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Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

This section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

Section numbers are from *MasterFormat 1995 Edition*, with section numbers from *MasterFormat 2004 Edition* in parentheses. Delete version not required.

SECTION 15770 (23 83 16.13)

RADIANT-HEATING HYDRONIC-TUBING FLOOR PANELS

Specifier Notes: This section covers Creatherm™ radiant floor panels used in radiant-heating hydronic-tubing systems. The hydronic tubing shall be PE-RT (ASTM F 2623), PEX (ASTM F 876), PAP (ASTM F 1281), or tube rated for radiant-heating systems. Consult Creatherm, LLC for assistance in editing this section for the specific application.

Creatherm™ radiant floor panels may contribute to achieving LEED credits. Consult Creatherm, LLC for more information regarding LEED credits.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Interlocking, insulating, radiant-heating hydronic-tubing floor panels.

1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required. Delete related sections not required. List other sections with work directly related to this section.

- A. Section (23 83 16) – Radiant-Heating Hydronic Tubing.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards mentioned in this section, complete with designations and titles. Delete reference standards not included in this edited section. This article does not require compliance with reference standards, but is merely a listing of those used.

- A. ASTM C 177 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- B. ASTM C 272 – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
- C. ASTM C 303 – Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
- D. ASTM C 518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- E. ASTM C 1338 – Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- F. ASTM D 1621 – Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
- G. ASTM D 2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- H. ASTM E 96/E 96M – Standard Test Methods for Water Vapor Transmission of Materials.

1.4 SUBMITTALS

Specifier Notes: Edit submittal requirements as required. Delete submittals not required.

- A. Comply with Section 01330 (01 33 00) – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including installation instructions.

Specifier Notes: Delete samples if not required.

- C. Samples: Submit manufacturer's sample of radiant-heating hydronic-tubing floor panels, minimum 12 inches by 12 inches.

- D. **Manufacturer's Certification:** Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- E. **Warranty Documentation:** Submit manufacturer's standard warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. **Delivery and Acceptance Requirements:** Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. **Storage and Handling Requirements:**
 - 1. Store and handle materials in accordance with manufacturer's instructions.
 - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 - 3. Store materials in clean, dry area indoors.
 - 4. Protect materials during storage, handling, and installation to prevent damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Creatherm, LLC, 6835 Guion Road, Suite A, Indianapolis, Indiana 46268. Toll Free (888) 925-5484. Phone (317) 705-2897. Website www.creatherm.com. E-mail info@creatherm.com.

2.2 RADIANT-HEATING HYDRONIC-TUBING FLOOR PANELS

- A. **Radiant-Heating Hydronic-Tubing Floor Panels:** "Creatherm" radiant floor panels.
 - 1. Interlocking insulating panels allow for layout and installation of hydronic tubing for radiant-heating systems.
 - 2. **Material:** BASF "Styropor" expandable polystyrene (EPS).
 - a. **Cover:** High-impact polystyrene.

Specifier Notes: Specify T45, S45, or U45 radiant floor panels. Delete panels not required.

- 3. **Floor Panels: "T45".**
 - a. **Thermal Resistance, R-Value, ASTM C 177 or C 518:** 5.
 - b. **Thermal Conductivity, K-Value:** 0.382.
 - c. **Density, ASTM C 303:** 2.0 pcf.
 - d. **Compressive Resistance at 10 Percent Deformation, ASTM D 1621:** 56.8 psi.
 - e. **Water Vapor Permeability, ASTM E 96:** 0.67 perm-inches, maximum.
 - f. **Water Absorption, ASTM C 272:** 4 percent by volume, maximum.
 - g. **Dimensional Stability, ASTM D 2126:** 2 percent, maximum.
 - h. **Mold Resistance, ASTM C 1338:** No growth.
 - i. **Board Size:**
 - 1) Overall: 25 inches by 49 inches.
 - 2) Usable: 24 inches by 48 inches.
 - j. **Thickness:**
 - 1) Overall, Including Pipe Grid: 1.8 inches.

- 2) Nominal, Insulation: 1 inch.
 - k. Screed Volume in Tube Grid: 875 cubic inches.
 - l. Hydronic Tubing Inside Diameter: 1/2 inch, 5/8 inch, or 3/4 inch.
4. Floor Panels: "S45".
- a. Thermal Resistance, R-Value, ASTM C 177 or C 518: 9.
 - b. Thermal Conductivity, K-Value: 0.329.
 - c. Density, ASTM C 303: 2.0 pcf.
 - d. Compressive Resistance at 10 Percent Deformation, ASTM 1621: 36.3 psi.
 - e. Water Vapor Permeability, ASTM E 96: 0.36 perm-inches, maximum.
 - f. Water Absorption, ASTM C 272: 4 percent by volume, maximum.
 - g. Dimensional Stability, ASTM D 2126: 2 percent, maximum.
 - h. Mold Resistance, ASTM C 1338: No growth.
 - i. Board Size:
 - 1) Overall: 25 inches by 49 inches.
 - 2) Usable: 24 inches by 48 inches.
 - j. Thickness:
 - 1) Overall, Including Pipe Grid: 2.8 inches.
 - 2) Nominal, Insulation: 2 inches.
 - k. Screed Volume in Tube Grid: 875 cubic inches.
 - l. Hydronic Tubing Inside Diameter: 1/2 inch, 5/8 inch, or 3/4 inch.
5. Floor Panels: "U45".
- a. Thermal Resistance, R-Value, ASTM C 177 or C 518: 11.
 - b. Thermal Conductivity, K-Value: 0.325.
 - c. Density, ASTM C 303: 2.0 pcf.
 - d. Compressive Resistance at 10 Percent Deformation, ASTM D 1621: 44.7 psi.
 - e. Water Vapor Permeability, ASTM E 96: 0.58 perm-inches, maximum.
 - f. Water Absorption, ASTM C 272: 4 percent by volume, maximum.
 - g. Dimensional Stability, ASTM D 2126: 2 percent, maximum.
 - h. Mold Resistance, ASTM C 1338: No growth.
 - i. Board Size:
 - 1) Overall: 25 inches by 49 inches.
 - 2) Usable: 24 inches by 48 inches.
 - j. Thickness:
 - 1) Overall, Including Pipe Grid: 3.3 inches.
 - 2) Nominal, Insulation: 2.5 inches.
 - k. Screed Volume in Tube Grid: 875 cubic inches.
 - l. Hydronic Tubing Inside Diameter: 1/2 inch, 5/8 inch, or 3/4 inch.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine subbase to receive radiant-heating hydronic-tubing floor panels.
- B. Verify subbase is smooth, compact, and at proper grade.

Specifier Notes: Delete the following sentence if a vapor barrier is not required.

- C. Verify vapor barrier is installed correctly.

- D. Notify Architect of conditions that would adversely affect installation or subsequent use.
- E. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

- A. Install radiant-heating hydronic-tubing floor panels in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Ensure panel interlocks are snug and panels are aligned.
- C. Install panels with staggered or running-bond layout.
- D. Maintain 3-inch on-center knob-spacing pattern.

Specifier Notes: Edit the following sentence as required.

- E. Layout and install hydronic tubing as specified in Section [23 83 16] [_____] at locations indicated on the Drawings.

3.3 PROTECTION

- A. Protect installed radiant-heating hydronic-tubing floor panels from damage during construction.

END OF SECTION