Division of Finance and Business Operations

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February 19, 2013

Addendum #6 To
Request for Proposal
For Computer Services Center Chiller Replacement: Project 193-228857
Dated February 1, 2013

Points of Clarifications during the Pre-proposal Meeting February 8, 2013:

The Addendum must be acknowledged on your lump sum bid.

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.

The following questions were received:

1. Q. Where can I find the Specifications and Information for the new power panel found on dwg ME6.1 that is be located in Mech Rm #180 shown on dwg ME3.2 or is it provided by others?
   A. Panelboard specification will be issued under an Addendum.

2. Q. Where can I find the Specifications and Information for the Spare Substation Transformer that is to be provided as ALTERNATE # 4 found on dwg ME6.1?
   A. The intent is to match the same unit substation transformer that is in place. Coordinate with Square D which is the substation manufacturer.

3. Q. Where can I find the Electrical Schedules and Information for the existing Electrical Panels (example: LP-CH) as stated by the Schedules General Note # 1 found on dwg ME7.1?
   A. Existing Panelboard schedules will not be provided. Contractor can visit the site if additional information regarding Panelboard is required.

4. Q. Where is the new 20A, 1-Pole, 208/120V Circuit Breaker of panel LP-CH to be used on drawing ME3.2, is it for Construction note #10 or is for note #18?
   A. Then where is the other device powered from and what is its circuit number? Both items related to construction no.10 and 18 are to be connected to the same 201A 1P circuit in panel LP-CH.

5. Q. Where can I find the existing MCC-RM#162 panel for the new power panel found on dwg ME6.1? Is located in Mech Rm #130, Mech Rm #180 (dwg ME3.2) or is it in another room (Rm 162) on another drawing?
   A. MCC-RM#162 is located on the north wall of Mechanical Rm 162 and marked as (E) MCC on drawing ME3.2.
6. Q. We are looking for the cut sheets of Owner Provided Equipment
   A. Chiller documents are in Addendum #5. Cooling Tower has not been resolved to date and unavailable.

The remaining question and answers are included below:

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 February 19, 2013, at 2:00 pm. If you have any further questions, please do not hesitate to email them to me at **bb2709@wayne.edu** and copy **ac0578@wayne.edu**.

Thank you,

Paula Reyes,
Strategic Sourcing Manager

Peter Basso Associates Inc
CONSULTING ENGINEERS

Mechanical
Electrical
Energy Management
Communication Technologies
Commissioning

ADDENDUM

Project Name: Wayne State University
C&IT Chiller Replacement
Installation Bid Pack
WSU Project No. 193228857

PBA Project Number: 2012.0389

Addendum Number: 6

Date: February 20, 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 26 2416.
Drawings Issued: ME3.2, 002, 003, 004

Item No. Description

1. Refer to Specification Section 236427 "Industrial Water-Cooled Rotary-Screw Water Chillers (70 to 675 Tons)" (Not Issued)

   A. Refer to Section 3.2 Water Chiller Installation:
      1. Add paragraph to read as follows: "Install water chiller in strict accordance with manufacturer's installation instructions and recommendations."

2. Refer to Specification Section 262416 "Panelboards" (Issued)

   A. Added Specification.

3. Refer to Sheet ME3.2 (Issued)

   A. Added Raceway Application Schedule

4. Refer to Drawing ME7.1 (Not Issued)

   A. Add to MECHANICAL EQUIPMENT INSULATION APPLICATION SCHEDULE the requirement to insulate chiller engine exhaust piping and silencer with 3" thickness mineral wool insulation.

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5. Refer to Drawings 002, 003, and 004 (Issued)

A. Added notes.

6. Bidders Questions and ***Responses*** are as follows:

1.) Can you please provide a spec for the Power Panel and Transformer? ***Refer to Addendum 6. Transformer to match existing.***

2.) According to Addendum #5 Pre-Bid Meeting Notes, all salvaged equipment will need to be delivered to 1***2***00 Holden. Do the contractors need to figure off-loading of the salvaged equipment at this storage location or will the University have equipment with the capacity to unload the equipment off of the truck? ***Carefully disconnect, cap equipment open ended connections, remove from building, transport to 1200 Holden, and move into building to location designated by Owner.***

3.) Do we need to include any additional crane or shipping costs to retrieve the new cooling tower and chiller from 1***2***00 Holden? ***No – chiller and tower to be delivered to the site. Crane/rigging unload and move equipment to required location is to be included.***

4.) Will the Cooling Tower and Chiller ship directly to the jobsite for off-loading? ***Yes***

