

SECTION 15835

TERMINAL HEAT TRANSFER UNITS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Cabinet Unit Heaters (Electric).
- B. Electric Unit Heaters.

1.02 RELATED SECTIONS

- A. Section 15170 - Motors, Drives, and Accessories.
- B. Section 15975 - Automatic Temperature Controls: Sequence of Operation.
- C. Division 16 - Electric - Equipment Wiring Systems: Electrical characteristics and wiring connections. Installation of room thermostats. Electrical supply to units.

1.03 REFERENCES

- A. NFPA 70 - National Electrical Code.

1.04 SUBMITTALS FOR REVIEW

- A. Section 01300: Procedures for submittals.
- B. Product Data: Provide typical catalog of information including arrangements.
- C. Shop Drawings:
 - 1. Indicate cross sections of cabinets, grilles, bracing and reinforcing, and typical elevations.
 - 2. Submit schedules of equipment and enclosures typically indicating length and number of pieces of element and enclosure, corner pieces, end caps, cap strips, access doors, pilaster covers, and comparison of specified heat required to actual heat output provided.
 - 3. Indicate mechanical and electrical service locations and requirements.

1.05 SUBMITTALS AT PROJECT CLOSEOUT

- A. Section 01700 - Contract Closeout: Procedures for submittals.
- B. Project Record Documents: Record actual locations of components and locations of access doors in radiation cabinets required for access.
- C. Operation and Maintenance Data: Include manufacturers descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.
- D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owners name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years experience.

1.07 REGULATORY REQUIREMENTS

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

1.08 EXTRA MATERIALS

- A. Section 01700 - Contract Closeout: Maintenance Data.
- B. Provide two sets of filters.

PART 2 - PRODUCTS

2.01 CABINET UNIT HEATERS

- A. Manufacturers:
 - 1. Trane.
 - 2. McQuay.
 - 3. Reznor.
 - 4. Modine.
- B. Assembly: UL listed and labeled vertical cabinet unit heater with electric heating coils.
- C. Chassis: The chassis construction is 18 gauge galvanized steel, continuous throughout the unit. The unit is acoustically and thermally insulated with closed cell insulation. All panels are made rigid by channel forming.
- D. Unit Finish: All cabinet parts and exposed recessed panels are cleaned, bonderized, phosphatized, and painted with a baked powder finish. Color selection by Architect.
- E. Fans: Centrifugal forward-curved double-width wheels, statically and dynamically balanced, direct driven.
- F. Motor: Permanent split capacitor motors run tested in assembled units. Tap wound multiple speed permanent split capacitor with sleeve bearings.
- G. Filters: Easily removed 1 inch thick glass fiber throw-away type, located to filter air before coil.
- H. Electric Heat Coil: Nichrome elements with an open-wire design. The electric heat shall operate at the same voltage as the unit. Electric heat coils shall be UL listed and interlocked with the fan motor switch. Electrical heat operation is possible only when the fan is running. Provide with factory mounted and wired step-down control transformer and unit-mounted magnetic contactor. A high temperature cutout with automatic reset shall be provided as an integral part of the elements to de-energize the electric heat in the event of an overheat condition.
- I. Controls: Unit mounted fan switch off/on (high speed), unit mounted temperature sensor with Thermistor mounted in unit's return air path.

2.02 ELECTRIC UNIT HEATERS

- A. Manufacturers:
 - 1. Chromalox.
 - 2. Markel.
- B. Assembly: UL listed and labeled horizontal heater blower with built-in controls.

- C. Cabinet: Heavy 18 gauge steel, phosphate undercoated, finished in almond polyester powder coat.
- D. Louvers: Individually adjustable louvers direct air flow up or down as needed.
- E. Fixture Heating Elements: Corrosion-resistant steel fins that are furnace brazed to the tubular element.
- F. Fan Motor: Totally enclosed fan motor rated for continuous duty with built-in thermal cut-out and operates on same voltage as the heating circuit.
- G. Fan: Direct drive propeller type, statically and dynamically balanced, with fan guard.
- H. Ceiling or wall mounting brackets as required for the installation. Provide swivel brackets to allow heater to rotate 180 °.
- I. Thermal Cutouts: Opens the control circuit and disconnect power to the heating elements if overheating occurs. Automatic reset allows the control circuit to reclose and restore power when temperature returns to normal.
- J. Power Disconnect: Factory installed and wired switch to enable power to be disconnected while servicing the heater. Mount on back of heater.
- K. Control: Factory installed and wired thermostat and summer fan switch mounted front of heater. Built-in heavy duty magnetic contactors.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install equipment exposed to finished areas after walls and ceiling are finished and painted. Avoid damage.
- C. Protection: Provide finished cabinet units with protective covers during balance of construction.
- D. Unit Heaters: Hang from building structure, with pipe hangers anchored to building, not from piping. Mount as high as possible to maintain greatest headroom unless otherwise indicated.
- E. Cabinet Unit Heaters: Install as indicated. Coordinate to assure correct recess size for recessed units.

3.02 CLEANING

- A. After construction is completed, including painting, clean exposed surfaces of units. Vacuum clean coils and inside of cabinets.
- B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.
- C. Install new filters.

END OF SECTION