

### ADDENDUM NO. 2

Date: February 12, 2020

Project: IA DAS – Eldora STS

Decentralization Building Package

DAS RFB #898201-01 DAS Project 8982.01

#### QUESTIONS AND ANSWERS FROM THE PRE-BID MEETING:

- Q1. In reference to detail 1A/08-A1.01 We may run into issues (blowouts) with this many anchors into the brick, would epoxy be a better option.
- A1. Yes, epoxy anchors may be substituted for the screw anchors. Submit exact product data for approval.
- Q2. Are we expected to work off working hours?
- A2. No, please reference 01 1200 paragraph 1.05A, regarding work hour restrictions.
- Q3. Do we have to work around the kids' schedules if so, what does that entail?
- A3. Since this is an open campus the presence of students/patrons will always pertain throughout the project duration, student access is restricted to the majority work areas for this project. During construction period of cottages, the students will be relocated to vacant cottage for the duration.
- Q4. Is there an estimate for the individual bid package costs?
- A4. There is no estimate in regards to estimated costs for each bid package, the total estimated cost for the project is \$6.25 million.

# **SPECIFICATIONS ITEMS:**

- 1. 22 3100 Domestic Water Softeners
  - **a. DELETE** "..and stamped.." from paragraph 1.2.B. Tanks are not required to be ASME stamped.
- 2. 23 2214 Steam and Condensate Heating Specialties
  - a. REVISE paragraph 2.2.C. The condensate receiver shall be "Cast iron or 3/16" thick welded steel..."
- 3. 23 6213 Packaged Air-Cooled Refrigerant Compressor and Condenser Units
  - a. ADD specification to project.

# **DRAWING ITEMS:**

- 1. DRAWINGS
  - a. SHEET 02-P6.00 COTTAGE 3 & 4 PLUMBING SCHEDULES & DETAILS

i. REMOVE - Detail A4 - CAST IRON FLOOR SINK - UL RATED

## b. SHEET - 02-M1.01 - COTTAGE 3 & 4 MECHANICAL PLANS GROUND FLOOR

- i. REVISE KEYNOTE M-02-17, ADD "WALL PENETRATION HEIGHT APPROXIMATELY 8 FEET ABOVE MECHANICAL ROOM FLOOR" to end of keynote.
- ii. REVISE KEYNOTE M-02-18, ADD "WALL PENETRATION HEIGHT APPROXIMATELY 8 FEET ABOVE MECHANICAL ROOM FLOOR" to end of keynote.

#### c. SHEET - 02-M5.00 - COTTAGES 3 & 4 MECHANICAL DETAILS & CONTROLS

i. **REVISE** RTU INTEGRATION SCHEMATIC – delete references to VFD speed and fault on the exhaust fan. The exhaust fan is constant speed on/off. Provide status and start/stop integration only.

#### d. SHEET 02-M6.00 - COTTAGE 3 & 4 MECHANICAL SCHEDULES

- REVISE Design Basis on "AIR COOLED CONDENSING UNITS" from XC20 to XC16S and SEER to "14.5".
- **ii. REVISE** Design Basis on "FURNACE GAS SCHEDULE" from EL296UH070XV36B to EL296UH070XE36B.
- iii. ADD On "FURNACE GAS SCHEDULE" column for "MODEL" under "COOLING COIL DATA". Model on GF3-1 shall say "CX35-30/36B"
- iv. REVISE Exhaust Fan CFM on "PACKAGED ROOFTOP UNIT SCHEDULE" from "1600" to "1475" on RTU3-1 and RTU4-1.

# e. SHEET - 03-P6.00 - COTTAGE 5 & RECEIVING PLUMBING SCHEDULES & DETAILS

- i. REMOVE Detail A4 CAST IRON FLOOR SINK UL RATED
- f. SHEET 03-M1.01 COTTAGE 5 & RECEIVING MECHANICAL PLANS GROUND FLOOR
  - i. ADD KEYNOTE M-03-15, "WATER HEATER COMBUSTION AIR AND VENT TERMINATIONS APPROXIMATELY 8 FEET ABOVE MECHANICAL ROOM FLOOR" to water heater combustion and vent wall penetrations.

