FOI #14473

CLIMATE DESK

December 17, 2013

To: Secretary, The Port Authority of New York and New Jersey
Attention: FOI Administrator, Daniel D Duffy

Re. Request for records relating to damage to fuel cells at One World Trade Center sustained during Superstorm Sandy.

To Whom It May Concern,

My name is James West. I am a reporter for *Climate Desk*, a journalistic collaboration between The Atlantic, the Center for Investigative Reporting, *Grist*, *The Guardian*, *Mother Jones*, *Slate* and *Wired*.

At your suggestion, I have re-submitted my FOI request (14450) with more specificity.

I am respectfully seeking public records under the Port Authority's Freedom of Information Code (the "Code"):

1. Technical reports/assessments commissioned, performed or received by PANYNJ staff responsible for WTC energy oversight detailing damage to WTC's installed fuel cells in the immediate aftermath by Superstorm Sandy (October 2012) including the monetary cost of that damage.
2. Internal emails between staff responsible for the technical maintenance of fuel cells at the WTC site and PANYNJ officials responsible for WTC energy oversight detailing this damage and responding to it.
3. PANYNJ contracts issued and/or invoices received showing who fixed, upgraded, replaced or was otherwise tasked with dealing with the WTC fuel cells after Superstorm Sandy and at what cost.
4. Internal emails between PANYNJ staff responsible for WTC oversight and their counterparts at Conde Nast that describe the final decisions made about the fuel cells.

Thank you for your kind consideration. Please contact me by email at jwest@climatedesk.org with receipt and any questions.

Many thanks,

James West
Senior Producer, Climate Desk
18 West 27th Street, 11th Floor
New York, NY 10001

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

November 21, 2014

Mr. James West
Climate Desk
18 West 27th Street, 11th Floor
New York, NY 10001

Re: Freedom of Information Reference No. 14473

Dear Mr. West:

This is in response to your December 17, 2013 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code") for copies of the following records "1. Technical reports/assessments commissioned, performed or received by PANYNJ staff responsible for WTC energy oversight detailing damage to WTC's installed fuel cells in the immediate aftermath by Superstorm Sandy (October 2012) including the monetary cost of that damage. 2. Internal emails between staff responsible for the technical maintenance of fuel cells at the WTC site and PANYNJ officials responsible for WTC energy oversight detailing this damage and responding to it. 3. PANYNJ contracts issued and/or invoices received showing who fixed, upgraded, replaced or was otherwise tasked with dealing with the WTC fuel cells after Superstorm Sandy and at what cost. 4. Internal emails between PANYNJ staff responsible for WTC oversight and their counterparts at Conde Nast that describe the final decisions made about the fuel cells."

Material responsive to your request and available under the Code can be found on the Port Authority's website at http://www.panynj.gov/corporate-information/foi/14473-WTC.pdf. Paper copies of the available records are available upon request.

Certain portions of the material responsive to your request are exempt from disclosure pursuant to exemption (5) of the Code.

Please refer to the above FOI reference number in any future correspondence relating to your request.

Very truly yours,

Daniel D. Duffy
FOI Administrator

225 Park Avenue South, 17th Fl.
New York, NY 10003
T: 212 435 3642 F: 212 435 7555

THE PORT AUTHORITY OF NY & NJ

Christopher R. Zeppie
Director

March 8, 2013

Kimberly Lingard
Senior Project Manager
Clear Edge Power, Inc.
195 Governor's Highway
South Windsor, Connecticut 06074

Mr. Michael F. Nash , PE
Engineering Manager
Energy Services & Technology
New York Power Authority
123 Main Street
White Plains, NY 10601

Re: World Trade Center Fuel Cells and Chiller: Removal of Three Pure Cell Model 400 Series and One York Chiller from 1WTC

Dear Ms. Lingard and Mr. Nash:

This letter is being provided to you as representatives of Clear Edge Power (formerly UTC) and the New York Power Authority (NYPA), respectively, to confirm certain matters in connection with three fuel cells (the "Fuel Cells") and one York chiller (the "Chiller") currently installed in Tower 1 at the World Trade Center site in Lower Manhattan, New York, said Fuel Cells and Chiller having sustained irreparable damage in connection with "Superstorm Sandy" on October 29, 2012. As I am sure you are aware, expeditious removal of this equipment is urgently needed to maintain the schedule for the Interim Loading Dock (ILD) to be constructed above the equipment hatch which will be used for removal of this equipment. Further delay to the ILD construction schedule will result in serious financial consequences to the Port Authority because of impacts to the overall WTC construction schedule and staging, as well as commitments made to tenants of 1 WTC.

On behalf of the Port Authority of New York and New Jersey, this will confirm that legal title to the Fuel Cells shall vest in Clear Edge Power Inc. (formerly UTC) and shall no longer be vested in the Port Authority upon delivery of the Fuel Cells to Clear Edge Power's transport vehicles at the World Trade Center site pursuant to a Change Order between Clear Edge Power and NYPA .

Further, it is understood and agreed to by all parties that Clear Edge Power will bring the Fuel Cells and Chiller to their facility in Connecticut, remove any proprietary devices and technologies associated with the Fuel Cells and, thereafter, make the remainder of the fuel cells, together with the Chiller, available for inspection by the Port Authority's insurance carriers and/ or carriers' contractors for the purposes of ascertaining any remaining salvage value of the units.

225 Park Avenue South
New York, NY 10003
T: 212 435 4415 F: 212 435 4455

czeppie@panynj.gov

The period of inspection shall be 30 days from the date when the Port Authority receives notification from Clear Edge Power that the Fuel Cells are available for inspection.

Please do not hesitate to contact me if you have any additional questions or require additional information.

Very truly yours,

Christopher Zeppia
Director

cc: David. Tweedy, PANYNJ
Alan Reiss, PANYNJ
Robert Bradford, NYPA
Zonda Feulner, CEP

JBB
JAROS BAUM & BOLLES

Peter G. Prochner
Senior Associate
212.530.9336

Energy Model Update
1 World Trade Center
New York, New York
Project No. 12767.C.200

January 8, 2013

Ms. Julie Valerio
STV Construction, Inc.
Freedom Tower Project
115 Broadway - 11th Floor
New York, New York 10006

Dear Ms. Valerio:

We herewith submit our proposal for professional engineering services for the above-referenced project, per the request of Mr. Eduardo del Valle.

