

## ADDENDUM NO. 1

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

HVAC Renovation  
Albany Regional Office  
Albany, Missouri  
PROJECT NO.: M1905-01

Bid Opening Date: 1:30 PM, Thursday, July 15, 2021 (Not Changed)

Bidders are hereby informed that the construction Plans and/or Specifications are modified as follows:

### **SPECIFICATION CHANGES:**

1. Section 235216 – Condensing Boilers
  - a. REMOVE and REPLACE with attached revised Section 235216 – Condensing Boilers.
2. Section 238200 – Heating and Cooling Units
  - a. ADD Paragraph 2.2-N.4 as follows:
    4. *Carrier*
3. Section 262923 – Variable Frequency Drives
  - a. ADD Paragraph 1.5-A.1.e as follows:
    - e. *Yaskawa*

### **DRAWING CHANGES:**

1. Sheet M-101
  - a. ADD General Notes 3 and 4 as follows:
    3. *Contractor shall remove ceiling as required for new work install. Removed ceiling tiles can be reused/reinstalled. All damaged tiles shall be replaced by the Contractor.*
    4. *Contractor shall coordinate with Owner's representative for office equipment relocations and protection. It is anticipated that minimal relocation will be required.*
  - a. ADD Demolition Note 3 for Room 140 as follows:
    3. *In this area the drop ceiling will be affected due to the removal of the ceiling mounted FCU's. Drop ceiling in the area affected by this removal shall be fixed by the contractor to match existing.*
2. Sheet M-102
  - a. REVISE Note 9 as follows:
    9. *Provide and install new console style WSHP in location shown. Contractor to build new pipe chase to conceal the pipe dropping to the heat pump. The pipe chase shall be constructed of drywall and patched and painted to match adjacent wall.*

3. Sheet M-501
  - a. REMOVE and REPLACE Detail 5 with attached revised Detail 5.

**GENERAL COMMENTS:**

1. The Pre-Bid Meeting was held June 25, 2021 followed by a walk-through of the project site. The Pre-Bid Meeting sign-in sheet is attached.
2. Please contact Paul Girouard, Contract Specialist, at 573-751-4797 or [paul.girouard@oa.mo.gov](mailto:paul.girouard@oa.mo.gov) for questions about bidding procedures and MBE/WBE/SDVE goals and submittal requirements.
3. **All bids shall be submitted on the bid forms without additional terms and conditions, modifications, or stipulations. Each space on the bid forms shall be properly filled including bid amounts for each alternate. Failure to do so will result in rejection of the bid.**
4. **MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 10%/10%/3%, respectively. All MBE, WBE, and MBE/WBE contractors, subcontractors, and suppliers must be certified by the State of Missouri, Office of Equal Opportunity. No other certifications from other Missouri certifying agencies will be accepted. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.**
5. The deadline for technical questions was July 7, 2021 at noon.
6. Changes to, or clarification of, the bid documents are only made as issued in the addenda.
7. All correspondence with respect to this project must include the State of Missouri project number as indicated above.
8. Current Planholders list available online at: <https://www.oafmdcplanroom.com/jobs/969/details/m1905-01-hvac-renovation-albany-regional-office>
9. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 7A, Columbia MO 65203, 573-446-7768 to order official plans and specifications.

**ATTACHMENTS:**

1. Pre-Bid Meeting Sign-In Sheet
2. Revised Section 235216 – Condensing Boilers
3. Revised Detail 5/M-501

**July 8, 2021**

**END ADDENDUM NO. 1**

# SIGN IN SHEET M1905-01

NAME	COMP.	PHONE	EMAIL
Cody Block	OA/FMDC	573 298-1980	cody.block@oa.mo.gov
Travis Shott	HBS	816.985.1757	travis.shott@hendersonbuilding.com
TREVOR STAUDISH	VCC	913 710 8009	trevers@vazquezcc.com
Josh WINK	OA/FMDC	660-868-1126 CELL 816-646-0693	JOSHUA.WINK@OA.MO.GOV
MICHAEL FISHER	OA/FMDC	WK 816-512-7109	MICHAEL.FISHER2@OA.MO.GOV
Jodi Mandille	DD	660.726.5246	jodi.mandille@doh.mo.gov