## g. SHEET - 03-M5.01 - COTTAGES 5 & RECEIVING MECHANICAL CONTROLS

i. REVISE RTU INTEGRATION SCHEMATIC – delete references to VFD speed and fault on the exhaust fan. The exhaust fan is constant speed on/off. Provide status and start/stop integration only.

## h. SHEET - 03-M6.00 - COTTAGE 5 & RECEIVING MECHANICAL SCHEDULES

 REVISE - Design Basis on "AIR COOLED CONDENSING UNITS" from XC20 to XC16S.

Page 2 of 6

- ii. REVISE SEER on ACCU5-1 and 6-1 to "15"
- iii. REVISE SEER on ACCU5-2 to "15.5"
- iv. REVISE Design Basis for GF5-1 and GF6-1 on "FURNACE GAS SCHEDULE" from EL296UH070XV36B to EL296UH070XE36B.
- v. **REVISE** Design Basis for GF5-2 on "FURNACE GAS SCHEDULE" from EL296UH090XV36B to EL296UH090XE36B.
- vi. REVISE Cooling Coil Model for GF5-1 and GF6-1 on "FURNACE GAS SCHEDULE" from CX35-30B to CX35-36B.
- vii. REVISE Cooling Coil Model for GF5-2 on "FURNACE GAS SCHEDULE" from CX35-48C to CX35-49C.
- viii. **REVISE** Exhaust Fan CFM on "PACKAGED ROOFTOP UNIT SCHEDULE" from "1600" to "1475" for all units.
- i. SHEET 04-P6.00 COTTAGE 7 & 8 PLUMBING SCHEDULES & DETAILS
  - i. REMOVE Detail A4 CAST IRON FLOOR SINK UL RATED
- i. SHEET 04-M1.01 COTTAGE 7 & 8 MECHANICAL PLANS GROUND FLOOR
  - i. ADD KEYNOTE M-04-13, "WALL PENETRATION FOR WATER HEATER COMBUSTION AIR AND FLUE VENT APPROXIMATELY 8 FEET ABOVE MECHANICAL ROOM FLOOR" to water heater combustion and vent wall penetrations.
- k. SHEET 04-M5.00 COTTAGES 7 & 8 MECHANICAL DETAILS
  - i. REVISE RTU INTEGRATION SCHEMATIC delete references to VFD speed and fault on the exhaust fan. The exhaust fan is constant speed on/off. Provide status and start/stop integration only.
- I. SHEET 04-M6.00 COTTAGE 7 & 8 MECHANICAL SCHEDULES
  - REVISE Design Basis on "AIR COOLED CONDENSING UNITS" from XC20 to XC16S.
  - ii. REVISE SEER on ACCU7-1 and 8-1 to "15"
  - iii. REVISE SEER on ACCU7-2 to "15.5"
  - iv. REVISE Design Basis for GF7-1 and GF8-1 on "FURNACE GAS SCHEDULE" from EL296UH070XV36B to EL296UH070XE36B.
  - v. **REVISE** Design Basis for GF7-2 on "FURNACE GAS SCHEDULE" from EL296UH090XV36B to EL296UH090XE36B.
  - vi. REVISE Cooling Coil Model for GF7-1 and GF8-1 on "FURNACE GAS SCHEDULE" from CX35-30B to CX35-36B.
  - vii. REVISE Cooling Coil Model for GF7-2 on "FURNACE GAS SCHEDULE" from

CX35-48C to CX35-49C.

viii. **REVISE** - Exhaust Fan CFM on "PACKAGED ROOFTOP UNIT SCHEDULE" from "1600" to "1475" for all units.

#### m. SHEET 08-M1.01 ADMINISTRATION BUILDING

i. ADD – KEYNOTE M-08-15 to boiler vent riser "ELEVATION OF BOILER VENTING TERMINATION APPROXIMATELY 25 FEET ABOVE MECHANICAL ROOM FLOOR."

