) must be received no later than Ten (10) business days before the proposal submission due date. Failure to submit an RFC by that date will preclude a proposer from thereafter claiming any ambiguity, inconsistency or error in the contract documents that should have been discovered by the proposer, or from requesting any further negotiation of or modification to Contract documents.

VERY TRULY YOURS,
TISHMAN/TURNER, JV

LARRY BORESEN

BIDDER'S FIRM NAME: _____

INITIALED: _____

DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 15th, 2010

BID ADDENDUM No. 03

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on October 6th, 2010**

[ ] Originally due on September 29th, 2010

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

EXTENSION OF THE BID DUE DATE:

The Bid due date has been extended to close of business October 6th, 2010.

CHANGES IN PAGE ii:

Delete current page ii in its entirety and substitute new page ii, therefor, which is attached hereto and made part hereof.

CHANGE IN FORM OF CONTRACT TABLE OF CONTENTS:

Delete current Table of Contents (page vi) in its entirety and substitute new Table of Contents (page vi), therefor, which is attached hereto and made part hereof.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) in its entirety and substitute new Form of Proposal (pages 26 thru 34) with due date of "October 6, 2010 @ Close of Business" therefor, which is attached hereto and made part hereof.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 15th, 2010

CHANGES IN ATTACHMENT A:

Delete Attachment A dated 8/10/2010 (pages 1 thru 29) in its entirety and substitute Attachment A dated 9/15/2010 (pages 1 thru 41), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT O:

Delete Attachment O dated 8/2/2010 (pages 1) in its entirety and substitute Attachment O dated 9/15/2010 (pages 1), therefor, which is attached hereto and made part hereof.

Delete Attachment O(IV) dated 8/4/2010 (pages 1 thru 9) in its entirety and substitute Attachment O(IV) dated 9/15/2010 (pages 1 thru 12), therefor, which is attached hereto and made part hereof.

Delete Attachment O(V) dated 8/4/2010 (pages 1 thru 8) in its entirety and substitute Attachment O(V) dated 9/15/2010 (pages 1 thru 11), therefor, which is attached hereto and made part hereof.

Add Attachment O(VI) dated 5/29/2009, therefor, which is attached hereto and made part hereof.

Add Attachment O(VII) issue date 8/14/2009, therefor, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 15th, 2010

Tony Anzalone
On behalf of

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 24th, 2010

BID ADDENDUM No. 04

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on October 6th, 2010**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGE IN FORM OF CONTRACT TABLE OF CONTENTS:

Delete current Table of Contents (page vi) in its entirety and substitute new Table of Contents (page vi), therefor, which is attached hereto and made part hereof.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) in its entirety and substitute new Form of Proposal (pages 26 thru 34) with due date of "October 6, 2010 @ Close of Business" therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT A:

Delete Attachment A dated 9/15/2010 (pages 1 thru 29) in its entirety and substitute Attachment A dated 9/23/2010 (pages 1 thru 41), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT I:

Delete Attachment I dated 7/1/2010 (pages 1 thru 38) in its entirety and substitute Attachment I dated 8/23/2010 (pages 1 thru 44), therefor, which is attached hereto and made part hereof.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 24th, 2010

CHANGES IN ATTACHMENT J:

Delete Attachment J dated 7/1/2010 (pages 1 thru 45) in its entirety and substitute Attachment J dated 8/23/2010 (pages 1 thru 49), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT M:

Delete Attachment M dated 7/1/2010 (pages 1 thru 8) in its entirety and substitute Attachment M dated 8/23/2010 (pages 1 thru 8), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT N:

Delete Attachment N dated 7/1/2010 (pages 1) in its entirety and substitute Attachment N dated 8/23/2010 (pages 1), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT O:

Delete Attachment O dated 9/15/2010 (pages 1) in its entirety and substitute Attachment O dated 9/23/2010 (pages 1), therefor, which is attached hereto and made part hereof.

