



Addendum

PROJECT NAME: BOILER REPLACEMENT FOR CAROLYN MOSBY AND
GLEN PARK HIGH RISES
SPECIFICATION NO.: 2020-100-011
ADDENDUM NO.: 1
DATE ISSUED: FRIDAY, JULY 31, 2020

For which bids will be accepted electronically via email at kmuhammad@garyhousing.org, until 10:00 a.m. (CST), Monday, August 7, 2020. Any electronic responses received after that time, will not be accepted for Specification No. 2020-100-011, BOILER REPLACEMENT FOR CAROLYN MOSBY AND GLEN PARK HIGH RISES.

The following clarification(s), change(s), addition(s) and/or revision(s) will be incorporated into the Contract Documents. All other provisions and requirements as originally set forth, in the procurement documents, remain in force and are binding. Any additional work required by this Addendum will conform to the applicable provisions of the original documents.

<p>RESPONDENT MUST ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE APPROPRIATE BID EXECUTION PAGE</p>
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NOTICE OF CLARIFICATIONS, CHANGES, ADDITIONS, OR REVISIONS

Item 1 Pre-bid Attendance

The July 21, 2020 Pre-Bid conference attendance sheet is attached.

Item 2 Liquidated Damages

Attached is the updated page 12 article #33 of HUD form 5370, General Conditions for Construction Contracts – Public Housing Programs

Item 3 Insurance

Attached is the updated page 12 & 13 article #36 of HUD form 5370, General Conditions for Construction Contracts – Public Housing Programs

Item 4 Boiler Replacement

Attached are revised Drawing M-701 and new specification 235233 to reflect non-condensing boiler for Carolyn Mosby.

Clarification: Nothing verbally discussed at the pre-bid meeting or during any of the on-site walk-throughs or visits, changes or alters the Invitation for Bids, unless it appears in writing via an Addendum signed by Gary Housing Authority authorized representative.

Item 5 Questions from Bidders

Question 1: I am looking over the plans and noticed the boiler flues at Carolyn Mosby are to be reconnected to the existing flue upstream of hot water heater flue. We cannot connect condensing equipment to a masonry flue. We also cannot connect condensing and non-condensing equipment in the same flue.

Answer 1: Revised boiler selection at Carolyn Mosby to a non-condensing boiler. Revised Equipment Schedule (M-701), and a new Non-condensing Boiler Specification 235233 attached

Authorized Signature

Taylor L Bonds
Deputy Executive Director

Date

7/31/20

END OF ADDENDUM #1

SECTION 235233
WATER-TUBE BOILERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes packaged, factory-fabricated and assembled, gas-fired, water-tube boilers, trim, and accessories for generating hot water.

1.2 SUBMITTALS

- A. Product Data: Include performance data, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings: For boilers, boiler trim, and accessories. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Wiring Diagrams: Power, signal, and control wiring. A laminated copy of the wiring diagram shall be affixed to the boiler near the electrical panel.
- C. Source quality-control test reports.
- D. Field quality-control test reports.
 - 1. Startup Reports: Submit reports documenting the activities required to be performed in PART 3. These reports are to be submitted two weeks after the startup is completed.
- E. Operation and Maintenance Data: Provide two operations and maintenance manuals, including boiler and burner drawings, schematics including fuel trains, general instructions for maintenance inspections, complete spare parts list and troubleshooting procedures.
- F. Other Informational Submittals:
 - 1. Provide efficiency curves, showing boiler thermal efficiency vs. return water temperature at 25%, 50%, 75% and 100% input.
- G. Training Reports: Submit reports on training documenting dates and attendance.

1.3 QUALITY ASSURANCE

- A. See Specification 230505 1.3
- 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. ASME Compliance: Fabricate and label boilers to comply with ASME Boiler and Pressure Vessel Code.
- D. LEED/ASHRAE/IESNA 90.1-2004 Compliance: Provide certification that boilers shall have minimum efficiency according to Table 6.8.1F, "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. DOE Compliance: Minimum efficiency shall comply with 10 CFR 431, "Energy Efficiency Program for Certain Commercial and Industrial Equipment: Test Procedures and Efficiency Standards for Commercial Packaged Boilers."
- G. UL Compliance: Test boilers for compliance with UL 795, "Commercial-Industrial Gas Heating Equipment." Boilers shall be listed and labeled by Underwriters Laboratories

1.4 DELIVERY, STORAGE AND HANDLING

- A. Follow manufacturer's instructions for unloading, rigging and storage of equipment.
- B. Maintain manufacturer's recommended temperature and humidity limits during storage and installation. Protect equipment from dirt, dust and other jobsite contaminants and conditions detrimental to the equipment.