ARTICLE I — PROJECT DESCRIPTION

A. The Owner has requested that this Consultant provide the necessary energy modeling and services to update the energy model for the project to reflect the current as-designed and "as-built" conditions of the project (including architectural program, facade, interior lighting, exterior lighting, etc.).

B. The scope of work will consist of three (3) phases:

1. *Phase 1*

    a. Collecting documentation of all current conditions of the project as are relevant to the energy model for the project.

2. *Phase 2*

    a. Perform the update to the DOE-2 energy model for the project (these services will be performed by our Subconsultant, Viridian).

    b. Review and QA/QC the updated energy model.

3. *Phase 3*

    a. The updated energy model will be utilized to evaluate additional energy-conserving measures (ECM's) that could be employed for the project, based on deleting the currently designed fuel cell plant from the project, and allow the project to achieve the 20% reduction in modeled energy cost

below the baseline of ASHRAE Standard 90.1-1999. These measures may include such approaches as:

1) A small-scale microturbine cogen plant to be located at the top of the building (utilizing one of the planned future natural gas risers and metering positions).

2) Additional lighting controls, including additional Tenant-provided lighting controls.

3) Up to four (4) additional ECM's, as mutually agreed.

ARTICLE II — BASIC ENGINEERING SERVICES

A. Our scope of work will include the following:

1. Coordinating with SOM and other project Consultants to assemble the latest building design and construction documentation.

2. Coordination with Viridian to communicate the above for their use in updating the energy model.

3. Review of the updated energy model with Viridian for conformance with the updated documentation.

4. Prepare a written energy modeling report summarizing and detailing the energy modeling assumptions and results.

5. Coordination with Viridian to identify additional ECM's to be modeled.

6. Coordination and meetings with Ownership regarding the above.

7. Model the agreed ECM's in the updated energy model.

8. Coordination and meetings with Viridian to review the results of the ECM's.

9. Preparation of a written report documenting the above.

10. Meetings with Ownership to review the findings of above, and to identify next steps.

B. We estimate that the total man-hours associated with this task is approximately two hundred fifty (250) man-hours.

C. Exclusions to JB&B's scope of services for this Task Order:

1. Preparation of any drawings or sketches.

2. Any design services to modify the current design of the project.

ARTICLE III — ADDITIONAL ENGINEERING SERVICES

A. Additional changes and updates to the energy model not anticipated under this Task Order.

B. If, as the work progresses, there are additional modeling requirements or changes in scope or extensions of schedule which necessitate additional work by us, we will be paid on a time basis or a mutually agreed lump sum fee basis.

ARTICLE IV — SCHEDULE

A. This fee proposal is based on the following schedule:

Phase 1

Assemble and review updated documentation: 2 weeks after notice to proceed.

Phase 2

Update energy model: 2 weeks after completion of Phase 1.

Phase 3

Model ECM's: 3 weeks after completion of Phase 2.

ARTICLE V — FEES

A. For the scope of services for this Task Order outlined in Articles I, II and IV above, we will be paid a lump sum fee of Seventy-five Thousand Dollars ($75,000.00), inclusive of our expenses and of Viridian's fee.

B. All time-based services will be billed utilizing the following rate basis:

- Partners and Associate Partners $275.00/hour
- All Others Timecard x 2.8 multiplier

C. We will bill you monthly for basic services and additional services.

D. All bills will be paid within thirty (30) days of mailing. Amounts unpaid thirty (30) days after the invoice date will bear interest at the rate of One Percent (1%) of the unpaid balance per month.

Your written acceptance in the space provided below will constitute a Contract between us.

Very truly yours,

JAROS, BAUM & BOLLES

Peter G. Prochner
PGP:mad
cc: (1) Mr. E. del Valle
(1) Mr. A. A. DiGiacomo
(1) Mr. B. P. Weiden
(1) Mr. E. Cortes
(1) Mr. J. K. McGarity
(1) Mr. M. Ali
(1) Mr. M. W. Mehl
(1) Mr. R. J. Weindel
(1) Accounting

ACCEPTED:_____ DATE:_____

Scott E. Frank, PE, LEED® AP
Partner

80 Pine Street - 12th Floor
New York, NY 10005
T 212-530-9333
Cell 917-301-8318
www.jbb.com

See JB&B's Confidentiality Policy

On Dec 31, 2012, at 9:39 AM, "DelValle, Eduardo" <edelvalle@panynj.gov> wrote:

Gentlemen,

We have not yet received the requested proposal, per request below and attached RFD #176; please provide by Thursday 1/3/13. Thank you.

Eduardo del Valle, AIA, AICP, PP, LEED-AP
Director of Design Management
STV Construction, Inc.
One World Trade Center Project
115 Broadway, 11th Fl
New York, NY 10006
P: 212.435.5598
C: 917.816.8490

From: DelValle, Eduardo
Sent: Friday, December 07, 2012 9:25 AM
To: 'Scott Frank'; Digiacomoa
Cc: 'Prochnerp; 'Weindel, Richard'; Mohammad Ali; Don Winston; Tom Duffe; Reiss, Alan; Fox, Bruce; 'Brendan Shanahan, LEED AP'
Subject: Viridian DOE Model & Fuel Cells Alternative

Augie, Scott,

An RFD will be issued shortly, for the work indicated below; meanwhile, please provide fee proposals for the following:

1. In consultation with WTCC and Durst, explore alternatives for replacement of the fuel cells, so as to match or enhance the efficiencies in regulated cost energy savings previously documented via the fuel cells. Once a feasible system is identified, prepare the required documentation and revise CDs for Contractor to procure and install; include all modifications required to exiting installations as well.

2. Re-model the Viridian (DOE) study, to include both the identified fuel cells alternative and all LED lighting changes incorporated in the building since the model was last issued; include, as a separate item in the study, a comparison between the previously documented rooftop lighting and the LED system now in place.