## **SECTION 235216 – CONDENSING BOILERS**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION OF WORK**

- A. Condensing boilers

#### **1.2 RELATED DOCUMENTS**

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

#### **1.3 SUBMITTALS**

- A. Submit in accordance with Division 01, Section 013300.
- B. Product Data: Include performance data, operating characteristics, furnished specialties and accessories.
  - 1. Prior to flue vent installation, engineered calculations and drawings must be submitted to Architect/Engineer to thoroughly demonstrate that size and configuration conform to recommended size, length and footprint for each submitted boiler.
- C. Efficiency Curves: At a minimum, submit efficiency curves for 100%, 50% and 7% input firing rates at incoming water temperatures ranging from 80°F to 160°F.
- D. Submit pressure drop curve.
  - 1. If submitted material is different from that of the design basis, boiler manufacture shall incur all costs associated with reselection of necessary pumps. Possible differences include, but are not limited to, the pump type, pump pad size, electrical characteristics and piping changes.

#### **1.4 SHOP DRAWINGS: FOR BOILERS, BOILER TRIM AND ACCESSORIES INCLUDE:**

- A. Plans, elevations, sections, details and attachments to other work
- B. Wiring Diagrams for power, signal and control wiring
- C. Source Quality Control Test Reports: Reports shall be included in submittals.
- D. Field Quality Control Test Reports: Reports shall be included in submittals.
- E. Operation and Maintenance Data: Data to be included in boiler emergency, operation and maintenance manuals.
- F. Warranty: Standard warranty specified in this Section
- G. Other Informational Submittals:
  - 1. ASME Stamp Certification and Report: Submit "A," "S," or "PP" stamp certificate of authorization, as required by authorities having jurisdiction, and document hydrostatic testing of piping external to boiler.

#### **1.5 QUALITY ASSURANCE**

- A. Electrical Components, Devices and Accessories: Boilers must be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

- B. I=B=R Performance Compliance or the latest standard: Condensing boilers must be rated in accordance with applicable federal testing methods and verified by AHRI as capable of achieving the energy efficiency and performance ratings as tested within prescribed tolerances.
- C. ASME Compliance: Condensing boilers must be constructed in accordance with ASME Boiler and Pressure Vessel Code, Section IV "Heating Boilers".
- D. ASHRAE/IESNA 90.1 Compliance: Boilers shall have minimum efficiency according to "Gas and Oil Fired Boilers - Minimum Efficiency Requirements."
- E. DOE Compliance: Minimum efficiency shall comply with 10 CFR 430, Subpart B, Appendix N, "Uniform Test Method for Measuring the Energy Consumption of Furnaces and Boilers."
- F. UL Compliance: Boilers must be tested for compliance with UL 795, "Commercial-Industrial Gas Heating Equipment." Boilers shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.
- G. NOx Emission Standards: When installed and operated in accordance with manufacturer's instructions, condensing boilers shall comply with the NOx emission standards outlined in South Coast Air Quality Management District (SCAQMD), Rule 1146.1; and the Texas Commission on Environmental Quality (TCEQ), Title 30, Chapter 117, and Rule 117.465.

## **1.6 COORDINATION**

- A. A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement and formwork requirements are specified in Division 03.

