DEDC LLC
ENGINEERING | DESIGN | CONSULTING

Delaware
315 S. Chapel Street
Newark, DE 19711
Phone
302.738.7172
Fax
302.738.7175

Pennsylvania
Duane Morris Plaza
30 S. 17th Street
Suite 830
Philadelphia, PA 19103
Phone
267.804.7286

www.dedc-eng.com

PRE-BID MEETING SUMMARY
STATE OF DELAWARE – DEALAWARE ARMY NATIONAL GUARD (DEARNG)
BUILDING 136 HVAC REPLACEMENT – PHASE 4
DEARNG CONTRACT # 2019-02
ADDENDUM #3

GENERAL STATEMENTS:

1. The bid due date has been moved from April 12, 2019 to April 19, 2019.

2. The basis of design for the HVAC split systems has been changed from Lennox to Rheem.

    a. Revisions to drawings M-100, M-101, M-201, & M-400 reflect this change and are attached.

    b. Revisions to specification section 23 81 27 reflect this change and is attached. Revisions include changes to subsections 1.04, 2.01, 2.02, 2.03, 2.04, 2.05.

Summarized By: DEDC, LLC
Ryan Malin
Date: April 5, 2019

SECTION 23 81 27

SMALL SPLIT-SYSTEM HEATING AND COOLING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Forced air furnaces.

B. Air cooled condensing units.

C. Indoor air handler (fan & coil) units for duct connection.

D. Accessory Equipment.

1.02 RELATED REQUIREMENTS

A. Section 23 31 00 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS

A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008.

B. AHRI 520 - Performance Rating of Positive Displacement Condensing Units; 2004.

C. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.

D. ASHRAE Std 23.1 - Methods of Testing for Rating Positive Displacement Refrigerant Compressors and Condensing Units; 2010.

E. NFPA 54 - National Fuel Gas Code; 2015.

F. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

G. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2015.

H. NFPA 211 - Guide for Smoke and Heat Venting; 2013, Including All Amendments.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.

C. Design Data: Indicate refrigerant pipe sizing.

D. Manufacturer's Instructions: Indicate rigging, assembly, and installation instructions.

E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

F. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Delaware Army National Guard (DEARNG) s name and registered with manufacturer.

1.05 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 5 years of experience and approved by manufacturer. The equipment installed for this project rated at 17 SEER requires a certified Rheem technician for installation.

C. Provide manufacturer's start up for proof of operational system, and provide findings to engineer.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Provide five year manufacturers warranty for compressors.

PART 2 PRODUCTS

2.01 SYSTEM DESIGN

A. Split-System Heating and Cooling Units: Self-contained, packaged, matched factory and assembled, pre-wired indoor and outdoor units; UL listed. The intent is to have matching manufacturer indoor and outdoor units. No mix manufacturer systems.
   1. Heating: Propane gas fired.
   2. Cooling: Outdoor electric condensing unit with evaporator coil in central ducted indoor unit.
   3. Dehumidification: 2-stage cooling dehumidification capabilities.
   4. Provide refrigerant lines internal to units, factory cleaned, dried, pressurized and sealed.

2.02 INDOOR UNITS FOR DUCTED SYSTEMS

A. Manufacturers:
   1. Rheem: www.rheem.com - Basis of Design with 2-stage cooling dehumidification capabilities.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

B. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, heating and cooling element(s), controls, and accessories; wired for single power connection with control transformer, 2-stage heating control.
   1. Air Flow Configuration: upflow or horizontal flow.
   2. Cabinet: Steel with baked enamel finish, removable access doors with safety interlock switches, foil faced insulation, and sealed blower compartment.

C. Supply Fan: Centrifugal type rubber mounted with direct drive motor.
   1. Motor: 1750 rpm single speed, permanently lubricated.

D. Air Filters: 1 inch thick glass fiber, disposable. Provide air filter and rack kit.

E. Evaporator Coils: Copper tube aluminum fin assembly, galvanized drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve. Twin coil construction in "A" configuration.
   1. Construction and Ratings: In accordance with AHRI 210/240 and UL listed.
   2. Cabinet: Steel with baked enamel finish, insulated, and flanged connections.

F. Dehumidification:
   1. Fan Speed Control: Split System shall utilize integral supply air fan speed control to reduce fan speed and provide longer cooling runtime, and colder air in order to provide dehumidificaiton.

G. Accessories:
   1. Provide Seacoast Protection

2.03 OUTDOOR UNITS

A. Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
   1. Refrigerant: R-410A.
   2. Cabinet: Steel with powder coat paint finish and louvered panels surrounding the unit.
   3. Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23 and UL listed.
   4. Vendor provided seacoast protection for coastal environment.

B. Compressor: Scroll, 2-stage, AHRI 520 mounted integral with condenser, with lubrication, crankcase heater, high pressure control, motor overload protection, and service valves and drier.

C. Air Cooled Condenser: ARI 520; Aluminum fin and copper tube coil, with direct drive fan, and galvanized fan guard.

D. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gage ports, thermometer well (in liquid line).
   1. Provide thermostatic expansion valves.

E. Operating Controls:
   1. Low Ambient Kit: Provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 285 psig and off when pressure drops below 140 psig for operation to 0 degrees F.

F. Accessories:
   1. Seacoast Protection of coils
   2. Disconnect Switch

G. Dehumidification:
   1. Fan Speed Control: Split System shall utilize integral supply air fan speed control to reduce fan speed and provide longer cooling runtime, and colder air in order to provide dehumidification.

2.04 GAS FURNACE COMPONENTS

A. Manufacturers:
   1. Rheem: www.rheem.com - Basis of Design with 2-stage cooling dehumidification capabilities.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

B. Heat Exchanger: Aluminized steel with secondary condenser coil assembly. Secondary condenser coil constructed of stainless steel tubes with aluminum fins.
   1. Provide condensate drain trap with unit for field installation.
   2. Provide flue condensate trap assembly with street elbow.

C. 96% Efficiency

D. Burner: Atmospheric type with adjustable combustion air supply constucted of aluminized steel.
   1. Gas valve, two stage 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 silicon nitride igniter.
   3. Two-Speed non-corrosive combustion air blower with permanently lubricated motor.

E. Burner Safety Controls:
   1. Flame Rollout Switch: Installed on burner box and prevents operation.
   2. Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.

F. Operating Controls:
   1. 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.

G. Accessories: Concentric Vent Kit and disconnect swtich.

2.05 ACCESSORY EQUIPMENT

A. Ducted Split System Room Thermostat/humidistat: Thermostat providced by unit manufacturer make/model Rheem EcoNet RETST700SYS (basis of design) touch screen with vandal proof cover. Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features:
   1. Automatic switching from heating to cooling.
   2. Programming based on every day of the week.
   3. Electric, adjustable humidistat, to energize dehumidification sequence to maintain setting.
   4. Provide outdoor air temperature sensor and humidity sensor installed and wired in field.

PART 3 EXECUTION

3.01 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.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.

B. Install in accordance with NFPA 90A and NFPA 90B.

C. Install gas fired furnaces in accordance with NFPA 54.

D. Provide vent connections in accordance with NFPA 211.

E. Install refrigeration systems in accordance with ASHRAE Std 15.

END OF SECTION