



Division of Finance and Business Operations

Procurement & Strategic Sourcing
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Detroit, Michigan 48202
(313) 577-3734
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June 19, 2013

**Addendum #2 To
Request for Proposal
For University Tower Lightning Protection: Project 507-216501**

Dated June 7, 2013

The Addendum must be acknowledged on your lump sum bid.

IMPORTANT – PLEASE NOTE: Effective December 1, 2007, bid notices will be sent only to those Vendors registered to receive them via our Bid Opportunities Listserve service. To register, to http://www.forms.purchasing.wayne.edu/Adv_bid/Adv_bid.html, and click on the “Join our Listserve” link at the top of the page. Instructions are at the top of the page, and the Construction Listserv service is under “Construction Bid Opportunities”.

NOTE: You must have attended a prebid conference in order to be eligible to bid on a particular project. Receipt of minutes or addenda without being at a prebid conference does not qualify your company to bid.

Numerous Questions were received in regards to this project. Please find the answers provided in the attached Documents.

A copy of this Addendum will be posted to the Purchasing web site at http://www.forms.purchasing.wayne.edu/Adv_bid/Adv_bid.html.

As a reminder, the bid due date is June 21, 2013, at 2:00 pm. If you have any further questions, please do not hesitate to email them to me at Robert Kuhn Ac6243@wayne.edu and copy Valerie Kreher ab4889@wayne.edu.

Thank you,

Robert Kuhn,
Senior Buyer

Cc: Thomas Edwards, Valerie Kreher, Paula Reyes



Mechanical
Electrical
Energy Management
Communication Technologies
Commissioning

ADDENDUM

Project Name: WSU University Tower
Lightning Protection
WSU Project No.: 507-216501

PBA Project Number: 2013.0097.00

Addendum Number: 2

Date: June 19, 2013

Each Bidder's proposal shall include the work described herein.

Unless otherwise indicated, the work described herein shall comply with, and be equal in all respects to, the original Specifications and the Drawings accompanying same. Include incidental work required to properly complete the work, whether stated herein or not.

Specifications Issued: Section 264313

| Item No. | Description |
|----------|-------------|
|----------|-------------|

| | |
|----|---|
| 1. | Refer to Specification Section 264313 "Surge Protective Devices" (Issued) |
|----|---|

| | |
|--|--|
| | A. Refer to Section 1.6 Quality Assurance: |
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| | |
|--|--|
| | 1. Removed paragraph instructing contractor to coordinate requirements with Division 1 Section "Product Requirements". |
|--|--|

| | |
|----|--|
| 2. | Bidders Questions and Responses are as follows: |
|----|--|

| | |
|--|--|
| | 1.) Do all the existing electrical panels have the capacity to add either a 3-pole fused switch or circuit breaker as shown on the one line drawing? Yes. |
|--|--|

| | |
|--|--|
| | 2.) Per the Specification 264313 – surge protective devices; section 1.6; point B for product options. We are to refer to Division 01 section labeled "Product Requirements" to determine what options are required. Where in Division 01 – general requirements (TOC-1) can the section labeled "Product Requirements" be found? Reference to Division 1 Section "Product Requirements" will be deleted. |
|--|--|

| | |
|--|--|
| | 3.) Will this building be occupied at any time during construction, as nothing is noted in Section 01010 - summary of work per Specification 011700; section 1.4.D? Yes. This was discussed at the pre-bid meeting. |
|--|--|

| | |
|--|---|
| | 4.) Can all Electrical Panels be shut down and locked-out when needed to do work and be tested without affecting any owner equipment? No. Shutting down panels will affect the owners' |
|--|---|

3960 Howard Hughes Parkway, Ste. 500
Las Vegas, NV 89169
Tel: 702-990-3879
Fax: 866-613-3461

2440 West Mission Lane, Ste. 9
Phoenix, AZ 85021-2807
Tel: 602-314-8095
Fax: 602-943-1241

5145 Livernois, Ste. 100
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2001 Commonwealth Blvd., Ste 203
Ann Arbor, MI 48105
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Fax: 734-913-4957

PETER BASSO ASSOCIATES, INC.

