ADDENDUM NO. 2

PROJECT NAME: Lied Center HVAC Improvements

UNL PROJECT NUMBER: C131P037

DATE OF ISSUANCE: July 11, 2012

DATE OF BID OPENING: July 18, 2012

The bid documents dated June 15, 2012 for the above referenced project are amended by this addendum.

NOTICE: This Addendum is issued to all interested prospective bidders as an amendment to the project manual or other parts of the bidding (contract) documents for the above named project. Reference to this Addendum must be included in the Bid proposal. The information contained herein shall be fully incorporated into the contract documents as though originally included therein.

Changes to the Project Manual

1. SECTION 23 05 00 HVAC MATERIALS AND METHODS: Reference to manufacturers prior approval:
   A. Thermometers as manufactured by Trerice
   B. Pressure Gages as manufactured by Trerice

2. SECTION 23 21 13 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.4.
   A. Add item 4.e Pro Hydronic Specialties

3. SECTION 23 21 13 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.
   A. Add item 6.f. Patterson

4. SECTION 23 21 13 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.
   A. Add item 7.e. Patterson

5. SECTION 23 21 13 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.
   A. Add item 11.e. General Treatment Products

6. SECTION 23 25 00 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.
   A. Add item 2.e General Treatment Products.

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7. SECTION 23 25 00 HYDRONIC PIPING AND SPECIALTIES: Reference to Part 2 Paragraph 2.1.A.
    A. Add item 3.c. General Treatment Products

8. SECTION 23 30 00 AIR DISTRIBUTION: Reference to Paragraph 2.1 and 2.2, Delete Paragraph 2.1ACCEPTABLE MANUFACTURERS and 2.2 AIR FILTER AND GAGES in its entirety.

9. SECTION 23 41 00 AIR FILTERS: Reference to the entire specification section attached, add the Specification Section 23 41 00 AIR FILTER.

10. SECTION 23 82 00 HVAC EQUIPMENT: Reference to Part 2 Paragraph 2.2.E.
    A. Add item 7. Thrush

Changes to the Project Drawings

11. SHEET M5-1 MECHANICAL SCHEDULES: Reference to COORDINATION RESPONSIBILITIES MATRIX: The following items shall be changed from "Furnish by MC and Set by MC" to "Furnish by UNL BSM and Set by MC":
    A. Automatic Flow Control Devices
    B. Air Handling Units Return Air Automatic Control Dampers
    C. Air Handling Units Relief Air Automatic Control Dampers
    D. Air Handling Units Outside Air Automatic Control Dampers
    E. Exhaust Fan Automatic Control Dampers

12. SHEET M5-1 MECHANICAL SCHEDULES: Reference to COORDINATION RESPONSIBILITIES MATRIX: Add a Schedule Note to read as follows: "The Mechanical Contractor shall verify the actual size of all Automatic Control Dampers to be replaced and forward that information to UNL BSM for ordering dampers."

END OF ADDENDUM NO. 2

SECTION 23 41 00

AIR FILTERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes factory-fabricated air-filter devices and media used to remove particulate matter from air for HVAC applications.

1.3 DEFINITIONS

A. DOP: Dioctyl phthalate or bis-(2-ethylhexyl) phthalate.

B. HEPA: High-efficiency particulate air.

C. ULPA: Ultra low penetration air.

1.4 SUBMITTALS

A. Product Data: Include dimensions; operating characteristics; required clearances and access; rated flow capacity, including initial and final pressure drop at rated airflow; efficiency and test method; fire classification; furnished specialties; and accessories for each model indicated.

B. Shop Drawings: Include plans, elevations, sections, and details to illustrate component assemblies and attachments.

1. Show filter rack assembly, dimensions, materials, and methods of assembly of components.

2. Include setting drawings, templates, and requirements for installing anchor bolts and anchorages.

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

C. Operation and Maintenance Data: For each type of filter and rack to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Product Options: Drawings indicate size, profiles, and dimensional requirements of air filters and are based on the specific system indicated.

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. Comply with ARI 850.

D. Comply with ASHRAE 52.1 and ASHRAE 52.2 for method of testing and rating air-filter units.

E. Comply with NFPA 70 for installing electrical components.

F. Comply with NFPA 90A and NFPA 90B.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. Air Filters, and Filter-Holding Systems:

a. AAF International.
b. Camfil Farr Co.
c. Continental Air Filter.
d. Eco-Air Products, Inc.