Please provide proposals by Friday 12/14. Thanks.

Eduardo del Valle, AIA, AICP, PP, LEED-AP
Director of Design Management

STV Construction, Inc.
One World Trade Center Project
115 Broadway, 11th Fl
New York, NY 10006
P: 212.435.5598
C: 917.816.8490

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT

AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE

RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY,

PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY

PRINTOUTS.

Exemption (5)

-----Original Message-----
From: Lingard, Kimberly A UTPWR [mailto:KIMBERLY.LINGARD@UTCPower.com]
Sent: Friday, February 01, 2013 2:32 PM
To: Nash, Michael; Bradford, Robert
Cc: FEULNER, ZONDA UTPWR
Subject: Emailing: Change Order for tower 1 removal 20130201.pdf

Mike and Bob,
Please find attached change order three revised per your direction. If you have any questions please don't hesitate to call or email.

Thank you,

Kimberly Lingard

Installations Project Manager
CA General Contractor Lic.#947659
UTC Power
Cell: 860.308.3691 Desk: 860.727.2277 Fax: 860.353.6549
195 Governor's Hwy. MS 601-21 South Windsor, CT 06074
kimberly.lingard@UTCPower.com

? Please consider the environment before printing anything at all.

The message is ready to be sent with the following file or link attachments:

Change Order for tower 1 removal 20130201.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Torres Rojas, Genara

From: Zeppie, Christopher
Sent: Friday, April 26, 2013 3:59 PM
To: 'Winston, Don'; Reiss, Alan
Cc: 'Duffe, Tom'; DelValle, Eduardo; Weydig, Christine; Plate, Steven; Tweedy, David
Subject: RE: Fuel Cell Replacement Technology - 1WTC
Attachments: Addendum D-1 to ROD- LGAP.PDF

That sounds like good news on the 20% front. However, we must remain mindful of the fact that the fuel cell requirement in the LGAP document is separate and apart from the 20 % requirement (See attached LGAP document Item # 6). I know that there was interest in exploring other technologies rather than simply replacing the fuel cells as SPI has apparently elected to do in T3 and T4. The NYPA meeting is a great way to jump start this effort.
I presume that the sooner we can identify an alternative technology, the less impact there will likely be on costs and construction schedule.

-----Original Message-----
From: Winston, Don [mailto:DWinston@durst.org]
Sent: Friday, April 26, 2013 12:00 AM
To: Reiss, Alan
Cc: Duffe, Tom; DelValle, Eduardo; Zeppie, Christopher; Weydig, Christine; Plate, Steven
Subject: Re: Fuel Cell Replacement Technology - 1WTC

We've given Viridian the info they need to complete the study. We don't need much more in the way of savings to get to the required 20%.

We're quite familiar with the microturbines, and have implemented them twice, once with not so good results, the other pending startup.

We'll review the other option, but I'm not optimistic.

I'm on vacation. When I return I'll get back to you with my team's availability.

On Apr 25, 2013, at 10:04 PM, "Reiss, Alan" <areiss@panynj.gov> wrote:

> Good evening Don,
>
> Please see the email below from Chris and the Zipped files. NYPA wants to meet with PA and a durst representative should attend also on the 1 wtc fuel cell replacement technology, since you will be living with it for years. You will see NYPA has as one of the alternatives, a micro turbine.
>
> Please provide some available dates to Chris so they can work out a date with NYPA over next few months at their HQ.
>
> Regards
>
> Alan
>

> From: Zeppie, Christopher
> Sent: Thursday, April 25, 2013 2:04 PM
> To: Reiss, Alan
> Cc: Tweedy, David; Weydig, Christine
> Subject: FW: Fuel Cell Replacement Technology - 1WTC
>
> Hi Alan,
> Please see below. Christine and I are going to do this meeting and are extending invite to you or your designee.
> Where are Dursts on this, do they want to send someone?
> Where are we on the second try at the modeling effort for T1 to see where we stand?
>
>
> From: Bradford, Robert [mailto:Robert.Bradford@nypa.gov]
> Sent: Thursday, April 25, 2013 8:00 AM
> To: Zeppie, Christopher
> Cc: Nash, Michael; Henry, Kala; Sliker, Guy
> Subject: Fuel Cell Replacement Technology - 1WTC
>
> Chris,
>
> NYPA would like to meet with the PA to discuss potential replacement sustainable technologies for 1WTC (to be utilized as a replacement for the UTC fuel cells recently removed because of the flooding).
>
> The alternatives we are currently considering are:
>
>
> • a turbine CHP package (typical of Capstone microturbine)
>
> • modular fuel cells(typical of ClearEdge Power)
>
> Enclosed are brochures on both of these technologies.
>
> We would like to have both yourself and Christine come here to White Plains to meet with us and our R&D Group to discuss these 2 options. Please let me know your and Christine's availability over the next few months to come here. If you are coming here for another meeting, we could arrange to meet before or after the other meeting.
>
> Let me know.
>
> Thanks,
>
> Bob
>
>
>
>
>
>
>
>
>
>
> From: Zeppie, Christopher [mailto:czeppie@panynj.gov]
> Sent: Tuesday, April 02, 2013 3:31 PM
> To: Bradford, Robert