## n. SHEET 08-M6.00 ADMINISTRATION BUILDING MECHNICAL SCHEDULES

- i. REVISE Design Basis on "LOUVER SCHEDULES" from "FSD-402" to "ESD-435".
- ii. REVISE Max Free Area % on "LOUVER SCHEDULES" from "44" to "56".

## o. SHEET - 09-M1.01 A.E. SHEPHERD MECHANICAL PLANS

i. ADD – KEYNOTE M-09-14 to boiler vent riser "COMBUSTION AIR TERMINATION APPROXIMATELY 25 FEET ABOVE MECHANICAL ROOM FLOOR."

# p. SHEET – 11-M1.02 KITCHEN & STORAGE MECHANICAL PLAN FIRST AND SECOND FLOOR

i. ADD – KEYNOTE M-11-04, "COMBUSTION AIR AND VENT TERMINATIONS APPROXIMATELY 8 FEET ABOVE MECHANICAL ROOM FLOOR." to water heater vent and boiler combustion air and vent wall penetrations.

# q. SHEET - 11-M6.00 KITCHEN & SOTRAGE MECHANICAL SCHEDULES

i. REVISE – Design Basis on "UNIT HEATER SCHEDULE – HOT WATER" from "REZNOR" to "TRANE".

#### r. SHEET - 17-M1.01 CORBETT MILLER MECHANICAL PLANS

- i. ADD "TERMINATION APPROXIMATELY 27 FEET ABOVE MECHANICAL ROOM FLOOR" to the end of KEYNOTE M-17-03.
- **ii. ADD** "TERMINATION APPROXIMATELY 27 FEET ABOVE MECHANICAL ROOM FLOOR" to the end of KEYNOTE M-17-10.
- **iii. ADD** "TERMINATION APPROXIMATELY 30 FEET ABOVE MECHANICAL ROOM FLOOR" to the end of KEYNOTE M-17-11.
- iv. ADD "TERMINATION APPROXIMATELY 30 FEET ABOVE MECHANICAL ROOM FLOOR" to the end of KEYNOTE M-17-12.

## s. SHEET - 19-M6.00 VOCATIONAL MECHANICAL SCHEDULES

i. **REVISE** – Design Basis on "FURNACE – GAS SCHEDULE" from EL296UH090XV48C to EL296UH090XE48C.

- **ii. REVISE** Design Basis on "AIR COOLED CONDENSING UNITS" from XC20 to XC16S and SEER to "15.5".
- **iii. REVISE -** Cooling Coil Model to "FURNACE GAS SCHEDULE" from CX35-48C to CX35-49C.
- iv. REVISE Minimum Operating Ambient Temperatures to "AIR COOLED CONDENSING UNIT SCHEDULE" from "0" to "35".

## t. SHEET - 02-E2.01 COTTAGES 3&4 POWER GRUND FLOOR

- REVISE Wire and conduit for ACCU3-1 from 2#10 & 1#10GND, 1"C. to 3#10 & 1#10GND, 1"C
- ii. REVISE C/B for ACCU3-1 from 30 to 25.

## u. SHEET - 02-E2.03 COTTAGES 3&4 POWER SECOND FLOOR AND ROOF

- i. REVISE BREAKER for ACCU3-1 from 30 to 25.
- v. SHEET 03-E2.01 COTTAGES 5 & RECEIVING POWER GRUND FLOOR
  - REVISE Wire and conduit for ACCU5-1 from 2#10 & 1#10GND, 1"C. to 3#10 & 1#10GND, 1"C
  - ii. REVISE C/B for ACCU5-2 from 25 to 30.
  - iii. REVISE Wire and conduit for ACCU6-1 from 2#10 & 1#10GND, 1"C. to 3#10 & 1#10GND, 1"C

## w. SHEET - 03-E2.03 COTTAGES 5 & RECEIVING POWER SECOND FLOOR AND ROOF

- i. REVISE BREAKER for ACCU5-2 from 25A/3P to 30A/2P.
- x. SHEET 04-E2.01 COTTAGES 7 & 8 POWER GRUND FLOOR
  - i. REVISE C/B for ACCU7-2 from 25 to 30.
- y. SHEET 04-E2.03 COTTAGES 7 & 8 POWER SECOND FLOOR AND ROOF
  - i. REVISE BREAKER for ACCU5-2 from 25A/3P to 30A/2P.
- z. SHEET 019-E2.01 VOCATIONAL POWER GROUND FLOOR
  - i. REVISE BREAKER for ACCU-1 from 25A/3P to 25A/2P.

