

Date: November 1, 2016

**ADDENDUM NO. 1
to the
Iowa Department of Transportation
Proposal No. 17711
For Furnace and A/C unit repair for the Ames DOT district one maintenance facility
Letting Date: 11/04/2016**

Notice To Bidders:

This Addendum is issued to incorporate the following additions, deletions, corrections, and/or clarifications to the terms or specifications and shall hereby be considered a part of the final contract documents. This Addendum shall supersede, modify and/or change all statements to the contrary in the bid proposal and shall take precedence over previous terms or specifications.

Add: The following specification is being added to this proposal see attachment.

Change: We are extending the letting date of this proposal to 11/8/2016 at 1:00p.m. the contract period will be changed to November 16-January 6, 2017

All Bidders must sign and return this Addendum for the bid opportunity referenced above. Failure to do so may subject the Bidder to disqualification. If a bid response has already been submitted, this Addendum shall be signed and emailed or faxed to the Purchasing Section prior to the scheduled Letting Date.

Company Name (*please print*)

Date

Signature
Sincerely,

Jody McNaughton, Purchasing Agent (title)
Phone No. 515-239-1298 Fax No. 515-239-1538
Jody.mcnaughton@dot.iowa.gov

SECTION 23 8127

SMALL SPLIT-SYSTEM HEATING AND COOLING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Forced air furnaces.
- B. Air cooled condensing units.
- C. Humidifiers.
- D. Electronic air cleaners.
- E. Controls.

1.2 RELATED REQUIREMENTS

- A. Section 22 1005 - Plumbing Piping: Natural gas piping.
- B. Section 23 0913 - Instrumentation and Control Devices for HVAC: Thermostats, humidistats, time clocks.
- C. Section 26 2717 - Equipment Wiring: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.

1.3 REFERENCE STANDARDS

- A. AHRI 210/240 - Standard for Performance Rating of Unitary Air Conditioning and Air-Source Heat Pump Equipment; Air-Conditioning, Heating, and Refrigeration Institute; 2008.
- B. AHRI 520 - Performance Rating of Positive Displacement Condensing Units; Air-Conditioning, Heating, and Refrigeration Institute; 2004.
- C. AHRI 610 - Performance Rating of Central System Humidifiers for Residential Applications; Air Conditioning, Heating, and Refrigeration Institute; 2004.
- D. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 2010 (ANSI/ASHRAE Std 15).
- E. ASHRAE Std 23 - Methods of Testing for Rating Positive Displacement Refrigerant Compressors and Condensing Units; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 2005.
- F. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 2007, including All Addenda (ANSI/ASHRAE/IESNA Std 90.1).
- G. NFPA 54 - National Fuel Gas Code; National Fire Protection Association; 2012.
- H. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; National Fire Protection Association; 2012.
- I. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems; National Fire Protection Association; 2012.
- J. NFPA 211 - Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances; National Fire Protection Association; 2011.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

- B. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
- C. Shop Drawings: Indicate equipment, assembly, required clearances, and location and size of field connections, piping, valves and controls.
- D. Design Data: Indicate refrigerant pipe sizing.
- E. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.
- F. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.
- G. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Iowa Department of Transportation's name and registered with manufacturer.
- H. Maintenance Materials: Furnish the following for Iowa Department of Transportation's use in maintenance of project.
 - 1. Extra Filters: One for each unit.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years of experience and approved by manufacturer.

1.6 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide three year manufacturer's warranty for solid state ignition modules.
- C. Provide five year manufacturer's warranty for condensing units and compressors.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Carrier Corporation: www.carrier.com.
- B. Trane Inc: www.trane.com.
- C. York International Corporation / Johnson Controls: www.york.com.
- D. Lennox. www.lennox.com
- E. Substitutions: See Section 01 6000 - Product Requirements.

2.2 SYSTEM DESIGN

- A. Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
 - 1. Heating: Natural gas fired. *or L.P.*
 - 2. Cooling: Outdoor electric condensing unit with evaporator.
 - 3. Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line.
- B. Performance Requirements:
 - 1. Efficiency: ~~90%~~ *92%*
 - a. Seasonal Energy Efficiency Ratio: 15.7, minimum.
 - 2. Air Handling:
 - a. Air Flow: _____ cfm.