> Cc: Nash, Michael; Weydig, Christine
> Subject: RE: Fuel Cells:1 WTC
>
> Yes that would be a great follow on re sustainable technology.
> We would try and get WTC staff there, as well.
> Regarding the removal, I trust everything went according to plan?
> Also, please recall that UT (forgot the new name) is to let us know when the 30 day period is to start so that our insurance carriers can evaluate scrap value should they so choose.
>
> From: Bradford, Robert [mailto:Robert.Bradford@nypa.gov]
> Sent: Tuesday, April 02, 2013 3:27 PM
> To: Zeppie, Christopher
> Cc: Nash, Michael
> Subject: RE: Fuel Cells:1 WTC
>
> Hi Chris,
>
> Hope all is well with you.
>
> As the fuel cells at 1WTC have been removed, we at NYPA were wondering if the PA has finalized their recommendation as to possible replacement technologies, per your e-mail below.
>
> I believe that per the original environmental agreements, there is a requirement for some sustainable technology to be installed at the site.
>
> Further to your e-mail below, if Christine wants to talk to us about potential other sustainable technologies that may be applicable to the 1WTC site, let me know and I can arrange a meeting here with NYPA's R&D Group which specializes in this.
>
>
> Thanks,
>
> Bob
>
>
>
> From: Zeppie, Christopher [mailto:czeppie@panynj.gov]
> Sent: Monday, December 10, 2012 2:53 PM
> To: Bradford, Robert; FEULNER, ZONDA UTPWR; Nash, Michael; Lingard, Kimberly A UTPWR
> Cc: cweydig@paynnj.gov<mailto:cweydig@paynnj.gov>; DelValle, Eduardo; Reiss, Alan; Tweedy, David
> Subject: Fuel Cells:1 WTC
>
> Christine Weydig and I met with Executive staff on Friday to discuss matters related to the fuel cells lost in WTC 1 due to flooding from Sandy.
> It is clear from those discussions that we need to get the damaged fuel cells out ASAP.
> With respect to replacement cells, our Office together with WTC Construction have been asked to perform an updated recommendation as to whether replacement with the same technology is recommended. Christine Weydig will be directing the effort for our Office and will be working with WTC Construction, WTC Redevelopment and their outside consultants.
> We don't anticipate a lengthy evaluation period, however as a matter of due diligence, it is deemed necessary.
> Christine may be reaching out to staff in NYPA and UTC for further info/back - up on what has already been sent.
> In light of the foregoing, we are not in a position to commit to the replacement cells at this time.

>
> Eduardo DelValle in WTC Construction remains the PA's point of contact for removal of damaged fuel cells with which we must proceed apace.
> Thanks to all for your continued assistance and technical support. We appreciate your efforts to meet our schedule based on construction of the Interim Loading Dock, but we have been assured by WTC Construction that there will be future opportunities in the construction process to get fuel cells or replacement technology into the fuel cell footprint.
> Please call me if additional clarification warranted.
>
>
>
>
>
>
>
> NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT
>
>
>
> AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE
>
>
>
> RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY,
>
>
>
> PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY
>
>
>
> PRINTOUTS.
>
>
>
>
> NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT
>
>
>
> AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE
>
>
>
> RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY,
>
>
>
> PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY
>
>
>
> PRINTOUTS.
>
>

>
> NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT
>
> AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE
>
> RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY,
>
> PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY
>
> PRINTOUTS.
> <WinZip Compressed Attachments.zip>

ADDENDUM TO THE RECORD OF DECISION AND LEAD AGENCY FINDINGS STATEMENT FOR THE WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN

The Lower Manhattan Development Corporation ("LMDC") hereby supplements its Record of Decision and Lead Agency Findings Statement for the World Trade Center Memorial and Redevelopment Plan ("ROD"), dated June 2004, by addending a new Addendum D-1 to Appendix D of the ROD. LMDC has determined that it can achieve improved environmental and sustainable attributes in the design, construction and operation of the World Trade Center Memorial and Redevelopment Plan (the "Selected Project") by creating an alternative compliance path to achieve the goals of the *Sustainable Design Guidelines*, as defined in section 1.3.10 and Appendix D of the ROD, for the commercial towers to be constructed at the World Trade Center Site. This alternative compliance path (the "*LEED Gold Alternative Path*," described in Addendum D-1 attached hereto), will permit the developer of any commercial building the option to meet the goals of the *Sustainable Design Guidelines* by designing for and attaining Gold certification from the U.S. Green Building Council under the Leadership in Energy and Environmental Design ("LEED") system and completing the additional enhancements beyond LEED Gold requirements set forth in Addendum D-1.

LMDC has determined that the *LEED Gold Alternative Path* achieves the same environmental benefits as the *Sustainable Design Guidelines* and will not result in any significant adverse environmental impacts not previously disclosed in the ROD or the Final Generic Environmental Impact Statement for the Selected Project. In accordance with 40 CFR § 1505.2, LMDC has adopted all practicable means to avoid or minimize environmental harm from the Selected Project and has adopted monitoring and enforcement programs as described in the ROD and Addendum D-1.

This Addendum to the ROD was adopted by the Board of Directors of the Lower Manhattan Development Corporation on February 14, 2007.

Kevin M. Rampe
Chairman/President
Lower Manhattan Development Corporation

2/16/2007
Date

ADDENDUM D-1 TO APPENDIX D OF THE WORLD TRADE CENTER MEMORIAL AND REDEVELOPMENT PLAN RECORD OF DECISION AND LEAD AGENCY FINDINGS STATEMENT

The *LEED Gold Alternative Path* has been developed to provide an alternative path to achieve the goals of the *Sustainable Design Guidelines*[1] ("SDGs") for the WTC commercial and open spaces.

The *LEED Gold Alternative Path* can be adopted on a building-by-building basis.

Developers of commercial office towers at the Project Site shall inform the LMDC in writing prior to the completion of the Design Development design phase of the developer's respective project if the developer opts to proceed under the *LEED Gold Alternative Path.*

Requirements of the *LEED Gold Alternative Path*

For each building for which the *LEED Gold Alternative Path* is followed, the developer shall design for and attain LEED Gold certification from the U.S. Green Building Council. For commercial office buildings, the LEED-CS system (Core and Shell) may be used.

In addition, the developer shall complete the following enhancements beyond the requirements for LEED Gold certification:

1. Implement all construction-period environmental protection measures identified in SEQ-5, including the use of ultra low-sulfur diesel and adoption of EPA diesel retrofit recommendations, in addition to all applicable Environmental Performance Commitments promulgated by the Lower Manhattan Recovery Project Sponsors.

2. Achieve net zero CO_2 emissions for all base building electricity consumption via commercially purchased wind certificates for 100% of purchased electricity.

3. Reduce energy costs 20% beyond American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-1999, as defined in EEQ-3, and reduce whole building energy consumption by 20% relative to levels required by the New York Energy Conservation Construction Code, as required by Executive Order-111 ("EO-111").