WSU University Tower
PBA Project No. 2013.0097.00
Addendum No. 2

Page 2

equipment. At the pre-bid meeting it was discussed to provide the owner notice of shutdown 7 working days in advance.

- 5.) Per the Specification 262813 - Fuses; section 1.7; point A.1, 10% but no fewer than one (1) spare fuse is supplied per type & size. Per the Specification 262816 - Enclosed Switches & Circuit Breakers; section 1.9; point A.1.A, 10% but no fewer than three (3) spare fuses are supplied per type & size. Which one is correct? ***Specification 262813 is correct.***
- 6.) Per the Specification 262816 - Enclosed Switches & Circuit Breakers; section 3.5; point A; where can I find the protective device coordination study to determine the values for trip and time delay settings on Circuit Breakers if it is needed on this project? ***The new breakers are not adjustable and the protective device coordination is not needed.***
- 7.) Where can I find the existing Electrical Panels Schedules and Information or is this not needed for this project? ***Panel schedules are not required since there are spare breakers or spaces. However the existing panel schedules will need to be updated.***
- 8.) Where should I find on the one-line dwg (E5.1) the existing panels LP-1SA, LP-1B and RP-X that are found on dwg E3.1 and how are they currently connected in the one-line diagram? ***The panelboards indicated already have SPD devices and are not part of this project.***
- 9.) In your Specification 00300 - The form of proposal for the General Contract, WSU Project # 507-216501, Page #2 at the "TIME OF COMPLETION" (revised 4-01-2011) The Contract is to done in 25 calendar days with Substantial Completion no later than December 18, 2013. Per Addendum #1, page #2 & 3 the "TIME OF COMPLETION" is now 15 calendar days with Substantial Completion no later than December 18, 2013. No revised 00300 was issued, so what happened to 10 days and which one is correct? ***The contract is expected to be fully executed on or about 25 calendar days as per Section 00300 page 2.***



Mechanical
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Energy Management
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A. Refer to Section 1.6 Quality Assurance:

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SECTION 26 4313 – SURGE PROTECTIVE DEVICES

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes SPDs for low-voltage power and equipment.

1.3 REFERENCES

- A. ANSI/IEEE C62.32: IEEE Standard Test Specifications for Low-Voltage Air Gap Surge-Protective Devices (Excluding Valve and Expulsion Type Devices).
- B. ANSI/IEEE C62.41: IEEE Guide on Surge Voltages in Low Voltage AC Power Circuits.
- C. ANSI/IEEE C62.45: IEEE Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits.
- D. NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum).
- E. NEMA LS 1: Low Voltage Surge Protection Devices.
- F. NETA ATS: Acceptance Testing Specifications: "Surge Arresters, Low-Voltage Surge Protection Devices".
- G. NFPA 70: National Electrical Code.

- H. NFPA 75: Standard for the Protection of Electronic Computer/Data Processing Equipment.
- I. UL 1283: Electromagnetic Interference Filters.
- J. UL 1449 Third Edition: Surge Protective Devices.

1.4 DEFINITIONS

- A. ATS: Acceptance Testing Specifications.
- B. SVR: Suppressed voltage rating.
- C. SPD: Surge Protective Devices.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Include rated capacities, operating weights, dimensions, mounting provisions, operating characteristics, furnished specialties, and accessories.
 - 2. Provide connection details and wiring diagrams indicating how SPD device is integrated within panelboards and switchgear.
- B. Product Certificates: For surge protective devices, signed by product manufacturer certifying compliance with the following standards:
 - 1. UL 1283.
 - 2. UL 1449.
- C. Field quality-control test reports, including the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Failed test results and corrective action taken to achieve requirements.
- D. Operation and Maintenance Data: For surge protective devices to include in emergency, operation, and maintenance manuals.
- E. Warranties: Special warranties specified in this Section.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain SPD's and accessories through one source from a single manufacturer. SPD units integral to switchboards, distribution panelboards and branch circuit panelboards shall be warranted and supported by the panelboard manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Factory Testing: The specified system shall be factory-tested prior to shipment. Testing of each system shall include but not be limited to quality control checks, "Hi-Pot" tests per UL requirements, IEEE C62.41 Category B and C surge tests, UL ground leakage tests and operational and calibration tests.