## **1.7 WARRANTY**

- A. Standard Warranty: Boilers shall include manufacturer's standard form in which manufacturer agrees to repair or replace components of boilers that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period for Water-Tube Condensing Boilers
    - a. The heat exchanger shall carry a 10-year from shipment, non-prorated, limited warranty against any failure due to condensate corrosion, thermal stress, mechanical defects or workmanship.
    - b. Manufacturer labeled control panels are conditionally warranted against failure for (2) two years from shipment.
    - c. All other components are conditionally guaranteed against any failure for 18 months from shipment

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: Subject to compliance with requirements, provide AERCO International, BMK 2500 or a comparable product by one of the following:

1. Laars
2. Lockinvar
3. AERCO

## **2.2 CONSTRUCTION**

- A. Description: Boiler shall be natural gas fired, fully condensing, water tube design. The boiler shall be able to modulate 20% to 100% of full fire. The unit shall be design-certified to comply with the current edition of the Harmonized ANSI Z21.13 / CSA 4.9 Standard for Gas- Fired Low Pressure Steam and Hot Water Boilers. The unit shall be designed and constructed in accordance with the ASME Boiler & Pressure Vessel Code, Section IV requirements for 160 psi (1103 kPa) maximum working pressure and shall bear the ASME "H" Stamp and be listed by the National Board. The unit shall be constructed to comply with the efficiency requirements of the latest edition of ASHRAE Standard 90.1. The boiler shall be equipped with an ASME certified pressure relief valve set at 75psi 517 (kPa). Optional pressure relief valves with settings of 30psi (207kPa), 50psi (345 kPa), 60psi (413 kPa), 125psi (861 kPa) or 150psi (1034 kPa) shall be available.
- B. Heat Exchanger: The water tube heat exchanger shall be stainless steel, rated for 160 psi (1103 kPa) working pressure. The heat exchanger shall be a low water volume design, welded construction, with no gaskets, o-rings or bolts in the header. Heat exchanger shall be accessible for visual inspection and cleaning of all internal surfaces. The boiler shall be fully condensing design with built-in condensate drain and trap. The heat exchanger shall have a limited ten-year warranty.
- C. Boiler Frame: The frame shall be constructed of galvanized steel for strength and protection. Chamber shall include a sight glass for viewing flame. Boiler shall be certified for zero clearance to combustible surfaces.
- D. Boiler Pump: The boiler shall be shipped with a pump and a conduit. The wiring and terminals shall be wired to the pump. The boiler shall have a flanged inlet water connection that allows the pump to be connected directly to the top of the boiler in the field. The pump shall be capable of serving the boiler's heat exchanger and 30 feet of piping that is the same size as the boiler's water connections, with a normal number of pipe fittings.
- E. Boiler Burner: The boiler shall use a premix burner with a stainless steel woven metal fiber wrap, and a negative pressure gas valve to burn cleanly, with NO<sub>x</sub> emissions not exceeding 10ppm. The boiler shall meet the emissions requirements of SCAQMD 2012.
- F. Boiler Venting: The boiler shall be designed for vertical or horizontal Category IV venting, up to 20 equivalent feet, with 3" diameter PVC, CPVC or stainless steel vent material or up to 100 equivalent feet, with 4" diameter PVC, CPVC or stainless steel vent material. Air may be taken from the room, or ducted directly to the boiler, using up to 20 equivalent feet of 3" diameter ABS, PVC, CPVC or galvanized pipe up to 100 equivalent feet of 4" diameter ABS, PVC, CPVC or galvanized pipe. The boiler shall be shipped with PVC sidewall vent and air terminals, for use with horizontal systems. The first section of CPVC vent pipe shall be shipped with each boiler.

## **2.3 ELECTRICAL POWER**

- A. Unit shall be 120VAC, single phase, less than 6 Amps (including pump) for connection to a 15A breaker. The control circuit shall be 24VAC.
- B. The boiler control shall be an integrated electronic PID temperature and ignition control with large color touchscreen display and shall control the boiler operation and firing rate. The boiler display shall be visible without the removal of any jacket panels or control panels.