## APPROVED SUBSTITUTIONS

SPECIFICATION SECTION	PRODUCT	APPROVED SUBSTITUTION
22 3000	Domestic Water Heat Exchanger	Lochinvar
23 5100	Breechings, Chimneys & Stacks	Ampco
23 5216	Steel Water Tube Boilers	Lochinvar

23 7414	Semi-Custom Package Rooftop	LG
23 8200	Hydronic Finned Tube	Sigma
23 8200	Hydronic Unit Heaters	Sigma
23 8200	Cabinet Unit Heaters	Sigma
23 8200	Electric Baseboard	Markel
23 8300	Electric Cabinet Heaters	Markel
23 8200	Replacement Heating Coil	York/JCI

# ATTACHMENTS:

- 1. 01-A1-01 SCHOOL FLOOR PLAN BASEMENT
- 2. 08-81-01 ADMINISTRATION BUILDING FLOOR PLANS
- 3. 23 6213 Packaged Air-Cooled Refrigerant Compressor and Condenser Units

END OF ADDENDUM

## **SECTION 23 6213**

# PACKAGED AIR-COOLED REFRIGERANT COMPRESSOR AND CONDENSER UNITS

#### **PART 1 GENERAL**

#### 1.1 SECTION INCLUDES

- A. Condensing unit package.
- B. Charge of refrigerant and oil.
- C. Controls and control connections.
- D. Refrigerant piping connections.
- E. Motor starters.
- F. Electrical power connections.

#### 1.2 RELATED REQUIREMENTS

- A. Section 23 0513 Common Motor Requirements for HVAC Equipment.
- B. Section 23 0548 Vibration and Seismic Controls for HVAC: Placement of vibration isolators.
- C. Section 23 0993 Sequence of Operations for HVAC Controls.
- D. Section 23 2300 Refrigerant Piping.
- E. Section 23 5400 Furnaces.

## 1.3 REFERENCE STANDARDS

- A. AHRI 210/240 Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008, Including All Addenda.
- B. ASHRAE Std 15 Safety Standard for Refrigeration Systems: 2013.
- C. ASHRAE Std 23.1 Methods of Testing for Rating the Performance of Positive Displacement Refrigerant Compressors and Condensing Units that Operate at Subcritical Temperatures of the Refrigerant; 2010.
- D. ASHRAE Std 90.1 I-P Energy Standard for Buildings Except Low-Rise Residential Buildings; 2013, Including All Amendments and Errata.
- E. NEMA 250 Enclosures for Electrical Equipment (1000 Volts Maximum); 2014.

# 1.4 SUBMITTALS

- A. See Section 01 3000 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide rated capacities, weights specialties and accessories, electrical nameplate data, and wiring diagrams. Include equipment served by condensing units in submittal, or submit at same time, to ensure capacities are complementary.
- C. Design Data: Indicate pipe and equipment sizing.
- D. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

IA DAS - Eldora STS
Decentralization Building
Package
Project # 417568-1
DAS Project # 8982.01

- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 01 6000 Product Requirements, for additional provisions.

#### 1.5 QUALITY ASSURANCE

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

## 1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturer's installation instructions for rigging, unloading, and transporting units.

## 1.7 WARRANTY

- A. See Section 01 7800 Closeout Submittals, for additional warranty requirements.
- B. Provide a five year warranty to include coverage for refrigerant compressors.

#### **PART 2 PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Carrier, a part of UTC Building and Industrial Systems, a unit of United Technologies Corp: www.carrier.com/#sle.
- B. Trane, a brand of Ingersoll Rand: www.trane.com/#sle.
- C. York International Corporation/Johnson Controls, Inc: www.york.com/#sle.
- D. Lennox.
- E. Substitutions: See Section 01 6000 Product Requirements.