---

[1] The *Sustainable Design Guidelines* are set forth in Appendix D to the Record of Decision and Lead Agency Findings Statement for the World Trade Center Memorial and Redevelopment Plan.

4. Satisfy all indoor air quality requirements of EO-111 and IEQ-3, including requirements for indoor air quality monitoring, commissioning and air quality management.

5. For each commercial office building that implements LEED-CS, construct a 1,500 square foot exemplar space that satisfies the requirements, other than square footage, set forth in the *Sustainable Design Guidelines*.

6. For each commercial office building where the *LEED Gold Alternative Path* has been adopted, supply part of the energy required for the commercial office building by fuel cells built into the towers.

7. Create and execute the following management plans: Construction Storm Water Pollution Prevention Plan (SEQ-6); Construction Waste Management Plan (MEQ-2); Indoor Air Quality Management Plan (IEQ-1); Construction IAQ Management Plan (IEQ-5); and Integrated Pest Management Plan (IEQ-9).

If a developer fails to attain LEED Gold certification or fails to satisfy any elements listed above for any building for which the *LEED Gold Alternative Path* has been adopted, the developer shall, subject to approval by LMDC, promptly identify and diligently carry out, at its expense, such alternative mechanism and actions as are required to satisfy the goals of such unsatisfied elements of the *LEED Gold Alternative Path*.

Achievement of *Sustainable Design Guideline* Goals

Each building for which the *LEED Gold Alternative Path* has been adopted shall achieve the substantive goals of the *Sustainable Design Guidelines*. For each such building, a Construction Environment Plan ("CEP") as required by SEQ-5 and a Comprehensive Material Management Plan ("CMMP") as required by MEQ-1 need not be prepared, although all substantive requirements of SEQ-5 and MEQ-1 shall be met.

Interim Reporting

During the design and construction phases of each commercial office building, at each major project milestone (i.e., Schematic Design, Design Development, Construction Documents), the developers of that building shall submit commensurate plans and specifications documentation to the Port Authority, in accordance with the Port Authority's tenant construction application process, to demonstrate conformance with the environmental measures (consistent with the requirements of the Port Authority Manual) and shall simultaneously furnish LMDC with copies of such plans and specifications. For each building for which the *LEED Gold Alternative Path* has been adopted, this documentation shall describe the progress in achieving the requirements of the *LEED Gold Alternative Path* (including a LEED point checklist and associated narrative). This documentation shall also describe the progress in meeting the substantive requirements of SEQ-5 and MEQ-1.

UTC Power
A United Technologies Company

Change Order No. 2 Rev 3

Order Date: 2/11/2013

To: NEW YORK POWER AUTHORITY
Address:
123 Main Street
White Plains, NY 10601

Project Location ("Site"):
World Trade Center – Tower 1

Ordered By: Robert Bradford

☐ Plans Attached

☐ Specifications Attached

THIS CHANGE ORDER NO. 2 REV 3 AMENDS THE FURNISH, DELIVER AND COMMISION AGREEMENT BETWEEN UTC POWER CORPORATION AND NEW YORK POWER AUTHORITY DATED APRIL 21, 2008 ("AGREEMENT"), FOR THE PROJECT LOCATION DESCRIBED ABOVE. **EXCEPT AS MODIFIED HEREIN, ALL OTHER TERMS AND CONDITIONS IN THE AGREEMENT REMAIN UNCHANGED.**

Description of Work

Removal of Three (3) PureCell® Model 400 fuel cell systems & One (1) York Chiller from Tower 1

UTC Power Responsibility

1. Work with Customer, building owner, contractor and engineer to develop site specific procedures for the removal of fuel cells (includes 2 site visits and 48 hours of support)
2. UTC/Clean Harbor will provide a copy of the UTC Power JHA and CSA removal procedure. UTC Power and Clean Harbors will collaborate with other parties to produce any additional documents required by OSHA or city/state regulations.
3. Supervise pumping, draining and containment of liquid waste from each cell stack assembly. Safe disposal of liquid waste from each cell stack assembly by Clean Harbors. Work to occur at the customer's site. Transportation of waste to a disposal facility, classification and disposal of waste is included.
4. Removal of cell stack assemblies from the power plant enclosure including crating. Full crates to be moved and rigged to ground level and loaded onto UTC Power provided transportation by customer.
5. Transportation of cell stacks from customer's site. Title of cell stacks will transfer to UTC Power prior to being loaded onto UTC Power's truck.
6. On-site support including aftermarket services and installation personnel during the rigging removal of the fuel cells and York chiller. UTC Power will provide 1 set of lifting lugs and 1 set of jacking brackets for two

days for use by NYPA in removing the equipment. Lifting lugs and jacking brackets to be returned to UTC Power at end of period.

7. Provide licensed environmental cleanup personnel for standby spill remediation during movement of each unit from current location to ground level.

8. Transportation of fuel cells and chiller from customer's site. Title of fuel cells and chiller will transfer to UTC Power prior to fuel cells and chiller being loaded onto UTC Power's truck.

9. Upon arrival of all equipment at the UTC Power facility, South Windsor, CT, an assessment will be performed by a licensed environmental clean up contractor. The quoted price includes an allowance of $12,000 for this assessment. If the assessment determines that the equipment requires decontamination to permit handling with normal factory PPE or for disposal or recycling in the normal course of the conduct of the manufacturing operations of UTC Power, all necessary decontamination work will be invoiced separately.

Customer Responsibility

1. Customer shall work with the onsite general contractor to ensure safe conditions for all UTC Power personnel. All work shall be performed by insured certified licensed contractors. Work shall be performed in a neat workmanlike manner.

2. The customer shall prepare, file and pay for all required building and construction trade permits associated with work being performed on site. All services provided by the UTC Power and it's vendors are non-union and any union requirements, labor and associated costs are the responsibility of the customer.

3. Provide labor to pump, drain and contain the liquid waste from each cell stack assembly. Labor to be supervised by UTC Power/Clean Harbor. Work to occur at the Customer's site. This trade labor is to be provided by site owner's environmental contractor, Degmor. UTC Power/Clean Harbor agree to supervise the process but assume no liability or responsibility for work performed by Degmor. Trade labor is and shall remain at all times the sole responsibility of Customer and/or site owner.