1.5 COORDINATION

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

1.6 WARRANTY

- A. Warranty Period for Water-Tube Boilers:
 - B. Special Warranty: Manufacturer agrees to repair or replace heat exchangers damaged by thermal shock and vent dampers of boilers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period for Heat Exchangers: 20 years from date of Substantial Completion.
 - 2. Warranty Period for Vent Dampers: Five years from date of Substantial Completion.
 - C. Special Warranty: Manufacturer agrees to repair or replace drums, tubes, headers, cabinets, atmospheric gas burners, and pressure vessels of boilers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period for Drums, Tubes, Headers, Cabinets, and Atmospheric Gas Burner: Five years from date of Substantial Completion, pro rata.

2. Warranty Period for Pressure Vessel: 20 years from date of Substantial Completion, for thermal shock.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The specification has been written with the intent to include the following boiler models.
 1. Cleaver-Brooks
 2. AERCO International
 3. Fulton
 4. Buderus
 5. Bryan Triple Flex
 6. Viessmann

2.2 PERFORMANCE REQUIREMENTS

- A. General: Provide documentation showing that the boiler will meet or exceed the performance criteria as described in the following subparagraphs.
- B. Verification: Submit manufacturer's published efficiency curves for submitted boiler. Efficiency curves shall be generated using the test criteria established in GAMA/Hydronics Institute publication BTS-2000, "Method to Determine Efficiency of Commercial Space Heating Boilers."

2.3 MANUFACTURED UNITS

- A. Description: Factory-fabricated, assembled, and tested, water-tube boiler with heat exchanger sealed pressure-tight, built on a steel base; including insulated jacket; flue-gas vent; combustion-air intake connections; water supply, return, and controls. Water heating service only. Manufacturer to specify sealed combustion air and exhaust ductwork to be provided and installed by contractor.
- B. Heat Exchanger: The heat exchanger section will be either all stainless steel or carbon steel.
- C. Pressure Vessel: The section of the boiler will be constructed of stainless steel or carbon steel with welded heads and tube connections.
- D. Burner: Modulating natural gas, forced draft. Provide a minimum turndown ratio of 5 to 1, inlet burner silencer and tight shutoff inlet air louvers.
- E. The burner air damper and fuel gas valve on each boiler-burner unit shall be operated by a motor or motors controlling both fuel and air supply. The fuel air drive shall be provided with a position indicating switch which shall be inter-locked with the flame safeguard system, to assure starting in the low fire position. Each burner shall have automatic modulation from a separate operating control. Provide in each boiler control panel a manual/automatic switch and potentiometer, for manual control of the firing rate from 20% to 100% of rated capacity over the full firing range.

- F. Burner shall be equipped with a complete system of safety devices, including the electronic flame safeguard control with pre and post purge. Pre-purge shall be a full open purge of sufficient time to provide four air change ignition purges of the combustion chamber or a full 30 second duration pre-purge. All controls shall be approved by UL.
- G. Provide one (1) self closing valve with a fusible switch at ceiling above the burners to shut off gas supply to burner upon sensing ambient temperature of 210 degrees.
- H. Provide terminal strip for emergency fuel shut off switch. If switch is not provided by the Division 23 Section "Building Automation System (BAS)" it will be provided by this specification. Switch shall be complete with red and white cover plate clearly marked, "Emergency Shut Off Switch"
- I. Interlock control requirements
 - 1. The boiler manufacturer will furnish all required control interlocks between the boiler-burner and related equipment as herein specified and as follows:
 - a. Contacts as required for all remote alarms.
 - b. Relays for remote boiler room combustion air dampers (if applicable).
 - c. Contacts for remote enable/disable of boiler-burner
 - d. Relays for remote gas booster enable/disable.
- J. Blower: Fan to operate during each burner firing sequence and during prepurge and post purge the combustion chamber.
 - 1. Motors: Comply with requirements specified in Division 23 Section "Common Motor Requirements for HVAC Equipment."
 - a. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- K. Gas Train: ASME CSD-1, IRI.
- L. Ignition: Spark ignition with 100 percent main-valve shutoff with electronic flame supervision.
- M. Casing:
 - 1. Jacket: Sheet metal, with snap-in or interlocking closures.
 - 2. Control Compartment Enclosures: NEMA 250, Type 1A.
 - 3. Insulation: Minimum 2-inch thick, mineral-fiber insulation surrounding the heat exchanger.
 - 4. Combustion-Air Connections: Inlet and vent duct collars.
 - 5. Mounting base to secure boiler to concrete base.

2.4 TRIM

- A. Aqua stat Controllers: Operating, firing rate, and high limit.

- B. Safety Relief Valve: ASME rated.
- C. Pressure and Temperature Gage: Minimum 3-1/2-inch diameter, combination water-pressure and -temperature gage. Gages shall have operating-pressure and -temperature ranges so normal operating range is about 50 percent of full range.
- D. Boiler Air Vent: Automatic.
- E. Drain Valve: Minimum NPS 3/4 hose-end gate valve.

