

## SECTION 23 82 33

### CONVECTORS

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. Institute of Boiler and Radiator Manufacturers (IBR), superseded by Hydronics Institute.
- B. Hydronics Institute (HYDI).

##### 1.02 SUBMITTALS

- A. Product Data:
  - 1. Baseboard or finned-tube radiation.
  - 2. Convectors.
  - 3. Hydronic radiant ceiling panels.
- 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. Radiation capacities shall be in accordance with HYDI Standard for "Testing and Rating Code for Finned-Tube Commercial Radiation."
- B. 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."
- C. 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 FINNED-TUBE RADIATION

- A. Manufacturer:
  - 1. Dunham-Busch.
  - 2. Sterling.
  - 3. Trane.
  - 4. Vulcan.
- B. Heating Element:
  - 1. Copper tubes with aluminum fins.
- C. Enclosures:
  - 1. Fabricated from 14-gauge steel.
  - 2. Manual control dampers with knob actuators.
  - 3. Enclosure to be readily removable between each mullion bracket and support enclosure for access to manual valves, balance cocks and air vents.
  - 4. Enclosures shall be furnished without access panels. Provide hinged access panels separately, to be installed after piping and radiation covers are in place, to all manual valves, control valves, balance cocks, and air vents.
  - 5. Enclosures shall have sloped top with manual damper or flat top with front outlet and manual damper.

**2.02 CONVECTORS**

- A. Manufacturers:
  - 1. Airtherm.
  - 2. American Air Filter.
  - 3. Dunham-Bush.
  - 4. Sterling.
  - 5. Trane.
  - 6. Vulcan.
- B. Heating Element:
  - 1. Copper tubes with aluminum fins.
- C. Enclosure:
  - 1. Minimum 14-gauge steel fronts and tops, 18-gauge on backs.
  - 2. Manual control damper with knob actuator.
  - 3. Non-recessed types shall have sloping tops.
  - 4. End caps where butted to wall, and on exposed ends.

**2.03 HYDRONIC RADIANT CEILING PANELS (Not recommended)**

- A. Manufacturer:
  - 1. Airtex.
  - 2. Shelley.
- B. Performance:
  - 1. Panel performance and water pressure drops shall be certified by an independent certified testing laboratory.
- C. Finishes:
  - 1. All panels shall be non-perforated with silk-screened off-white paint to match lay-in acoustical ceiling tiles per Architectural Specification.

**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 33**