4. Customer represents that it has complete authority and ability to transfer the equipment and clear title to UTC Power. Customer shall provide a clear title for the three (3) PureCell Model 400 fuel cells and the York chiller, prior to scheduling with UTC Power the transportation for the equipment from the rigger's site and Customer shall defend UTC Power in the event of any competing ownership claim to the equipment. Should there be a claim against the equipment following its transfer to UTC Power, Customer shall, in addition to the amount of the change identified below, reimburse UTC Power for all costs incurred, including overhead, plus any damages that might be assessed against UTC Power.

5. Loading and rigging of the removed fuel cells, cell stacks, cell stack crates and the chiller onto transportation provided by UTC Power at the customer's site. Customer and UTC Power shall cooperate to ensure coordination of rigging and removal and availability of transportation.

6. Ensure fuel cells and chiller removal is completed according to UTC Power recommendations:
    a. Recommendations are to install a sheet metal floor to fuel cells once they are raised. Metal may be pop riveted to the frame.
    b. Fuel cells should be shrink wrapped prior to transportation away from project site

UTC Power
A United Technologies Company

7. As necessary, ensure that the removed fuel cells have been decontaminated and are safe and permitted for over road transportation and require only normal PPE for personnel handling in transit and at the UTC facility in South Windsor, CT.

Requested Amount of Change (without replacement equipment) **$372,320.00**

All work to be completed by March 31, 2013

All pricing is valid for 60 days from date of change order

Invoicing Schedule

Upon change order signing	50% of change order value
Upon clear title and loading of the equipment on UTC trucks for transport to So Windsor, CT	50% of change order value (100% of total change order)

The Original Contract Price:	$ 10,491,808.00
Net Previous Change Orders/Credit Memos:	$ 152,700.00
Net Current Change Order/Credit Memo:	$ 372,320.00
New Contract Price:	$ 11,016,828.00

UTC POWER CORPORATION

By: _____

Name: _____

Date: 2-11-13

NEW YORK POWER AUTHORITY

By: _____
Authorized Company signature

Name: _____

Date: _____

CELL STACK ASSEMBLY (CSA) REMOVAL AT WORLD TRADE CENTER- TOWER 1

NOTICE	This is a draft service procedure that has not been verified in the field and/or reviewed by EH&S. Use Procedure SP 9 and appropriate LOTO procedures (SP 9.1 through SP 9.4) and/or MSECP LOTO to safely de-energize the equipment prior to beginning work. If additional and/or unmitigated hazards are present ensure EH&S and the supervisor are contacted immediately before conducting work.

General

Overview — Use this procedure to remove the Cell Stack Assemblies (CSA). Section A details prep work to be done before the CSA are removed. There are specific instructions for each CSA that will be removed which is defined in Section B. Section C describes how to secure a CSA inside the shipping crate. The procedure is the same for all CSAs. Sections D and E describe how the CSAs will be returned to ClearEdge Power.

Applicability — Power plant serial numbers 9525, 9530, 9531

Powerplant Condition — Perform this procedure while the powerplant is in the de-energized OFF state.

Time to Complete — This procedure takes approximately 1 days to complete per powerplant by ClearEdge Power and its vendors. Additional time may be required for inexperienced labor.

Special Conditions — Permit only qualified personnel to do this procedure (high voltage training). Use appropriate LOTO procedures. High-voltage terminals will be exposed during the procedure.

Materials and Tools

Replacement Parts — N/A

Consumable Materials — N/A

Special Tools — 5-ton fork lift to be supplied by Customer, LOTO devices

A. Preparation Work (To Be Completed Prior to Any Stack Removal)

1. Clear all extraneous obstructions from the PSS side of powerplant before proceeding.
2. Ensure that the powerplant is turned off and that zero energy has been verified.
3. Install a shorting strap on the DC bus bars in the ESM, behind the inverter air exit louver.
4. Drain Thermal Management System and Water Treatment System.
5. Remove the diagonal straps and their front brace supports per Procedure SP 6.9.
6. Remove all four substack voltage monitor (SVM) connectors. Secure temporarily to CSA panel.
7. Remove the front bolt-on beam and store safely for reattachment.
8. Disconnect the ESM cabling from the stack to be removed, which consists of the substack voltage monitoring cables, cathode upper/anode lower thermocouple cables, and VT harness cables.
9. Remove all fuel in and fuel out boots on the stacks to be removed.
10. Loosen the seismic brackets (pin) located at the top center of the stack to be replaced (A, B, C, or D), and store the hardware for later reattachment.

11. Loosen the air boots on the stack to be replaced (A, B, C, or D) and slide down over the adapters.
12. Drain coolant from CSA that is to be removed.
13. Disconnect both coolant inlet and exit manifold flanges from CSA that is to be removed.
14. Drill drainage holes in CSA manifolds to remove any water which may have entered during flooding event.
15. Attach pneumatic pump to remove all free liquids from CSA.
16. Collect, drum and label all liquids for characterization, storage and disposal.
17. Drums onsite will be stored on spill pallets and inspected weekly until transported for disposal.
18. Position CSA crates nearby for loading the CSA into once it has been removed from the power plant. Steps 1-4 of section C may be performed at this time.
19. Use Procedure SP 9 and appropriate LOTO procedures (SP 9.1 through SP 9.4) and/or MSECP LOTO to safely deenergize the equipment prior to beginning work. If additional and/or unmitigated hazards are present EH&S protocols will be followed by ClearEdge Power and its vendors

B. CSA Removal

Stack A (Specific Steps)

1. Loosen the hardware on upper bus bar and secure the cable.
2. Insert forks of fork lift into the fork pockets on the lower CSA frame.
3. Carefully lift the CSA about 1 in. Watch for overhead obstructions.
4. Pull the stack clear of pocket only until the lower busbar assembly is reachable.
5. Remove cover then disconnect the DC power cable between stacks A and B at lower busbar of "A".
6. Disconnect DC + power cable from the top and bottom of stack A.
7. Carefully pull stack A clear of PSS frame and place in CSA crate (Section C - Step 5).