Delete Attachment O(I) dated 7/15/2010 (pages 1 thru 10) in its entirety and substitute Attachment O(I) dated 9/20/2010 (pages 1 thru 10), therefor, which is attached hereto and made part hereof.

Delete Attachment O(IV) dated 9/15/2010 (pages 1 thru 9) in its entirety and substitute Attachment O(IV) dated 9/23/2010 (pages 1 thru 12), therefor, which is attached hereto and made part hereof.

Delete Attachment O(V) dated 9/15/2010 (pages 1 thru 8) in its entirety and substitute Attachment O(V) dated 9/23/2010 (pages 1 thru 11), therefor, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 24th, 2010

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 28th, 2010

BID ADDENDUM No. 05

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on October 20th, 2010**

[ ] Originally due on October 6th, 2010

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGE IN FORM OF CONTRACT TABLE OF CONTENTS:

Delete current Table of Contents (page vi) in its entirety and substitute new Table of Contents (page vi), therefor, which is attached hereto and made part hereof.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) in its entirety and substitute new Form of Proposal (pages 26 thru 34) with due date of "October 20, 2010 @ Close of Business" therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT A:

Delete current Attachment A dated 9/23/2010 (pages 1 thru 41) in its entirety and substitute new Attachment A dated 9/24/2010 (pages 1 thru 41), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT G:

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: September 28th, 2010

Delete current Attachment G dated 8/9/2010 (pages 1 thru 31) in its entirety and substitute new Attachment G dated 9/27/2010 (pages 1 thru 30), therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT O:

Delete Page 1 of Attachment O dated 9/23/2010 (page 1) in its entirety and substitute Attachment O dated 9/24/2010 (page 1), therefor, which is attached hereto and made part hereof.

Add Attachment O(VIII) dated 9/24/2010, which is attached hereto and made part hereof.

Add Attachment O(IX) dated 9/24/2010, which is attached hereto and made part hereof.

Add Attachment O(X) dated 9/24/2010, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: October 14th, 2010

BID ADDENDUM No. 06

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on October 20th, 2010**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGE IN FORM OF CONTRACT TABLE OF CONTENTS:

Delete current Table of Contents (page vi) in its entirety and substitute new Table of Contents (page vi), therefor, which is attached hereto and made part hereof.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) in its entirety and substitute new Form of Proposal (pages 26 thru 34) dated 10/12/2010, therefor, which is attached hereto and made part hereof.

CHANGES IN ATTACHMENT O:

Delete Attachment O dated 9/24/2010 (page 1) in its entirety and substitute Attachment O dated 10/12/2010 (page 1), therefor, which is attached hereto and made part hereof.

Delete Attachment O(IX) dated 9/24/2010 in its entirety and substitute Attachment O(IX) dated 10/12/2010, therefor, which is attached hereto and made part hereof.

Delete Attachment O(X) dated 9/24/2010 in its entirety and substitute Attachment O(X) dated 10/12/2010, therefor, which is attached hereto and made part hereof.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: October 14th, 2010

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: October 21st, 2010

BID ADDENDUM No. 07

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

[X] **Due back on October 25th, 2010**

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) dated 10/12/2010 in its entirety and substitute new Form of Proposal (pages 26 thru 34) dated 10/21/2010, therefor, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: October 21st, 2010

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: November 4th, 2010

PROPOSAL CLARIFICATION No. 01

TO PROSPECTIVE PROPOSERS ON CONTRACT WTC 264.614, WORLD TRADE CENTER TRANSPORTATION HUB – TRANSIT HALL HVAC – BP#30A

BEST AND FINAL PROPOSALS MUST BE RETURNED IN A SEALED ENVELOPE WITH ALL ATTACHMENTS REQUESTED IN THE FORM OF PROPOSAL NO LATER THAN CLOSE OF BUSINESS ON FRIDAY NOVEMBER 12, 2010.

