

SECTION 23 83 23 - RADIANT-HEATING PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes prefabricated radiant-heating hot water panels.

1.3 SUBMITTALS

- A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for each type of product indicated.
- B. Shop Drawings: For radiant heating panels. Include plans, sections, details, and attachments to other work.
- C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Ceiling suspension assembly members.
 - 2. Method of attaching hangers to building structure.
 - 3. Structural members to which heating panels and suspension systems will be attached.
 - 4. Size and location of initial access modules for acoustical tile.
 - 5. Items installed in finished ceiling, including the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
 - f. Perimeter moldings.
- D. Field quality-control test reports.

1.4 COORDINATION

- A. Coordinate layout and installation of radiant panels and suspension system components with other construction that penetrates ceilings or is supported by

them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 RADIANT HOT WATER PANELS

A. General

1. Provide a radiant heating panel system as indicated on the drawings and connect to hot water piping.
2. Acceptable manufacturers subject to compliance with the specifications shall be as follows:
 - a. Aero Tech
 - b. Sun-EI
 - c. Sterling
 - d. Airtex
 - e. Rosemex
 - f. Airtite
3. Performance data and dimensional specifications shall be available from the manufacturer for all products. Performance and capacity data shall be based on testing performed by the manufacturer and confirmed by a testing laboratory recognized in the Industry.

B. Radiant Panels/Extrusions

1. Radiant panel shall be manufactured utilizing extruded aluminum strips of approximately 0.115 overall thickness. The strips shall have a minimum 0.495 I.D. copper tube firmly attached to aluminum extrusion under all operating temperature conditions. Ends of tubes shall be swaged to 0.569 I.D. for proper soldering fit of ½ inch Type "L" soft copper tubing.
2. Panel sizes shall fit into a ceiling inverted T-bar linear system and as called for in the drawings and specifications. Lengths shall be as shown on the drawings. Finish on the face of the panel shall be of a color selected by the Architect. Finish shall be powder coated and suitable for temperatures up to 350°F.
3. Face configuration shall be fluted, with recessed 1/8 inch linear flutes on ½ inch centers.
4. Circuiting of the tubes on the back of the panel shall be straight tubes with ends slightly pulled up for ease of soldering.
5. Panel thermal performance shall be as specified on the mechanical drawings.

6. The panel manufacturer shall provide a 2 inch thick glass fiber pad insulation on the upper side of the radiant panels to minimize heat loss to the ceiling plenum.
7. Insulation shall be attached to the panel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and substrates to receive electric heating panels for compliance with requirements for installation tolerances and other conditions affecting performance.
 1. Ensure surfaces and substrates are level and plumb.
 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install radiant-heating panels level and plumb.
- B. Support for Radiant-Heating Panels in or on Grid-Type Suspended Ceilings: Use grid as a support element.
 1. Install a minimum of four ceiling support system rods or wires for each panel. Locate not more than 6 inches (150 mm) from panel corners.
 2. Support Clips: Fasten to panel and to ceiling grid members at or near each panel corner with clips designed for the application.
 3. Panels of Sizes Less Than Ceiling Grid: Install as indicated on reflected ceiling plans or center in acoustical panel, and support panels independently with at least two 3/4-inch (19-mm) metal channels spanning and secured to ceiling tees.
 4. Install at least one independent support rod or wire from structure to a tab on panel. Wire or rod shall have breaking strength of the weight of panel at a safety factor of 3.
- C. Verify locations of thermostats with Drawings and room details before installation. Install devices 48 inches (1220 mm) above finished floor.

3.3 CLEANING

- A. After construction is completed, including painting, clean exposed surfaces of units.
- B. Touch-up marred or scratched surfaces of factory-finished cabinets, using finish materials furnished by manufacturer.

END OF SECTION