

## SECTION 238236 - FINNED-TUBE RADIATION HEATERS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes hydronic, baseboard radiation heaters.

#### 1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include rated capacities, operating characteristics, furnished specialties, and accessories.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 HOT-WATER BASEBOARD RADIATION HEATERS

- A. Performance Ratings: Rate baseboard radiation heaters according to Hydronics Institute's "I=B=R Testing and Rating Standard for Baseboard Radiation."
- B. Heating Elements: Copper tubing mechanically expanded into flanged collars of evenly spaced aluminum fins resting on polypropylene element glides. One end of tube shall be belled.
  - 1. Tube Diameter: **NPS 3/4 (DN 20)**.
  - 2. Fin Size: **3 by 3 inches (76 by 76 mm)**.
  - 3. Fin Spacing: **48 per foot (131 per m)**.
  - 4. Number of Tiers: one
  - 5. Heat Output: **800 Btu/h per ft. (W/m)**.
  - 6. Entering-Air Temperature: **65 deg F (18 deg C)**.
  - 7. Average Water Temperature: **180 deg F (82 deg C)**.
  - 8. Minimum Water Velocity: .3GPM
- C. Enclosures: Minimum **0.0428-inch- (1.1-mm-)** thick steel, removable front cover.
  - 1. Full-height back.
  - 2. Full-length damper.
  - 3. End panel.
  - 4. End caps.
  - 5. Inside and outside corners.
  - 6. Valve access door.

7. Joiner pieces to snap together.
8. Enclosure Height: 8-10 inches (mm).
9. Enclosure Depth: Insert inches (mm).
10. Finish: Baked-enamel finish in manufacturer's standard color as selected by Architect.
11. Element Brackets: Primed and painted steel to support front panel and element.

## PART 3 - EXECUTION

### 3.1 BASEBOARD RADIATION HEATER INSTALLATION

- A. Install units level and plumb.
- B. Install enclosure continuously around corners, using outside and inside corner fittings.
- C. Join sections with splice plates and filler pieces to provide continuous enclosure.
- D. Install access doors for access to valves.
- E. Install enclosure continuously from wall to wall.
- F. Terminate enclosures with manufacturer's end caps except where enclosures are indicated to extend to adjoining walls.
- G. Install valves within reach of access door provided in enclosure.
- H. Install air-seal gasket between wall and recessed flanges or front cover of fully recessed unit.
- I. Install piping within pedestals for freestanding units.

### 3.2 CONNECTIONS

- A. Piping installation requirements are specified in Section 232113 "Hydronic Piping." Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Connect hot-water finned-tube radiation heaters and components to piping according to Section 232113 "Hydronic Piping".
  1. Install shutoff valves on inlet and outlet, and balancing valve on outlet.
- C. Install control valves as required by Section 230523.12 and Section 230523.15.
- D. Install thermostatic control valves as required by Section 230900 "Instrumentation and Control for HVAC."
- E. Install piping adjacent to finned-tube radiation heaters to allow service and maintenance.

### 3.3 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections:
  - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
  - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Units will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 238236