WRITTEN REQUESTS FOR CLARIFICATION (RFC's) MUST BE RECEIVED NO LATER THAN FIVE (5) BUSINESS DAYS BEFORE THE SUBMISSION DUE DATE. FAILURE TO SUBMIT AN RFC BY THAT DATE WILL PRECLUDE A PROPOSER FROM THEREAFTER CLAIMING ANY AMBIGUITY, INCOSISTENCY OR ERROR IN THE CONTRACT DOCUMENTS THAT SHOULD HAVE BEEN DISCOVERED BY THE PROPOSER, OR FROM REQUESTING ANY FURTHER NEGOTIATION OF OR MODIFICATION TO CONTRACT DOCUMENTS.

COMPLETE BEST AND FINAL PROPOSALS WILL BE EVALUATED ON THE BASIS OF PRICE AND NO FURTHER MEETINGS OR NEGOTIATIONS WILL BE HELD.

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each proposer before submitting his proposal.

In case any proposer fails to conform to these instructions his Proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGES IN THE FORM OF PROPOSAL:

Delete current Form of Proposal (pages 26 thru 34) in its entirety and substitute new Form of Proposal (pages 26 thru 34) with due date of "November 12, 2010 @ Close of Business" therefor, which is attached hereto and made part hereof.

All other Terms and Conditions shall remain the same.

THE PORT AUTHORITY OF NY & NJ

100 Broadway, 5th Floor
New York, NY 10005
Ph: 646-556-6700
Fax: 646-556-6747

Date: November 4th, 2010

This communication should be initialed by you and annexed to your proposal upon submission.

In case any proposer fails to conform to these instructions, its proposal will nevertheless be construed as though this communication had been so physically annexed and initialed.

Larry Boresen
Tishman/Turner JV
100 Broadway, 5th Floor
New York, NY 10005

BIDDER'S FIRM NAME: _____
INITIALED: _____
DATE: _____

QUESTIONS CONCERNING THIS ADDENDUM MAY BE ADDRESSED TO MR. LARRY BORESEN, WHO CAN BE REACHED AT LBORESEN@TCCO.COM.

Exhibit VII
W/MBE Notice and Forms

Office of Business and Job Opportunity

PAGE 1 OF 1

NOTE: The Contractor is required to submit to the Engineering Dept. a MODIFIED PLAN for any changes to the original plan: i.e.; subcontractor, dollar amount or work performed.
If more than 1 page is used, complete totals on last page.

Contract Number: WTC-264.614

Contract Description: WTC Transit Hall HVAC

Contractor Name: A & A Industrial Piping, Inc.

Mailing Address: 6 Gardner Road, Fairfield, NJ 07004

Contract Amount: 49,290,000.00

Telephone Number: (973) 882-2622

Contract Goals: MBE ____ WBE X DBE ____

Name, Address, Phone Number of PA Certified MBE/WBE/DBE subcontractor (including name of contact person)	Indicate MBE, WBE Or DBE	Description of Work, Services to be provided. Where applicable, specify, "supply" or "install or both "supply" and "install."	Anticipated date work will start and finish	*Approximate $ amount of M/W/DBE Subcontract	MBE/WBE/DBE % of Total Contract Amount
A & A Industrial Piping, Inc. 6 Gardner Road Fairfield, NJ 07004 Rosemary Ravella / President (973) 882-2622	WBE	Supply & Install Complete HVAC Contract WTC-264.614	1/2011 12/2013	49,290,000.00	100%
			TOTAL:	49,290,000.00	100%

Signature of Contractor: Rosemary Ravella

Print Name: Rosemary Ravella

Title: President Date 12/08/10

FOR OBJO USE ONLY
Contract Goals: ☐ Approved ☐ Waived ☐ Rejected
Reviewed by: _____
OBJO Business Development Representative
Print Name: _____ Date _____

Distribution: Original – OBJO; Copy 2 – Engineer of Construction; Copy 3 – Contractor; Copy 4 – Line Department
*Please Note: supplies, equipment and material men are only credited 60% towards the M/W/DBE goal. Please adjust calculations accordingly.

Schedule C