## 2.2 MANUFACTURED UNITS

- A. Units: Self-contained, packaged, factory assembled and pre-wired units suitable for outdoor use consisting of cabinet, compressors, condensing coil and fans, integral sub-cooling coil, controls, liquid receiver, wind deflector, and screens.
- B. Construction and Ratings: In accordance with AHRI 210/240. Test in accordance with ASHRAE Std 23.1.
- C. Performance Ratings: Energy Efficiency Rating (EER) and Coefficient of Performance (COP) not less than prescribed by ASHRAE Std 90.1 I-P.

## 2.3 CASING

- A. House components in welded steel frame with galvanized steel panels with weather resistant, baked enamel finish.
- B. Mount starters, disconnects, and controls in weatherproof panel provided with full opening access doors. Provide mechanical interlock to disconnect power when door is opened.
- C. Provide removable access doors or panels with quick fasteners and piano hinges.

#### 2.4 CONDENSER COILS

- A. Coils: Aluminum fins mechanically bonded to seamless copper tubing. Provide sub-cooling circuits. Air test under water to 425 psig, and vacuum dehydrate. Seal with holding charge of nitrogen.
- B. Coil Guard: Expanded metal with lint screens.

#### 2.5 FANS AND MOTORS

- A. Vertical discharge direct driven propeller type condenser fans with fan guard on discharge.
- B. Weatherproof motors suitable for outdoor use, single phase permanent split capacitor or 3 phase, with permanent lubricated ball bearings and built in current and thermal overload protection.

#### 2.6 COMPRESSORS

- A. Compressor: Hermetic scroll type.
- Mounting: Statically and dynamically balance rotating parts and mount on rubber-in-shear vibration isolators.
  - Internally isolate hermetic units on springs.
- C. Lubrication System: Reversible, positive displacement oil pump with oil charging valve, oil level sight glass, and magnetic plug or strainer.
- D. Motor: Constant speed 1800 rpm suction gas cooled with electronic sensor and winding over temperature protection, designed for across-the-line starting. Furnish with starter.
- E. Capacity Reduction Equipment: Two-stage compressor.
- F. Sump Oil Heater: Evaporates refrigerant returning to sump during shut down. Energize heater thermostatically when compressor is not operating.

# 2.7 REFRIGERANT CIRCUIT

- Provide each unit with one refrigerant circuit, factory supplied and piped. Refer to Section 23 2300.
- B. For each refrigerant circuit, provide manufacturer's recommended accessories.

# 2.8 CONTROLS

- A. On unit, mount weatherproof steel control panel, NEMA 250, containing power and control wiring, molded case disconnect switch, factory wired with single point power connection.
- B. For each compressor, provide across-the-line starter, non-recycling compressor overload, starter relay, and control power transformer or terminal for controls power. Provide manual reset current overload protection. For each condenser fan, provide across-the-line starter with starter relay.
- C. Provide safety controls arranged so any one will shut down machine:

# IA DAS - Eldora STS Decentralization Building Package Project # 417568-1 DAS Project # 8982.01

- 1. High discharge pressure switch (manual reset) for each compressor.
- 2. Low suction pressure switch (automatic reset) for each compressor.
- 3. Oil Pressure switch (manual reset).
- D. Provide the following operating controls:
  - 1. Refer to Section 23 0993 and drawings for sequence of operation.
- E. Gauges: Prepiped for suction and discharge refrigerant pressures and oil pressure for each compressor.

## PART 3 EXECUTION

## 3.1 INSTALLATION

- A. Install in accordance with manufacturer's installation instructions.
- B. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.
- C. Install units on vibration isolation. Refer to Section 23 0548.
- D. Provide connection to refrigeration piping system and evaporators. Refer to Section 23 2300. Comply with ASHRAE Std 15.

## 3.2 SYSTEM STARTUP

- A. Supply initial charge of refrigerant and oil for each refrigeration system. Replace losses of oil or refrigerant prior to end of correction period.
- B. Charge system with refrigerant and test entire system for leaks after completion of installation. Repair leaks, put system into operation, and test equipment performance.

#### **END OF SECTION**