5.) How much and what type of refrigerant is in the existing chiller? Does this refrigerant need to be turned over to the owner? Will the contractor need to furnish the refrigerant containers? ***Contractor to verify quantity. Yes - deliver to 1200 Holden, provide required containers.***

6.) According to the original notes on the drawings and the bid form, Alternate No. 1 for the Chiller removal only indicated removal and demolition – there was no reference to salvaging this chiller. According to Addendum #5 Pre-Bid Meeting Notes, the Chiller and associated pumps will now need to be salvaged and turned over to the owner. It was our initial intent to dismantle the unit in the existing room and take it out through the building in smaller pieces. With this requirement to salvage this chiller we have the following questions:

a. Will this chiller fit through all door opening to get to the outside? ***Refer to DEMOLITION NOTE 8 on Drawing ME2.2.***

b. Is there an acceptable path to remove this chiller? Can a routing plan be provided? ***Path was discussed at mandatory pre-bid walk through. Refer to DEMOLITION NOTE 8 on Drawing ME2.2.***

c. Does the removal route for this chiller require moving it over any existing raised computer flooring? ***Refer to Specification Section 200500-1.9 INSPECTION OF SITE.***

d. Regarding temporary floor protection, what types of flooring will the chiller to be rolled over? ***Refer to Specification Section 200500-1.9 INSPECTION OF SITE. Provide all floor protection required.***

e. Can you confirm that you want to salvage this equipment as this will add significant costs for this Alternate #1 versus just scrapping the chiller? ***Existing chiller is to be removed from building and turned over to Owner as a part of Alternate 1.***

f. Due to the short notice of the second walk thru and the fact that the Pre-Bid Meeting Minutes making this change were not available at the time of the second walk thru, can a third site visit be scheduled which should answer most of the above questions? ***A third walk-through will not be scheduled.***

7.) As long as the new chiller and associated systems are up and operating by June 15, 2013, will it be allowed to complete other "non-critical" work (including painting, insulation, demolition and salvage work) after June 15 without incurring any liquidated damages? ***Chilled must be functional by June 15th. Painting, etc., can be completed immediately afterwards.***

8.) SPEC SECTION 25033-3.1 says to refer to raceway application matrix included on the drawings for conduits usage types. This matrix is not shown on the drawings. Can a raceway matrix be furnished for this project? ***Refer to Addendum 6.***

9.) Will all control wiring need to be run in conduit? ***Refer to Specification Section 230933-2.8.***

10.)The Chiller, Generator, generator radiator and all associated equipment (pumps, etc.) that are to be disconnected and removed will be turned over to the University and delivered to 1200 Holden for storage and future use. ***See response to question No. 2.***

11.) What is the contractor's extent of responsibility for the Chiller, Generator and Generator Radiator removal for turn over? Will the contractor be responsible for the equipment exiting the building? Loading the equipment for Delivery? And or Delivering the equipment to 1200 Holden for storage and future use? ***Carefully disconnect, cap equipment open ended connections, remove from building, transport to 1200 Holden, move into building to location designated by Owner.***

12.) Addendum #5 included an Asbestos report. Please confirm that all asbestos removal will be performed by others directly with the University and the area of work will be asbestos free before the start of our work to avoid schedule issues that may affect the June 15th completion date? ***Asbestos abatement is to be covered by the successful Contractor of this chiller replacement project.***

13.) Based on the Asbestos report issued with Addendum #5, will the University require all contractor employees to receive Asbestos Awareness Training for this project? ***Asbestos removal responsibility is by the successful contractor. Means and methods is the responsibility of the contractor.***

14.) Who will supply the VFC and VSD? ***The successful Contractor.***

15.) Who will supply the replacement exhaust fan, FAU-1? ***The successful Contractor.***

16.) The breakable glass switches will these switches be supply with the chiller or are they separate items? ***These switches are not supplied with the chiller.***

17.) Can the Square D transformer for Alternate #4 be substitute with an equivalent transformer? ***No.***

18.) Note #7 on plan M6.3 requires a "Pre-Demolition" Balance Report for the existing chilled water system and to clean all strainers. Plan M6.3 only shows three (3) CHW terminal devices. Can the number of CHW terminal devices and Strainers be confirmed? Can it also be confirmed that there are Pressure/Temperature taps available at all CHW terminal devices? ***M6.3 shows all devices. Flow data is only required for the existing chilled water pump, not terminal devices.***

SECTION 26 2416 - PANELBOARDS

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 the following:

1. Distribution panelboards.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. RFI: Radio-frequency interference.

D. RMS: Root mean square.

E. SPDT: Single pole, double throw.

1.4 SUBMITTALS

A. Product Data: For each type of panelboard, overcurrent protective device, surge protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Related Submittals:

1. Provide overcurrent device coordination study to demonstrate proper overcurrent device ratings, adjustments, and settings.