- C. Electrical Characteristics:
  - 1. Voltage: 120V
  - 2. Phase: Single
  - 3. Frequency: 60 Hz

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Before boiler installation examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations and piping and electrical connections to verify actual locations, sizes and other conditions affecting boiler performance, maintenance and operations.
  - 1. Final boiler locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.
- B. Examine mechanical spaces for suitable conditions where boilers will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 BOILER INSTALLATION**

- A. Install boilers level on concrete bases.
- B. Install gas-fired boilers according to NFPA 54.
- C. Assemble and install boiler trim.
- D. Install electrical devices furnished with boiler but not specified to be factory mounted.
- E. Install control wiring to field-mounted electrical devices.

### **3.3 CONNECTIONS**

- A. Installing Contractor will execute work below in assistance and cooperation of boiler manufacture. Boiler manufacture shall provide start-up technician on site during the initial startup of boilers and will inspect the installation and verify the boiler have been installed per the manufactures requires in their entirety
- B. Install piping adjacent to boiler to permit service and maintenance.
- C. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection. Provide an isolation valve if required.
- D. Connect gas piping to boiler gas-train inlet with unions. Piping shall be at least full size of gas train connection. Provide a reducer if required. Boiler shall operate on 4-13" w.c. gas pressure.
- E. Connect hot-water piping to supply and return boiler tapings with shutoff valve and union or flange at each connection.
- F. Install piping from safety relief valves to nearest floor drain.