- D. Comply with IEEE C62.41, "IEEE Guide for Surge Voltages in Low Voltage AC Power Circuits," and test devices according to IEEE C62.45, "IEEE Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits."
- E. Comply with NEMA LS 1, "Low Voltage Surge Protection Devices." Provide independent test reports demonstrating complete system performance showing compliance.
- F. Comply with UL 1283, "Electromagnetic Interference Filters," and UL 1449, "Surge Protective Devices."

1.7 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than seven days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- B. Service Conditions: Rate surge protection devices for continuous operation under the following conditions, unless otherwise indicated:
 - 1. Maximum Continuous Operating Voltage: Not less than 115 percent of nominal system operating voltage.
 - 2. Operating Frequency: 47 to 63 Hz.
 - 3. Operating Temperature: -40 to 140 deg F.
 - 4. Humidity: 0 to 95 percent, noncondensing.
 - 5. Altitude: Less than 20,000 feet above sea level.

1.8 COORDINATION

- A. Coordinate location of field-mounted surge suppressors to allow adequate clearances for maintenance.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fail in materials or workmanship within five years from date of Substantial Completion.

1.10 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Replaceable Protection Modules: One of each size and type installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cutler-Hammer, Inc.; Eaton Corporation.
2. General Electric Company.
3. Siemens Industries, Inc.
4. Square D; Schneider Electric.
5. Current Technology.

2.2 SURGE PROTECTIVE DEVICE

A. Surge Protection Device Description: Sine-wave-tracking type, with the following features and accessories:

1. MOV technology for each suppression mode.
2. Fuses, rated at 200-kA interrupting capacity. Provide fusing for each suppression path.
3. Fabrication using bolted compression lugs for internal wiring. No plug-in component modules, quick disconnect terminals or printed circuit boards shall be used in current-carrying paths.
4. Integral disconnect switch which has been tested to the surge current rating of the SP to match or exceed the fault current rating of the board. Use of circuit breakers for disconnecting means is acceptable.
5. LED indicator lights for power and protection status for each phase mounted in panelboard front cover:
 - a. Green indicates fully operational circuit.
 - b. Red indicates loss of protection.
6. EMI-RFI Noise Rejection: based on MIL-STD-E220A, 50-ohm standard Insertion Loss Test:
 - a. 34dB at 100 kHz.
 - b. 51dB at 1 MHz.
 - c. 54dB at 10 MHz.
 - d. 48dB at 100 MHz.
7. The maximum continuous operating voltage (MCOV) for all voltage configurations shall be 115% if nominal or greater.
8. Audible alarm, with silencing switch, to indicate when protection has failed.

B. Peak Single-Impulse Surge Current Rating for service entrance equipment (B2 Rating): 240 kA per phase; 120 kA per mode based on a single pulse, IEEE C62.41 standard 8 x 20 microsecond waveform. Device shall not suffer more than 10% deviation in clamping voltage at specified surge current.

C. Minimum Repetitive Surge Current Capability: 10,000 for service entrance and 5,000 for distribution panels and panelboards impulse per mode in accordance with ANSI/IEEE C62.41 and ANSI/IEEE C62.45 utilizing a Category C3 bi-wave at one minute intervals without suffering either performance degradation or more than 10% deviation of specified UL 1449 Suppression Voltage Ratings at specified surge current.

D. Connection Means:

1. External: Cable connection, parallel wired.

E. Protection modes and UL 1449 Listed and Recognized Component Surge Voltage Rating for grounded wye circuits with voltages of 480Y/277V, 3-phase, 4-wire circuits shall not exceed the following:

1. Line to Neutral: 1200V.
2. Line to Ground: 1200V
3. Neutral to Ground: 1200V
4. Line to Line: 2000V

F. Protection modes and UL 1449 Listed and Recognized Component Surge Voltage Rating for grounded wye circuits with voltages of 208Y/120V, 3-phase, 4-wire circuits shall not exceed the following:

1. Line to Neutral: 700V.
2. Line to Ground: 700V
3. Neutral to Ground: 700V
4. Line to Line: 1500V

- G. Protection modes and UL 1449 Listed and Recognized Component SVR for voltages of 480V, 3-phase, 3-wire, delta circuits shall not exceed the following:

1. Line to Line: 2000V
2. Line to Ground: 2000V.

2.3 ENCLOSURES

- A. NEMA 250, with type matching the enclosure of panel or device being protected.