- b. External Static Pressure Resistance: 0.1 inch wg.
- 3. Heating Performance Requirements:
 - a. Heating Output: _____ Btuh.
 - b. Heating Input: _____ Btuh.
 - c. Gas heating capacities are sea level ratings.
- 4. Cooling Performance Requirements:
 - a. Evaporator Cooling Output: _____ Btuh.
 - b. Air Temperature Entering Evaporator:

2.3 OUTDOOR UNITS

- A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
 - 1. Comply with AHRI 210.
 - 2. Refrigerant: R-410A.
 - 3. Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
 - 4. Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23 and UL listed.
- B. Compressor: AHRI 520; hermetic, two speed 1800 and 3600 rpm, resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling and rapid speed changes.
- C. Air Cooled Condenser: ARI 520; Aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan guard.
 - 1. Condenser Fans: Direct-drive propeller type.
 - 2. Condenser Fan Motor: Enclosed, 1-phase type, permanently lubricated.
- D. Coil: Air-cooled, aluminum fins bonded to copper tubes.
- E. Operating Controls:
 - 1. Control by room thermostat to maintain room temperature setting.
- F. Mounting Pad: Pressure preservative treated wood timbers, minimum 4 inches square; minimum of two located under cabinet feet.

2.4 GAS FURNACE COMPONENTS

- A. Heat Exchanger: Aluminized steel clamshell type welded construction.
- B. Coating: Polypropylene.
- C. Insulation: Foil-faced.
- D. Burner: Atmospheric type with adjustable combustion air supply,
 - 1. Gas valve provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.
 - 2. Electronic pilot ignition, with electric spark igniter.
 - 3. Combustion air damper with synchronous spring return damper motor.
 - 4. Non-corrosive combustion air blower with permanently lubricated motor.
- E. Burner Safety Controls:
 - 1. Thermocouple Sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.
 - 2. Flame Rollout Switch: Installed on burner box and prevents operation.

3. Vent Safety Shutoff Sensor: Temperature sensor installed on draft hood and prevents operation, manual reset.
 4. Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.
- F. Operating Controls:
1. Cycle burner by room thermostat to maintain room temperature setting.
 2. Supply fan energized from bonnet temperature independent of burner controls, with adjustable timed off delay and fixed timed on delay, with manual switch for continuous fan operation.

2.5 ACCESSORY EQUIPMENT

- A. Humidifiers: ARI 610; wetted plate, pan type with float controlled water supply, thermoplastic water pan for mounting on furnace return air plenum.
1. Duct Connection: 6 inches diameter flexible duct, starting collar and damper.
 2. Accessories: Permanently lubricated synchronous low voltage motor, transformer and wiring harness, and replaceable evaporator media.
 3. Water Supply Tubing: Copper or plastic; include saddle valve.
- B. Air Cleaners: Electronic; enamelled steel assembly containing pre-filters, collecting cells, pre-wired power pack unit with on-off switch, test button, and integral air pressure switch.
- C. Room Humidistat: Electric, adjustable, to energize humidifier when fan operating, to maintain setting.
- D. Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features:
1. System selector switch (heat-off-cool) and fan control switch (auto-on).
 2. Automatic switching from heating to cooling.
 3. Preferential rate control to minimize overshoot and deviation from setpoint.
 4. Programming based on weekdays, Saturday and Sunday.
 5. Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto.
 6. Battery replacement without program loss.
 7. Thermostat display:
 - a. Time of day.
 - b. Actual room temperature.
 - c. Programmed temperature.
 - d. System mode indication: heating, cooling, fan auto, off, and on, auto or on, off.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that substrates are ready for installation of units and openings are as indicated on shop drawings.
- B. Verify that proper power supply is available and in correct location.
- C. Verify that proper fuel supply is available for connection.
- D. Verify that water supply is available for humidifier.

3.2 INSTALLATION

- A. Install in accordance with NFPA 90A and NFPA 90B.
- B. Install gas fired furnaces in accordance with NFPA 54.

- C. Provide vent connections in accordance with NFPA 211.
- D. Install refrigeration systems in accordance with ASHRAE Std 15.
- E. Install humidifiers in accordance with AHRI 610.
- F. Pipe drain from humidifiers to nearest floor drain.

3.3 SCHEDULE

- A. Split-System No. 1:
 - 1. Drawing Code: F-1
 - 2. Manufacturer: Lennox
 - 3. Furnace Model: G61MP
 - 4. Heating Output: 122,000 BTUH
 - 5. Heating Input: 132,000 BTUH
 - 6. AFUE: 94.6%
 - 7. Airflow Capacity: 2000 CFM
 - 8. External Static Pressure: 0.50
 - 9. Fan Rpm: 825
 - 10. Motor Size: 1/2 HP
 - 11. Condenser Model: XC16 060
 - 12. Cooling Input: 59,000 BTUH

END OF SECTION