

## SECTION 23 8326

### RADIANT FLOOR 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:

Microsoft Word 2007: Click the OFFICE button, select WORD OPTIONS, select DISPLAY, then select or deselect the HIDDEN TEXT option.

Microsoft Word (earlier versions): From the pull-down menus select TOOLS, then OPTIONS. Under the tab labeled VIEW, select or deselect the HIDDEN TEXT option.

Corel WordPerfect: From the pull-down menus select VIEW, then select or deselect the HIDDEN TEXT option.

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Radiant floor heating system.
  - 2. Thermostat controls.
  - 3. Connection to power supply.
  
- B. Related Sections:
  - 1. Division 01: Administrative, procedural, and temporary work requirements.
  - 2. Section [03 3000 - Cast-In-Place Concrete:] [\_\_ \_\_\_\_ - \_\_\_\_:] Concrete subfloor.
  - 3. Section [06 1100 - Framing and Sheathing:] [\_\_ \_\_\_\_ - \_\_\_\_:] Wood floor framing and decking.
  - 4. Section [09 3000 - Tiling:] [\_\_ \_\_\_\_ - \_\_\_\_:] Tile setting bed and floor finish.
  - 5. Section [09 6340 - Stone Flooring:] [\_\_ \_\_\_\_ - \_\_\_\_:] Stone setting bed and floor finish.

##### 1.2 REFERENCES

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

##### 1.3 SUBMITTALS

- A. Submittals for Review:
  - 1. Shop Drawings: Include plans with heating [panel] [cable] layout, [panel sizes,] and power supply locations.
  - 2. Product Data: Manufacturer's descriptive data for [panels] [cables] 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 products in manner to prevent damage.

## 1.6 WARRANTIES

A. Furnish manufacturer's [5] [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](http://www.thermaray.com)).

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

### 2.2 COMPONENTS

A. Radiant Floor Warming Cable System:

1. Factory fabricated electrical heating cables.
2. Utilize alloy resistance wire element, electrically insulated, rated to 250 degrees C.
3. Factory-made waterproof splice connections for each non-heating lead to resistance wire.
4. Complete heating element covered with stainless steel braid over entire length.
5. Produce two watts per linear foot when energized on design voltage.
6. Model: No. [\_\_\_\_], 120 VAC, or 240 VAC, [\_\_] watts, [\_\_] feet long x [\_\_] inches wide.
7. Spacing strips: Manufacturer's standard.
8. Controls: No. SR-240/120 SmartRooms Comfort Controller, 240/120 volts, with sensors and built-in GFCI.

### 2.3 ACCESSORIES

A. Setting Bed: Specified in Section [09 3000.] [09 6340.] [\_\_ \_\_\_\_.]

## PART 3 EXECUTION

### 3.1 INSTALLATION

A. Install cables and accessories in accordance with manufacturer's instructions, approved Shop Drawings, and [NFPA 70.] [Canadian Electrical Code.]

B. Lay out system to locate cables:

1. 1/2 to 1 inch from undersides of counters, steps, bathtubs, showers and other fixed objects.
2. 2 inches from walls and partitions.
3. 6 inches from toilets and faucets.
4. 8 inches from other heating systems installed at base of walls and partitions or in floor.

C. Attach cable to floor using spacing strip starting at connection box.

D. Attach green clip from S.I.D. to steel braid; leave on during installation. Attach black and red clips to non-heating lead wire.

- E. Place cables with manufacturer's recommended distance between cables; apply slight tension to cable to ensure that cable is parallel.
- F. Secure cable with staples or construction adhesive when required to prevent shifting during mortar placement.
- G. Install all heating portions of cable on floor.
- H. Allow sufficient space for cable return to connection box.
- I. After all cable has been installed, test cable to verify ohms and for grounding.
- J. Install controller probe wire between cables at 1 to 2 foot intervals within heating zone. Secure probes with glue, staples, or tape. Do not cross probe wires over warming cables.
- K. Embed cables in full mortar bed.
- L. Locate thermostat controls [where indicated.] [\_\_\_\_.]
- M. Ground stainless steel braid to the electrical ground wire.
- N. Connect to power supply and control wiring.
- O. Test system after mortar bed is applied, after tiles are installed but before grouting, and after grouting at rated voltage using ammeter. Ensure that ammeter values are same as calculated for heating load.

END OF SECTION

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