Stack B (Specific Steps)

1. Loosen the hardware on upper bus bar and secure the cable.
2. Before removing stack B, disconnect black wire coming from the heat sink resistor at bottom of the busbar on stack B.
3. Insert forks of fork lift into the fork pockets on the lower CSA frame.
4. Carefully lift the CSA about 1 in. Watch for overhead obstructions.
5. Pull the stack clear of pocket only until the lower busbar assembly is reachable.
6. Disconnect the DC power cable between stacks B and C at lower busbar of "B".
7. Carefully pull stack B clear of PSS frame and place in CSA crate (Section C - Step 5).

Stack C (Specific Steps)

1. Loosen the hardware on upper bus bar and secure the cable.
2. Insert forks of fork lift into the fork pockets on the lower CSA frame.
3. Carefully lift the CSA about 1 in. Watch for overhead obstructions.
4. Pull the stack clear of pocket only until the lower busbar assembly is reachable.
5. Disconnect the DC power cable between stack C and D at lower busbar.
6. Carefully pull stack C clear of PSS frame and place in CSA crate (Section C - Step 5).

Stack D (Specific Steps)

1. Loosen the hardware on upper bus bar and secure the cable.
2. Insert forks of fork lift into the fork pockets on the lower CSA frame.
3. Carefully lift the CSA about 1 in. Watch for overhead obstructions.
4. Pull the stack clear of pocket only until the lower busbar assembly is reachable.
5. Disconnect the DC power cable at lower busbar.
6. Carefully pull stack D clear of PSS frame and place in CSA crate (Section C - Step 5).

C. Crate CSAs

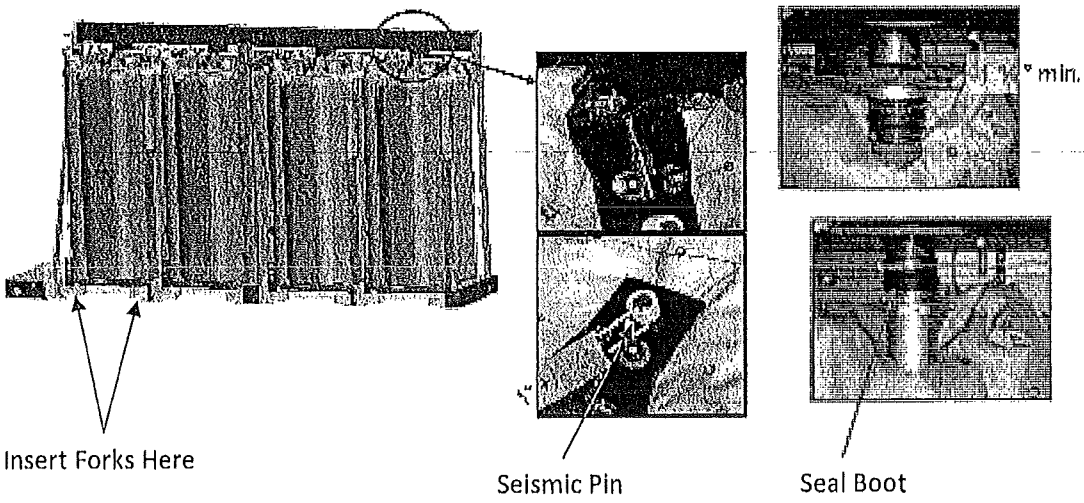
1. Remove plywood panels 1, 2, 3 & 4 (see picture) from the CSA crate.
2. Unbolt and remove the seismic pin bracket from the top cross member of the crate. Leave the top cross member in place.
3. Remove front cross member from the crate frame.
4. Remove CSA mounting hardware from bottom frame of crate.
5. Use forklift to carefully place CSA in crate, aligning bolt holes on CSA frame with holes in crate frame.
6. Use CSA mounting hardware to attach CSA frame to crate frame.
7. Insert seismic pin in the hole on top of CSA. Ensure top of seismic pin (inside sleeve) is beyond top of lower plate. Bolt seismic pin bracket to top cross member of crate.
8. Reinstall all plywood panels on crate.

