



Evaluation #

200613-I

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material

CRETE-HEAT™ Insulated Floor Panels

Manufacturer

CRETE-HEAT, LLC.
W3213 Artesian Rd.
Fond du Lac, WI 54935

SCOPE OF EVALUATION

GENERAL: This approval evaluates the CRETE-HEAT™ insulated floor panels manufactured by CRETE-HEAT, LLC.

Comm requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1 & 2 family dwellings:**

- **Vapor Retarder:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for a vapor retarder in accordance with **s. Comm 22.22**.
- **Foam Plastic:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for foam plastics in accordance with **s. Comm 21.11**.
- **Thermal Barrier not required:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for a thermal barrier that is not required in accordance with **s. Comm 21.11 (b)**.
- **Heated Slabs:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for a heated slab in accordance with **s. Comm 22.21, Table 22.21**.
- **Piping Insulation:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for piping insulation in accordance with **s. Comm 22.19**.

The **IBC** requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Vapor Retarder:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for a vapor retarder in accordance with **s. IBC 1403.3**.
- **Foam Plastic:** The CRETE-HEAT was evaluated in accordance the requirements for foam plastics in accordance with **s. IBC 2603.3**.

- **Thermal Barrier not required:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for a thermal barrier that is not required in accordance with s. IBC 2603.4.1 and s. IBC 2603.4.1.1.

The IECC requirements below in accordance with the current **Wisconsin Amended ICC Code:**

- **Moisture Control:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for moisture control in accordance with s. IECC 502.1.1 [Comm 63.0502 (1)] and s. IECC 802.1.2 [Comm 63.0802(2)].
- **Heated Slabs:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for heated slabs in accordance with s. IECC 502.2.4.11.
- **Piping Insulation:** The CRETE-HEAT™ insulated floor panels were evaluated in accordance the requirements for piping insulation in accordance with s. IECC 503.3.3.1[Comm 63.0503(2)(a)], s. IECC 503.3.3.2, s. IECC 504.5 [Comm 63.0504(2)] and s. IECC 803.3.7 [Comm 63.0803(3)(d)].

DESCRIPTION AND USE

The CRETE-HEAT™ insulated floor panel system is an assembled modular board insulation, vapor barrier and radiant tube holding grid. It allows for the installation of hydronic radiant floor heating systems in basements, garages, main floor slab-on-grade and above-grade installations, where concrete or gypcrete is used.

The CRETE-HEAT™ insulated floor panels are 2-7/8 inch overall in thickness, with 2-inches of solid EPS foam providing an R-9. The retrofit or above-grade panel provides 2-1/8 inch overall in thickness, with 1-inch of solid EPS foam providing an R-6 with a 23db sound reduction knob on the lower surface. Each interlocking panel covers up to 8 square feet with fasteners for 1/2-inch and 5/8-inch radiant tubing. A 10-mil polystyrene film provides the vapor barrier.

The CRETE-HEAT™ insulated floor panels are 49" long by 25" wide having a 1" wide channel at the ends and along the edges, one facing up and the other facing down to allow the panels to be locked together to form panels each 48" long by 24" wide.

The 2-1/8 inch thick panel consisting of a major body section having a thickness of approximately 1-inch with protrusions on one side approximately 2.6 inches in diameter and a height of approximately 0.9-inches and nodules on the opposite side approximately 13/32-inch diameter and approximately 0.2-inch high. The protrusions are the same and are aligned in alternating rows 3 inches apart on center. The nodules are aligned in rows 1-inch on center.

The 2-7/8 inch thick panel consisting of a major body section having a thickness of approximately 2-inches with protrusions similar to the panel above but, a smooth face on the other side.

Each protrusion had a dimple on top approximately 1-1/4-inch in diameter and approximately 0.07-inch deep. In addition the sections between the protrusions had depressions approximately 2-1/2 inches by 2-1/2 inches by 0.07-inch deep. The panels consisted of EPS Plastic Foam Insulation covered on one side with a plastic shell 0.01-inch thick. The plastic shell covers the side of the panel having the protrusions.

TESTS AND RESULTS

Physical testing on the CRETE-HEAT™ insulated floor panels was conducted for:

Flexural Strength in accordance with ASTM C203-99: Method 1, Procedure A Modified with results as follows:

Shell Covered Face in Tension: 531 psi maximum fiber stress and

Exposed EPS Foam Insulation Face in Tension: 457 psi maximum fiber stress

Compressive Resistance in accordance with ASTM C165-00 Modified with results of 31 psi compressive resistance.

Density testing in accordance with ASTM D1622-03 Modified with results as follows: foam 26.49 lb./ft³, plastic shell 955 lb./ft³ and volume 1.63 in.³ and plastic shell and foam 2.30 lb./ft³, 198 in.³.

Dimensional Stability testing in accordance with ASTM D2126-04 7 day @ -40°C (-40°F) and 7 day @ 70°C (158°F), 97% RH.

Water Absorption testing in accordance with ASTM C272-01 Modified resulted in 1.0 % by Volume Absorbed.

Water Vapor Permeance testing was done in accordance with ASTM E96-00 Modified, Plastic Shell Facing Humidity resulting in 0.51perms.

Thermal Resistance testing in accordance with ASTM C518 Modified resulting in R-9.

LIMITATIONS OF APPROVAL

The CRETE-HEAT™ insulated floor panels shall be installed per the manufacturer's installation instructions as allowed under the scope of this approval.

This approval will be valid through December 31, 2011, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: November 9, 2006 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau