

SECTION 23 8323

RADIANT CEILING HEATING SYSTEMS

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by one of the following methods:

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PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Radiant ceiling heating panels.
 - 2. Thermostat controls.
 - 3. Connection to power supply.

- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.
 - 2. Section [06 1100 - Framing and Sheathing:] [__ ____ - ____:] Wood ceiling framing.
 - 3. Section [09 2200 - Metal Suspension Systems:] [__ ____ - ____:] Metal ceiling suspension system.
 - 4. Section [09 2900 - Gypsum Board:] [__ ____ - ____:] Gypsum board ceilings.
 - 5. Section [09 5100 - Acoustical Ceilings:] [__ ____ - ____:] Metal ceiling suspension system.

1.2 REFERENCES

- A. National Fire Protection Association (NFPA) 70 - National Electrical Code.
- B. Underwriters Laboratories, Inc. (UL) - Product Directories.

1.3 SUBMITTALS

- A. Submittals for Review:
 - 1. Shop Drawings: Include reflected ceiling plans with heating panel layout, panel sizes, and power supply locations.
 - 2. Product Data: Manufacturer's descriptive data for heating panels and accessories, including electrical characteristics.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum [2] [__] years [documented] experience in work of this Section.
- B. Electrical Products: Tested by Underwriters Laboratories, Inc.
 - 1. Bear UL Listing Mark.
 - 2. Listed in UL Product Directory.

**** OR ****

- C. Electrical Products: Certified by CSA.

**** OR ****

D. Electrical Products: Certified by an independent laboratory approved by authorities having jurisdiction.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle panels in manner to prevent damage.

1.6 WARRANTIES

A. Furnish manufacturer's [10] [20] year warranty providing coverage against defects in materials and workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on products by Therma-Ray (www.thermaray.com).

B. Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 COMPONENTS

A. Radiant Ceiling Heating Panels:

1. Product: Therma-Ray Radiant Heating Panels.
2. Utilize alloy resistance wire element, electrically insulated, rated to 250 degrees C, uniformly distributed over panel face, embedded in 1/2 inch thick gypsum board.
3. Size: [9] [12] [18] inches wide x [2] [3] [4] [5] [6] [7] [8] [9] [10] feet long.
4. Electrical characteristics:
 - a. 120 VAC: [65] [70] [85] [95] [105] [125] [130] [150] [160] [195] [215] watts.
 - b. 208 VAC: [50] [55] [65] [70] [80] [90] [95] [110] [120] [130] [135] [140] [150] [165] [190] [195] [205] [225] [245] [285] [335] watts.
 - c. 240 VAC: [50] [70] [75] [80] [85] [95] [100] [105] [120] [130] [140] [150] [155] [160] [170] [175] [195] [200] [215] [255] [260] [325] watts.
 - d. 277 VAC: [65] [75] [90] [95] [100] [110] [115] [120] [125] [130] [135] [145] [150] [155] [175] [180] [190] [200] [215] [220] [230] [250] [300] [335] watts.
5. End caps: No. PC-1.
6. Connectors: No. 3M567.

2.3 ACCESSORIES

A. Thermostat Controls: No. SR-240/120 ThermaRay Comfort Controller.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install panels and accessories in accordance with manufacturer's instructions, approved Shop Drawings, and [NFPA 70.] [Canadian Electrical Code.]
- B. Locate controllers [where indicated.] [____.]
- C. Place panels between framing members.
- D. Secure panels in position using temporary strapping provided by panel manufacturer.
- E. Wire panels to branch circuits in parallel.

F. Place end caps over panels, connectors, and feed wires.

G. Connect to power supply and control wiring.

3.2 TESTING

A. Test installed panels at rated voltage using ammeter. Ensure that ammeter values are same as calculated for heating load.

END OF SECTION

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