C. Shop Drawings: For each panelboard and related equipment.

1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:

a. Enclosure types and details for types other than NEMA 250, Type 1.
b. Bus configuration, current, and voltage ratings.
c. Short-circuit current rating of panelboards and overcurrent protective devices.
d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

2. Wiring Diagrams: Power, signal, and control wiring.

D. Field quality-control test reports including the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

E. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

F. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1, include the following:

1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories through one source from a single manufacturer.

C. Product Options: Drawings indicate size, profiles, and dimensional requirements of panelboards and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

D. 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.

E. Comply with NEMA PB 1.

F. Comply with NFPA 70.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:

1. Ambient Temperature: Not exceeding 104 deg F.
2. Altitude: Not exceeding 6600 feet.

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet.

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Owner no fewer than seven days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.

1.7 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, and encumbrances to workspace clearance requirements.

B. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

1.8 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. Keys: Six spares for each type of panelboard cabinet lock.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:

a. Eaton Corporation; Cutler-Hammer Products.
b. General Electric Co.; Electrical Distribution & Protection Div.
c. Siemens Industries, Inc.
d. Square D.

2.2 MANUFACTURED UNITS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Mounting as noted on panel schedules. NEMA PB 1, Type 1.

1. Cabinet Front: Flush or surface cabinet as noted on the Drawings.

a. Siemens/Eaton – Figure 4 hinge to box w/piano hinge.
b. GE – FGB (front hinge to box).
c. Square D – Continuous piano hinge trim.

2. Finish: Manufacturer's standard enamel finish over corrosion-resistant treatment or primer coat.
3. Directory Card: With transparent protective cover, mounted in metal frame, inside panelboard door.

C. Phase and Ground Buses:

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors; bonded to box.
3. Isolated Equipment Ground Bus: Adequate for branch-circuit equipment ground conductors; insulated from box as called out on panel schedules.

D. Conductor Connectors: Suitable for use with conductor material.

1. Main and Neutral Lugs: Mechanical type.
2. Ground Lugs and Bus Configured Terminators: Compression type.

E. Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

2.3 PANELBOARD SHORT-CIRCUIT RATING

A. Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.4 DISTRIBUTION PANELBOARDS

A. Main bus bars, neutral and ground, shall be copper and sized in accordance with U.L. Standards to limit temperature rise on any current carrying part to the maximums as indicated in UL67.

B. Doors: Secured with vault-type latch with tumbler lock; keyed alike. Omit for fused-switch panelboards.

C. Main Overcurrent Protective Devices: Circuit breaker.

D. Branch Overcurrent Protective Devices:

1. For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
2. For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.
3. Fused switches.

2.5 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: NEMA AB 3, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits.

a. Circuit Breakers 250A and Larger: Magnetic trip element with front-mounted, field-adjustable trip setting with restricted access cover.

B. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.

1. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
2. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HACR for heating, air-conditioning, and refrigerating equipment.
3. Do not use tandem circuit breakers.

2.6 ACCESSORY COMPONENTS AND FEATURES

A. Furnish accessory set including tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Comply with mounting and anchoring requirements specified in Division 26 Section “Hangers and Supports for Electrical Systems.”

C. Mount top of trim 74 inches above finished floor, unless otherwise indicated.

D. Mount plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish.

E. Install overcurrent protective devices and controllers.

1. Set field-adjustable switches and circuit-breaker trip ranges.

F. Install filler plates in unused spaces.

G. Stub four 1-inch empty conduits from recessed panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.

H. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 26 Section "Electrical Identification."

B. Create a directory to indicate installed circuit loads after balancing panelboard loads or created by retrofitting. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable. Coordinate final directory room names and numbers with Owner**.**

C. Panelboard Nameplates: Label each panelboard with engraved metal or laminated-plastic nameplate mounted with corrosion-resistant screws.

3.3 CONNECTIONS

A. Ground equipment according to Division 26 Section "Grounding and Bonding."

B. Connect wiring according to Division 26 Section "Conductors and Cables."

3.4 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

B. Testing: Perform the following field quality control tests in accordance with Division 26 section “Electrical Testing”

1. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters. Perform electrical tests on all breakers and switches 200A and above or that constitute a component of an emergency distribution system. Main circuit breakers in branch circuit panelboards 225A and below are not required to be tested.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.5 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

END OF SECTION 26 2416