2.5 CONTROLS

- A. For each boiler, operating controls shall include the following devices and features:
 - 1. Control transformer.
 - 2. Set-Point Adjust: Set points shall be adjustable.
 - 3. All wiring to be number coded at every termination. Numbering system to be professionally printed on heat-shrink tubing at the point of connection. Wiring diagrams shall clearly indicate wiring numbers and termination points. Provide separate contacts for a remote alarm.
 - 4. Factory installed Hand-Off-Automatic switch for interface to BAS. When operating in the Hand position the burner modulation will be via internal boiler controls.
 - 5. Power disconnect switch.
 - 6. Provide combustion air damper relay when combustion damper is used in design
 - 7. A ladder diagram of the boiler/burner controls laminated permanently on the inside panel door.
 - 8. All terminals shall be uniquely identified with an alpha numeric sequence.
 - 9. All wires shall be uniquely identified with an alpha numeric sequence.
 - 10. A clear distinction shall be made of wiring to non-boiler vendor devices.
- B. Burner Operating Controls: To maintain safe operating conditions, burner safety controls limit burner operation.
 - 1. High Cutoff: Automatic reset stops burner if operating conditions rise above maximum boiler design temperature.
 - 2. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be manual -reset type (UL, CSD-1).
 - 3. Blocked Inlet Safety Switch: Manual-reset pressure switch field mounted on boiler combustion-air inlet.
 - 4. Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for above conditions.
 - 5. Provide auxiliary contacts for monitoring from building management system, if applicable.
- C. Provide a boiler system control panel that will control the staging, lead boiler alternation and firing rate to maintain the common supply water temperature.
 - 1. Include automatic, alternating-firing sequence for multiple boilers to ensure maximum system efficiency throughout the load range and to provide equal runtime for boilers.

2. The panel will use its own outside air temperature to reset boiler water temperature. The hot water common supply setpoint reset schedule will be adjustable at the boiler system control panel.

2.6 VENTING KITS

- A. Kit: Complete system, ASTM A 959, Type 29-4C stainless steel or positive-pressure stainless steel 316L double-wall stack listed under UL certification number 1738, pipe, vent terminal, thimble, indoor plate, vent adapter, condensate trap and dilution tank, and sealant.
- B. Combustion-Air Intake: Complete system, duct, vent terminal with screen, inlet air coupling, and sealant.

2.7 SOURCE QUALITY CONTROL

- A. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.
- B. Test and inspect factory-assembled boilers, before shipping, according to ASME Boiler and Pressure Vessel Code.

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 4-inch (Mosby) concrete base. Install boilers on vibration isolators (Glen Park).
- B. Vibration Isolation: Elastomeric isolation pads with a minimum static deflection of 0.25 inch. Vibration isolation devices and installation requirements are specified in Division 23 Section "Vibration Controls for HVAC."
- C. Install gas-fired boilers according to NFPA 54.
- D. Assemble and install boiler trim.

- E. Install electrical devices furnished with boiler but not specified to be factory mounted.
- F. Install control wiring to field-mounted electrical devices.

3.3 CONNECTIONS

- A. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to boiler to allow 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 piping to boilers, except safety relief valve connections, with flexible connectors of materials suitable for service. Flexible connectors and their installation are specified in Division 23 Section "Basic HVAC Materials and Methods."
- E. Connect gas piping with isolation valve and dirt leg to boiler gas-train inlet with union. Piping shall be at least full size of gas train connection. Provide a reducer if required. Route gas train vents line size to the outdoors. Maintain minimum 15' from all building openings.
- F. Hot water inlet & outlet connections: At a minimum connect inlet to the boiler with isolation valve, y-strainer w/ hose connection, P&T tap, manual air vent, controller-bulb well, thermometer, pressure gauge, drain connection valve and union or flange. At a minimum connect outlet to the boiler with isolation valve, control valve, calibrated balance valve, P&T tap, manual air vent, thermometer, controller-bulb well, pressure gauge, drain connection valve and union or flange. See drawings for additional requirements. Utilize a single pressure gauge with isolation valves across the boiler inlet and outlet in lieu of individual gauges to eliminate gauge error.
- G. Install piping from safety relief valves to nearest floor drain.
- H. Boiler Venting: Install flue venting kit and combustion-air intake.

3.4 CONTRACTOR STARTUP AND REPORTING

- 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. Leak Test: With system filled and operating at pressure and temperature, repair leaks and retest until no leaks exist.
 - 3. Operational Test: 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. 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 Architect in advance of test dates.
 8. Document test results in a report and submit to Architect. Submittal shall be within 4 weeks of each boilers startup.

3.5 DEMONSTRATION AND COMMISSIONING

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain boilers.
 1. Train Owner's maintenance personnel on procedures and schedules for starting up and shutting down, troubleshooting, servicing, and maintaining the boilers. The training will occur after the startup report has been provided to the owner and the trainer will provide two (2) Installation and Operations manuals for the use of the owner's personnel during training.
 2. Review data in maintenance manuals. All required and recommended maintenance will be reviewed as well as operational trouble shooting.
 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
 4. Training will occur in two (2) separate two (2) hour sessions, neither on the same day nor on a day that the boilers are started up.
- B. Demonstrate proper operation of equipment to designated owners personnel. The scope of the demonstration will include functional performance requirements under local control.

END OF SECTION 235233