SECTION 15767 - ELECTRIC 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:

1. Electric Propeller Unit Heaters.
2. Electric Baseboard 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. Details of anchorages and attachments to structure and to supported equipment.
2. Power, signal, and control wiring diagrams. Differentiate between manufacturer-installed and field-installed wiring.
3. Equipment schedules to include rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories.

C. Maintenance Data: For propeller 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 propeller unit heaters and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Qmark, Division of Marley Electric Heating
2. Markel, Electric Heating Products
3. Trane Company (The); North American Commercial Group.

2.2 UNIT HEATERS

A. Description: An assembly including casing, coil, fan, and motor in 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. Heating Elements: Nickel-chromium heating wire, free from expansion noise and 60-Hz hum, embedded in magnesium-oxide insulating refractory and sealed in high-mass steel or corrosion-resistant metallic sheath with fins. Element ends shall be enclosed in terminal box. Fin surface temperature shall not exceed 550 deg Fat any point during normal operation.

1. Circuit Protection: One-time fuses in terminal box for overcurrent protection and limit controls for overtemperature protection of heaters.
2. Wiring Terminations: Match conductor materials and sizes indicated.

E. Fans: Propeller with aluminum blades directly connected to motor.

F. Accessories:

1. Wall mounting bracket.
2. Factory or field mounted internal thermostat.

2.3 BASEBOARD RADIATORS

A. Heating Elements: Nickel-chromium heating wire element enclosed in metallic sheath mechanically expanded into fins, with high-temperature cutout. Element supports eliminate thermal expansion noise.

B. Enclosures: One piece, minimum 0.030-inch thick steel, with full-height back, end panel, end caps, to snap together. Front panel shall be easily removable.

1. Enclosure Height: 4 ½ inches.
2. Finish: Factory-applied baked enamel in color selected by Owner from manufacturer's standard colors.
3. Element Brackets: Galvanized steel to support front panel and element glide.

C. Unit Controls: Integral line-voltage bimetal thermostat.

D. Capacity: 188 watts per foot. See schedules on drawing for total capacities.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive propeller unit heaters for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine roughing-in for electrical connections to verify actual locations before propeller unit heater installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install propeller unit heaters level and plumb.

B. Install propeller unit heaters to comply with NFPA 90A.

C. Install electric baseboard and finned-tube radiators level and plumb and according to the manufacturer's instructions.

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

3.3 CONNECTIONS

A. Ground equipment.

B. 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. Delete first subparagraph below if units do not have electric heat.
3. Operate electric heating elements through each stage to verify proper operation and electrical connections.
4. 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 propeller unit heaters internally according to manufacturer's written instructions.

3.6 DEMONSTRATION

1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, and maintaining equipment.
2. Review data in maintenance manuals. Refer to Division 1 Section "Closeout Procedures."

END OF SECTION 15767