

SECTION 235533 - GAS-FIRED UNIT HEATERS

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

- A. Product Data
 - 1. For each type of fuel-fired unit heater indicated. Include rated capacities, operating characteristics, and accessories.
- B. Shop Drawings
 - 1. For fuel-fired unit heaters. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Prepared by or under the supervision of a qualified professional engineer detailing fabrication and assembly of fuel-fired unit heaters, as well as procedures and diagrams.
 - 3. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 4. Wiring Diagrams: Power, signal, and control wiring.

PART 2 - PRODUCTS

2.1 GAS-FIRED UNIT HEATERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Marlo Coil
 - 2. Modine Manufacturing Company.
 - 3. Reznor/Nortek Company.
 - 4. Detroit Radiant Products Co.
 - 5. Roberts Gordon.
 - 6. Beacon Morris.
- B. Description: Factory assembled, piped, and wired, and complying with ANSI Z83.8/CSA 2.6.
- C. Fuel Type: Design burner for natural gas having characteristics same as those of gas available at Project site.
- D. Type of Venting: Powered vented.
- E. Housing: Steel, with integral draft hood and inserts for suspension mounting rods.

1. External Casings and Cabinets: Baked enamel over corrosion-resistant-treated surface.
 2. Suspension Attachments: Reinforce suspension attachments at connection to fuel-fired unit heaters.
- F. Heat Exchanger: Stainless steel.
- G. Burner Material: Stainless steel.
- H. Unit Fan: Formed-steel propeller blades riveted to heavy-gage steel spider bolted to cast-iron hub, dynamically balanced, and resiliently mounted.
1. Fan-Blade Guard: Galvanized steel, complying with OSHA specifications, removable for maintenance.
 2. Motors: Totally enclosed with internal thermal-overload protection and complying with Section 230513 "Common Motor Requirements for HVAC Equipment."
 3. 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.
 4. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.
- I. Controls: Regulated redundant gas valve containing pilot solenoid valve, electric gas valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff all in one body.
1. Gas Control Valve: Two stage.
 2. Ignition: Electronically controlled electric spark with flame sensor.
 3. Fan Thermal Switch: Operates fan on heat-exchanger temperature.
 4. Vent Flow Verification: Flame rollout switch or Differential pressure switch to verify open vent.
 5. Control transformer.
 6. High Limit: Thermal switch or fuse to stop burner.
 7. Thermostat: 2-stage, wall-mounting type with 50 to 90 deg F operating range and fan on switch.
- J. Discharge Louvers: Independently adjustable horizontal blades.
- K. Accessories:
1. Vertical discharge louvers.
 2. Discharge Nozzle: Discharge at 25 to 65 degrees from horizontal.
 3. Four-point suspension kit.
 4. Summer fan switch.
 5. Unit-mounted thermostat bracket.
 6. Power Venter: Centrifugal aluminized-steel fan, with stainless-steel shaft; 120-V ac motor.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install and connect gas-fired unit heaters and associated fuel and vent features and systems according to NFPA 54, applicable local codes and regulations, and manufacturer's written installation instructions.
- B. Suspended Units: Suspend from substrate using threaded rods, spring hangers, and building attachments. Secure rods to unit hanger attachments. Adjust hangers so unit is level and plumb.

END OF SECTION 235533