

## SECTION 23 82 39

### UNIT HEATERS

#### **PART 1 GENERAL**

##### **1.01 REFERENCES**

- A. Hydronics Institute (HYDI).

##### **1.02 SUBMITTALS**

- A. Product Data:
  - 1. Cabinet unit heaters.
  - 2. Hot water unit heaters.
- B. Shop Drawings:
  - 1. Product Data: Include certified performance and rated capacities; shipping, installed, and operating weights; furnished specialties; and accessories for each type of product indicated.
  - 2. Required clearances.
  - 3. Location and size of each field connection.
  - 4. Enclosure joints, corner pieces, access doors, and other accessories.
  - 5. Method of attaching hangers to building structure.
- C. Operation and Maintenance Data:
  - 1. Operating and maintenance procedures.

##### **1.03 QUALITY ASSURANCE**

- A. Product Options: drawings indicate size, profiles, connections, and dimensional requirements of pumps and are based on the specific types and models indicated. Other manufacturers' pumps with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."
- B. Regulatory Requirements: fabricate and test steam condensate pumps to comply with HI 1.1-1.5, "Centrifugal Pumps for Nomenclature, Definitions, Application and Operation," and HI 1.6, "Centrifugal Pump Tests."

##### **1.04 DELIVERY, STORAGE, AND HANDLING**

- A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and nozzles with wooden flange covers or with screwed-in plugs.
- B. Store Heating Terminals in dry location.
- C. Retain protective covers for flanges and protective coatings during storage.
- D. Protect bearings and couplings against damage from sand, grit, and other foreign matter.
- E. Comply with manufacturer's operations and maintenance instructions during construction.

##### **1.05 COORDINATION**

- A. Coordinate size and location connections to the heating water or steam system. Locate connections in an accessible location.

#### **PART 2 PRODUCTS**

##### **2.01 CABINET UNIT HEATERS**

- A. Manufacturers:
  - 1. Airtherm
  - 2. Carrier

3. McQuay
  4. Modine
  5. Sterling
  6. Trane
  7. Vulcan
  8. York
- B. Heating Element:
1. Copper tubes with aluminum fins.
- C. Cabinet:
1. Minimum 14-gauge furniture-grade steel.
  2. Non-recessed types shall have sloping tops.
- D. Fans:
1. Statically and dynamically balanced to eliminate vibrations.
- E. Motors:
1. Three speed. (Select unit at lowest speed.)
- F. Filters:
1. One-inch thick, permanent, cleanable-type, located in a frame in the return air stream, easily removable for service by removing front access panel.
- G. Controls:
1. Internal unit-mounted, pre-wired three-speed switch and "off" in addition to automatic temperature controls as specified in Controls Section.

## **2.02 HYDRONIC UNIT HEATERS**

- A. Manufacturers:
1. Airtherm
  2. Carrier
  3. McQuay
  4. Modine
  5. Sterling
  6. Trane
- B. Heating Element:
1. Copper tubes with aluminum fins.
- C. Cabinet:
1. 14-gauge steel.
- D. Fans:
1. Horizontal or vertical propeller type.
- E. Controls:
1. As specified in Controls Section.
- F. Louvers:
1. Movable for lateral and horizontal diffusion.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install cabinet unit heaters to comply with NFPA 90A.
- B. Suspend cabinet unit heaters from structure with rubber-in-shear vibration isolators (rubber hangers). Vibration isolators are specified in Specification Section 23 05 48 Mechanical Sound and Vibration.
- C. Install wall-mounting thermostats and switch controls in electrical outlet boxes at heights to match lighting controls.
- D. Unless otherwise indicated, install shutoff valve and union or flange at each connection.
- E. Install piping adjacent to machine to allow service and maintenance.

**END OF SECTION 23 82 39**