PART 3 - EXECUTION

3.1 INSTALLATION OF SURGE PROTECTION DEVICES

- A. Surge protective devices shall be factory installed in all new distribution equipment.
- B. Install devices at service entrance on load side, with ground lead bonded to service entrance ground.
- C. Install devices for service entrance equipment and panelboards with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
1. Provide a dedicated disconnect for suppressor as indicated on one line or in panel schedules.

3.2 PLACING SYSTEM INTO SERVICE

- A. Do not energize or connect distribution equipment to their sources until surge protection devices are installed and connected.

3.3 FIELD QUALITY CONTROL

- A. Testing: Perform the following field tests and inspections and prepare test reports. Test all service entrance and electronic grade panelboard suppressors.
1. After installing surge protection devices, but before electrical circuitry has been energized, test for compliance with requirements.
 2. Complete startup checks according to manufacturer's written instructions.
 3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.
 - a. Visual and Mechanical Inspection
 - 1) Inspect for physical damage and compare nameplate data with Drawings and Specifications.
 - 2) Inspect for proper mounting and adequate clearances.

- 3) Check ground lead on each device for individual attachment to ground bus or ground electrode.

- B. Remove and replace malfunctioning units and retest as specified above.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain surge protection devices. Refer to Division 1.

END OF SECTION 26 4313

SECTION 26 4313 – SURGE PROTECTIVE DEVICES

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 - 5. Altitude: Less than 20,000 feet above sea level.

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- A. Coordinate location of field-mounted surge suppressors to allow adequate clearances for maintenance.

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- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of surge suppressors that fail in materials or workmanship within five years from date of Substantial Completion.

1.10 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Replaceable Protection Modules: One of each size and type installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

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2. General Electric Company.
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 2. Line to Ground: 1200V
 3. Neutral to Ground: 1200V
 4. Line to Line: 2000V
- F. Protection modes and UL 1449 Listed and Recognized Component Surge Voltage Rating for grounded wye circuits with voltages of 208Y/120V, 3-phase, 4-wire circuits shall not exceed the following:

1. Line to Neutral: 700V.
2. Line to Ground: 700V
3. Neutral to Ground: 700V
4. Line to Line: 1500V

- G. Protection modes and UL 1449 Listed and Recognized Component SVR for voltages of 480V, 3-phase, 3-wire, delta circuits shall not exceed the following:

1. Line to Line: 2000V
2. Line to Ground: 2000V.

2.3 ENCLOSURES

- A. NEMA 250, with type matching the enclosure of panel or device being protected.

PART 3 - EXECUTION

3.1 INSTALLATION OF SURGE PROTECTION DEVICES

- A. Surge protective devices shall be factory installed in all new distribution equipment.
- B. Install devices at service entrance on load side, with ground lead bonded to service entrance ground.
- C. Install devices for service entrance equipment and panelboards with conductors or buses between suppressor and points of attachment as short and straight as possible. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.
1. Provide a dedicated disconnect for suppressor as indicated on one line or in panel schedules.

3.2 PLACING SYSTEM INTO SERVICE

- A. Do not energize or connect distribution equipment to their sources until surge protection devices are installed and connected.

3.3 FIELD QUALITY CONTROL

- A. Testing: Perform the following field tests and inspections and prepare test reports. Test all service entrance and electronic grade panelboard suppressors.
1. After installing surge protection devices, but before electrical circuitry has been energized, test for compliance with requirements.
 2. Complete startup checks according to manufacturer's written instructions.
 3. Perform each visual and mechanical inspection and electrical test stated in NETA ATS, "Surge Arresters, Low-Voltage Surge Protection Devices" Section. Certify compliance with test parameters.
 - a. Visual and Mechanical Inspection
 - 1) Inspect for physical damage and compare nameplate data with Drawings and Specifications.
 - 2) Inspect for proper mounting and adequate clearances.

- 3) Check ground lead on each device for individual attachment to ground bus or ground electrode.

- B. Remove and replace malfunctioning units and retest as specified above.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain surge protection devices. Refer to Division 1.

END OF SECTION 26 4313