2. Filter Gages:

a. Camfil Farr.
b. Dwyer Instruments, Inc.

2.2 CLASS 2 30/30 FILTERS

A. Air Filters - Air filters shall be 4-inch Farr 30/30, medium efficiency, no less that MERV 8, pleated, disposable type. Each filter shall consist of a non-woven cotton and synthetic fabric media, media support grid and enclosing frame. The filter shall be listed by Underwriters' Laboratories as Class 2.

B. Filter Media - Filter media shall be of the non-woven cotton fabric type. The filter media shall have an efficiency of 30% on ASHRAE Test Standard 52-76 (no less than MERV 8). It shall have an average arrestance of 90-92% in accordance with that test standard. The effective filter media shall be not less than 4.6 square feet of media per 1.0 square foot of filter face area and shall contain not less than 15 pleats per linear foot. Initial resistance at 500 FPM approach velocity shall not exceed .28-inch w.g.

C. Media Support Grid - The media support shall be a welded wire grid with an effective open area of not less than 96%. The welded wire grid shall be bonded to the filter media to eliminate the possibility of media oscillation and media pull away. The media support grid shall be formed in such a manner that if effects a radial pleat design, allowing total use of filter media.

D. Enclosing Frame - The enclosing frame shall be constructed of a rigid, heavy-duty, high wet-strength beverage board, with diagonal support members bonded to the air entering and air exit side of each pleats, to ensure pleat stability. The inside periphery of the enclosing frame shall be bonded to the filter pack, thus, eliminating the possibility of air bypass.

E. Holding Frame - Holding frames shall be Farr Type 8, factory fabricated of 16-gage galvanized-steel and shall be equipped with gaskets and four (4) spring type positive sealing fasteners. Fasteners shall be capable of being attached or removed without the use of tools.

2.3 HIGH-EFFICIENCY FILTERS

A. Description: Factory-fabricated 95% efficient ASHRAE pleat-in-pleat V-bank disposable type filters with holding casing.

B. Media: UL 586, fibrous glass, constructed of continuous sheets with closely spaced pleats with aluminum separators.The filter shall have a Minimum Efficiency Reporting Value of MERV 14, ASHRAE Standard 52.2-1999. Initial airflow resistance not to exceed 0.30" w.g. @ 500fpm.Filter shall meet Underwriters Laboratories UL 900 – Class 2.

C. Frame Material: Galvanized steel.

D. Media to Frame Side Bond: Polyurethane foam.

E. Face Gasket: Neoprene expanded rubber.

F. Holding Frame - Holding frames shall be Farr Type 8, factory fabricated of 16-gage galvanized-steel and shall be equipped with gaskets and four (4) spring type positive sealing fasteners. Fasteners shall be capable of being attached or removed without the use of tools. The holding frames shall form a built-up filter banks. The frame structural supports shall be bolted together with sealant between the sections and assembled per manufacturers drawings.

2.4 FILTER GAGES

A. Description: Diaphragm type with dial and pointer in metal case, vent valves, black figures on white background, and front recalibration adjustment.

1. Diameter: 4-1/2-inches (115mm).
2. Range: 0- to 4.0-inch wg (0 to 1000 Pa).

B. Accessories: Static-pressure tips, tubing, gage connections, and mounting bracket.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install filter frames according to manufacturer's written instructions.

B. Position each filter unit with clearance for normal service and maintenance. Anchor filter holding frames to substrate.

C. Install filters in position to prevent passage of unfiltered air.

D. Install filter gage for each filter bank

E. Install filter gage static-pressure tips upstream and downstream from filters to measure pressure drop through filter. Mount filter gages on outside of filter housing or filter plenum in an accessible position.

F. Coordinate filter installations with duct and air-handling unit installations.

3.2 FIELD QUALITY CONTROL

A. High Efficiency Filters: Pressurize housing to a minimum of 3.0-inch wg (750 Pa) or to designed operating pressure, whichever is higher; and test housing joints, door seals, and sealing edges of filter for air leaks according to ASME N510 pressure-decay method.

3.3 CLEANING

A. After completing system installation and testing, adjusting, and balancing air-handling and air-distribution systems, clean filter housings and install new filter media.

END OF SECTION

SPECIFICATIONS
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