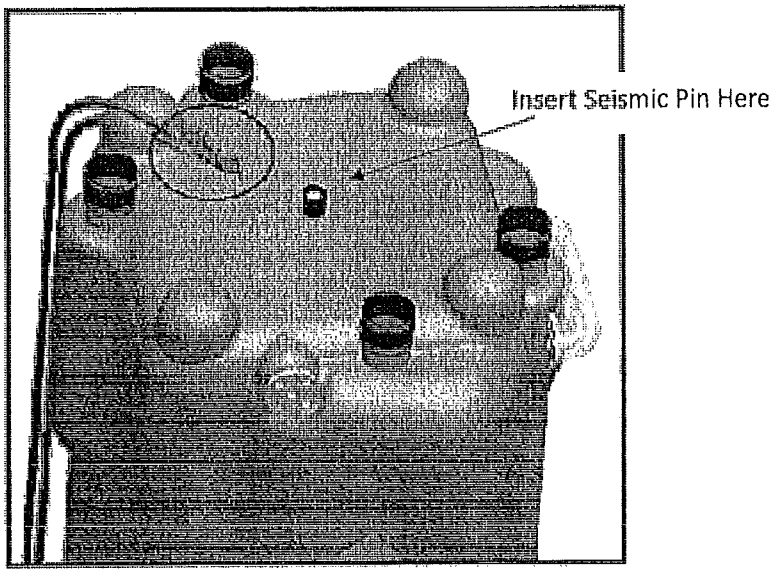
D. Pick CSAs

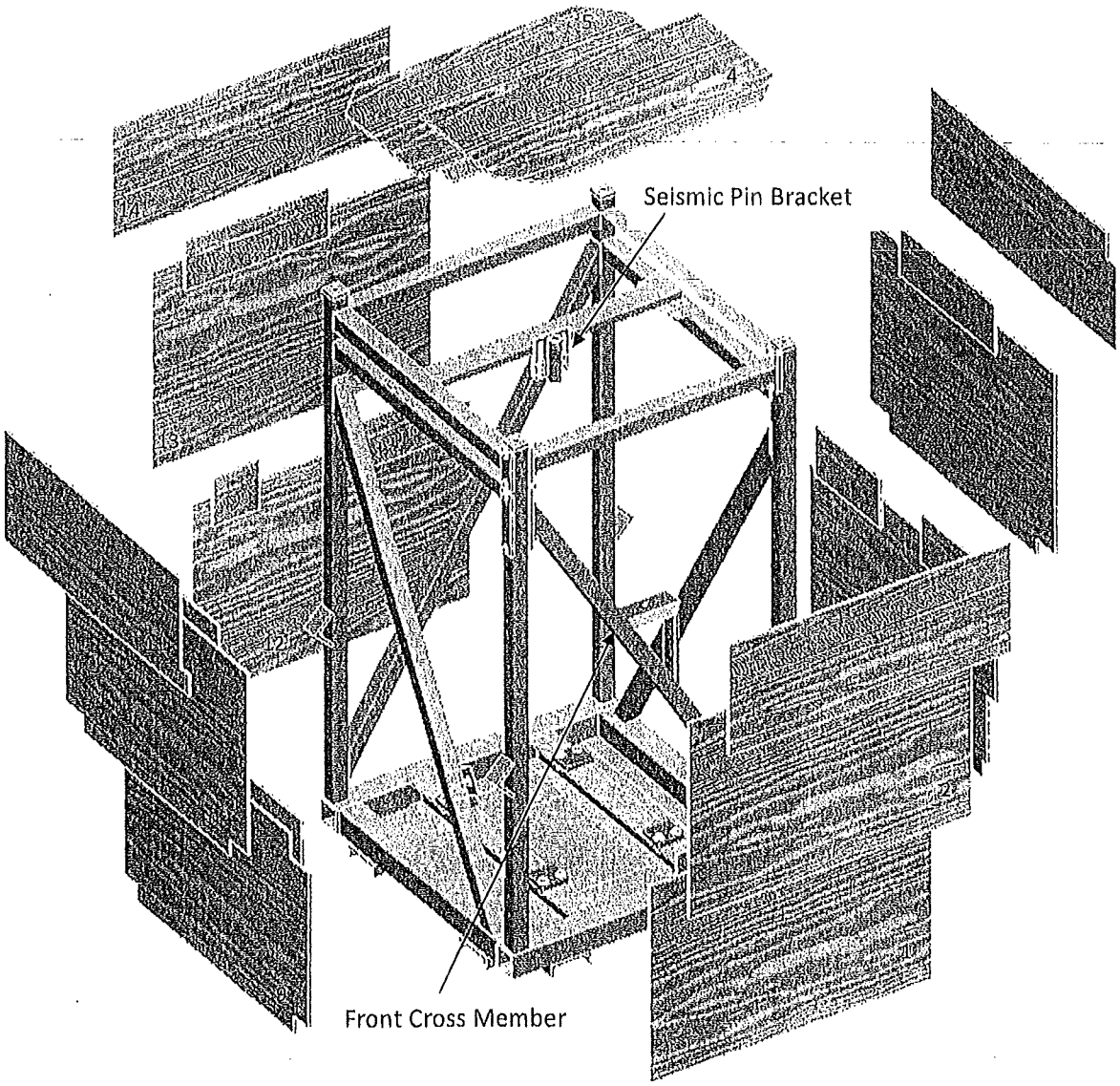
Crated CSAs will be picked from installation site to transportation staging area by customer's contractor.

E. Transport CSAs Offsite

Crated CSAs must be moved to ground level and loaded by customer. Crates will be shipped to Clear Edge Power for tear down and evaluation.


Insert Forks Here
Seismic Pin
Seal Boot


Insert Seismic Pin Here


Seismic Pin Bracket
Front Cross Member

PPE REFERENCE GUIDE

	Goggles	Face Shield	Cut Resistant Gloves	Leather Gloves	Welding Gloves	Chemical Resistant Gloves	Chemical Apron or Suit (Tyvek)	Hard Hat	Flame Retardant Clothing	Other Equipment
Electrical Work	At a minimum follow NFPA 70E requirements – *UTC Power Employee see Electrical Safety Guide*									
Portable Power Drilling	X	X								
Elevated Work				X				X		Fall Arrest or Restraint Equipment
Grinding/ Cutting	X	X		X				X As needed		Earplugs/muff
Manual Material Handling			X As needed	X As needed						Lift assist As needed
Insulation Removal	X		X				X As needed	X As needed		Long sleeves & pants
Plumbing Removal	X	X				X (Nitrile)	X As needed	X As needed		
Spill Cleaning	X	X				X (Nitrile) Butyl (123)	X			
Rigging				X				X		
Hazardous Waste Handling	X					X (Nitrile) Butyl (123)	X As Needed			
Potential chemical exposures i.e.; chlorine, acid, acetone, ammonia	X	X				Nitrile Butyl (123)	X			
Potential exposure to pathogens / tissue / blood / waste /	X	X				Latex or Nitrile	X	X		

* If you have any questions about this guide, contact your supervisor or EH&S Manager

The following are general requirements –

- All employees must receive training on the PPE they are required to use before they use it.
- Safety glasses with side shields are required in all work situations. Where goggles are required, they may be used in place of safety glasses. Safety glasses must be worn if face shields without goggles are used.
- As a minimum, wearing safety shoes is mandatory.
- Head protection (hard hats) are required for any situation where any overhead hazard exists (e.g. cranes, rigging)
- Hearing protection is required for all situations where excessive noise issues (> 85 dBA) exist and/or where the job site requires it (e.g. compressed air, power washing, etc.)
- Fall protection is mandatory when working at heights **Above 4 Feet*** (ladder work excluded)
- Hazards and risks are subject to change and shall be assessed each time prior to commencing work and PPE should be established based on these assessments.
- All regulatory and local requirements shall be followed and this PPE quick references guide is not a substitute for such requirements.
- Ensure all PPE is properly disposed of.