

SECTION 238101 - TERMINAL HEAT TRANSFER UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Electric heaters.

1.2 RELATED REQUIREMENTS

- A. Section 230513 - Common Motor Requirements for HVAC Equipment.
- B. Section 230993 - Sequence of Operations for HVAC Controls.

1.3 SUBMITTALS

- A. See Section 013300 - Submittal Procedures, for submittal procedures.
- 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.,
- D. Manufacturer's Instructions: Indicate installation instructions and recommendations.
- E. Project Record Documents: Record actual locations of components and locations of access doors in radiation cabinets required for access or valving.
- F. Operation and Maintenance Data: Include manufacturers descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.
- G. Warranty: Submit manufacturer's warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements, for additional provisions.
 - 2. Extra Filters: One set of each type and size.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.5 WARRANTY

- A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

PART 2 PRODUCTS

2.1 ELECTRIC CONVECTOR

- A. Manufacturers:
 - 1. Marley Engineered Products: www.marleymeh.com.
 - 2. Slant/Fin Corporation: www.slantfin.com.
 - 3. Trane Inc: www.trane.com.
 - 4. Qmark.
 - 5. Substitutions: See Section 016000 - Product Requirements.
- B. Assembly: UL listed and labelled with terminal box and cover, and built-in controls.
- C. Heating Elements: Enclosed copper tube, aluminum finned element of coiled nickel-chrome resistance wire centered in tubes and embedded in refractory material.
- D. Enclosure: Minimum 0.030 inch (0.75 mm) steel with 7 inch (175 mm) high back and top of one piece; front panel, end panel, end caps, corners, and joiner pieces to snap together, and front panel easily removable. Provide full length damper.
- E. Control: Built-in bi-metal heating thermostat, factory wired.

2.2 ELECTRIC UNIT HEATERS

- A. Manufacturers:
 - 1. INDEECO (Industrial Engineering and Equipment Company): www.indeeco.com.
 - 2. Marley Engineered Products: www.marleymeh.com.
 - 3. Trane Inc: www.trane.com.
 - 4. Qmark.
 - 5. Substitutions: See Section 016000 - Product Requirements.
- B. Assembly: UL listed and labelled assembly with terminal box and cover, and built-in controls.

- C. Heating Elements: Enclosed copper tube, aluminum finned element of coiled nickel-chrome resistance wire centered in tubes and embedded in refractory material.
- D. Cabinet: 0.0478 inch (1.2 mm) steel with easily removed front panel with integral air outlet and inlet grilles.
- E. Element Hangers: Quiet operating, ball bearing cradle type providing unrestricted longitudinal movement, on enclosure brackets.
- F. Fan: Direct drive propeller type, statically and dynamically balanced, with fan guard.
- G. Motor: Permanently lubricated, sleeve bearings for horizontal models, ball bearings for vertical models.
- H. Control: Separate fan speed switch and thermostat heat selector switch, factory wired, with switches built-in behind cover. Provide thermal overload.
- I. Electrical Characteristics:
 - 1. Disconnect Switch: Factory mount disconnect switch.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install equipment exposed to finished areas after walls and ceiling are finished and painted. Do not damage equipment or finishes.
- C. Protection: Provide finished cabinet units with protective covers during balance of construction.
- D. Install electric heating equipment including devices furnished by manufacturer but not factory-mounted. Furnish copy of manufacturer's wiring diagram submittal. Install electrical wiring in accordance with manufacturer's submittals.

3.2 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