

SECTION 15766 – UNIT HEATERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes unit heaters and cabinet unit heaters.

1.3 SUBMITTALS

- A. Product Data: Include specialties and accessories for each unit type and configuration.
- B. Shop Drawings: Submit the following for each unit type and configuration:
 - 1. Plans, elevations, sections, and details.
 - 2. Details of anchorages and attachments to structure and to supported equipment.
 - 3. Power, signal, and control wiring diagrams. Differentiate between manufacturer-installed and field-installed wiring.
 - 4. Equipment schedules to include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.
- D. Field Test Reports: Written reports of tests specified in Part 3 of this Section.
- E. Maintenance Data: For unit heaters to include in maintenance manuals specified in Division 1. Include the following:
 - 1. Maintenance schedules and repair parts lists for motors, coils, integral controls, and filters.

1.4 QUALITY ASSURANCE

- A. 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.

1.5 COORDINATION

- A. Coordinate layout and installation of unit heaters with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.
- B. Coordinate wall construction and conditions with recessed or semi-recessed cabinet unit heater installation requirements.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Cabinet Unit Heater Filters: Furnish one set of spare filter for each filter installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Trane Company (The); North American Commercial Group.
 - 2. Sterling
 - 3. Vulcan

2.2 CABINET UNIT HEATERS

- A. Description: An assembly including filter, chassis, coil, fan, and motor in blow-through configuration with heating coil.
- B. Cabinet: For one or more of the following configurations:
 - 1. Semirecessed, wall-mounting front grilles for air inlet and outlet.
 - 2. Recessed, ceiling-mounted front grilles for air inlet and outlet.
- C. Coil Section Insulation: 1-inch duct liner complying with ASTM C 1071 and attached with adhesive complying with ASTM C 916. Fire-Hazard Classification: Duct liner and adhesive shall have a maximum flame-spread rating of 25 and smoke-developed rating of 50 when tested according to ASTM E 84.
- D. Cabinet: Galvanized steel, with removable panels.
- E. Cabinet Finish: Bonderize, phosphatized, and flow-coat with baked-on primer with manufacturer's standard paint, in color selected by Architect, applied to factory-assembled and -tested cabinet unit heater before shipping.
- F. Hot-Water Coil: Copper tube, with mechanically bonded aluminum fins spaced no closer than 0.1 inch and with manual air vent. Coils shall be rated for a minimum working pressure of 300 psig and a maximum entering water temperature of 275 deg F, with manual air vent.
- G. Filters: 1-inch- thick, pleated glass-fiber media in fiberboard frame, Farr 30/30 or equivalent.
- H. Fan:
 - 1. Centrifugal, with forward-curved, double-width wheels and fan scrolls made of galvanized steel or thermoplastic material; directly connected to motor.
 - 2. Shaded-pole or permanent-split capacitor, multi-speed motor with integral thermal-overload protection and resilient mounts. Connect motor to chassis wiring with plug connection.
- I. Accessories
 - 1. Steel recessing flanges for recessing cabinet unit heaters into ceiling or wall.

2. Tamperproof locks.
3. Control Devices: Unit-mounted fan-speed switch.

2.3 UNIT HEATERS (HOT WATER)

- A. Description: An assembly including casing, coil, fan, and motor in the following configurations as scheduled:
 1. Horizontal discharge configuration with horizontal, adjustable louvers in blow-through configuration.
- B. Casing: Galvanized steel, with removable panels.
- C. Cabinet Finish: Bonderize, phosphatize, and flow-coat with baked-on primer and manufacturer's standard paint applied to factory-assembled and -tested propeller unit heater before shipping.
- D. Hot-Water Coil: Copper tube, 0.031-inch wall thickness, with mechanically bonded aluminum fins spaced no closer than 0.1 inch and rated for a minimum working pressure of 200 psig and a maximum entering water temperature of 325 deg F, with manual air vent. Test for leaks to 375 psig underwater.
- E. Propeller with aluminum blades directly connected to motor.
- F. Fan Motors: shaded-pole or permanent-split capacitor, with integral thermal-overload protection.
- G. Accessories
 1. Horizontal Configuration: Louver fin diffuser.

2.4 SOURCE QUALITY CONTROL

- A. Test unit heater coils according to ASHRAE 33.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to unit heaters for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in for piping and electrical connections to verify actual locations before cabinet unit heater installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install unit heaters level and plumb.
- B. Install unit heaters to comply with NFPA 90A.

- C. Install wall-mounting thermostats and switch controls in electrical outlet boxes at heights to match lighting controls.

3.3 CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Unless otherwise indicated, install shutoff valve and union or flange at each connection.
- C. Install piping adjacent to machine to allow service and maintenance.
- D. Ground equipment.
- E. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

- A. Testing: Perform the following field quality-control testing and report results in writing:
 - 1. After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - 2. Test and adjust controls and safeties.
- B. Repair or replace malfunctioning units. Retest as specified above after repairs or replacements are made.

3.5 CLEANING

- A. After installing units, inspect unit cabinet for damage to finish. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.
- B. After installing units, clean unit heaters internally according to manufacturers written instructions.
- C. Install new filters in each cabinet unit heater within two weeks after Substantial Completion.

END OF SECTION 15766