### 3.4 FIELD QUALITY CONTROL

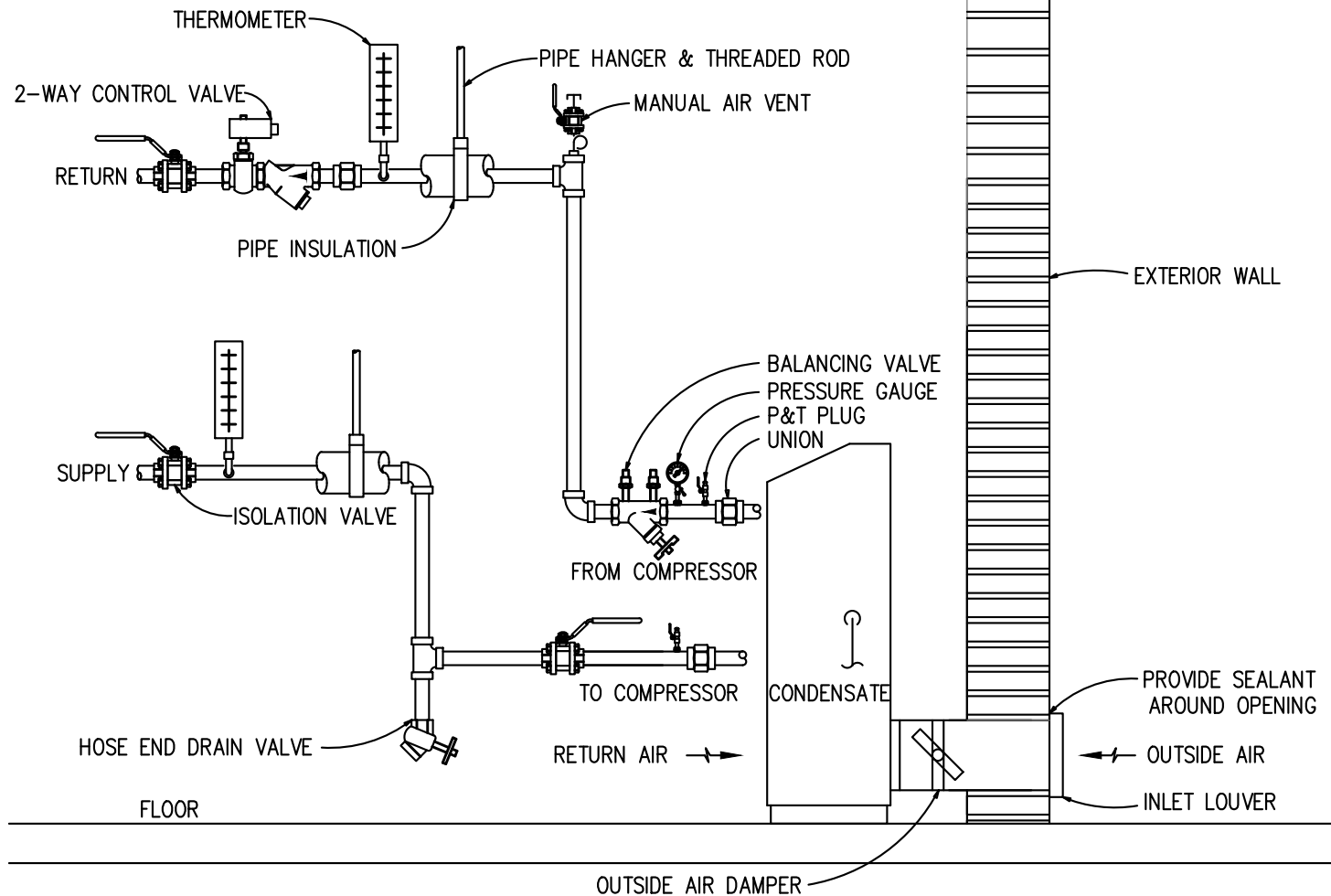
- A. Perform tests and inspections and prepare test reports.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections
  - 1. Perform installation and startup checks according to manufacturer's written instructions.
  - 2. Perform hydrostatic test. Repair leaks and retest until no leaks exist.
  - 3. Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.
  - 4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
    - a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level and water temperature.
    - b. Set field-adjustable switches and circuit-breaker trip ranges as indicated.
- C. Remove and replace malfunctioning units and retest as specified above.
- D. Occupancy Adjustments: When requested within 2 months of date of Substantial Completion, provide on-site assistance adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other than normal occupancy hours for this purpose.
- E. Performance Tests:
- F. The boiler manufacturer is expected to provide partial load thermal efficiency curves. These thermal efficiency curves must include at least three separate curves at various BTU input levels. If these curves are not available, it is the responsibility of the boiler manufacturer to complete the following performance tests:
  - 1. Engage a factory-authorized service representative to inspect component assemblies and equipment installations, including connections, and to conduct performance testing.
  - 2. Boilers shall comply with performance requirements indicated, as determined by field performance tests. Adjust, modify, or replace equipment to comply.
  - 3. Perform field performance tests to determine capacity and efficiency of boilers.
    - a. Test for full capacity.
    - b. Test for boiler efficiency at low fire 20, 40, 60, 80, 100, 80, 60, 40 and 20 percent of full capacity. Determine efficiency at each test point.
  - 4. Repeat tests until results comply with requirements indicated.
  - 5. Provide analysis equipment required to determine performance.
  - 6. Provide temporary equipment and system modifications necessary to dissipate the heat produced during tests if building systems are not adequate.
  - 7. Notify Engineer in advance of test dates.
  - 8. Document test results in a report and submit to Engineer.

**END OF SECTION 235216**



Detail #5 updated  
Associated with sheet  
M-501.

Revision Issue Date  
07/08/2021  
Addendum #1



**NOTES:**

1. ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS AND MEET LOCAL CODE REQUIREMENTS.
2. REFERENCE EQUIPMENT SCHEDULE FOR UNITS WITH OUTSIDE AIR. PROVIDE 18"X6" LOUVER WITH BIRD SCREEN ON UNITS WITH OUTSIDE AIR.
3. BUILD NEW PIPE CHASE TO CONCEAL PIPE TO HEAT PUMP CONSOLE. PIPE CHASE SHALL BE CONSTRUCTED OF DRYWALL AND PATCHED AND PAINTED TO MATCH THE ADJACENT WALL.
4. CONNECT NEW CONDENSATE TO EXISTING DRAIN LINE.

5

# FAN COIL UNIT DETAIL

SCALE: N.T.S.