

## SECTION 072120 – FLOOR SLAB INSULATION SYSTEM

### PART 1 - GENERAL

#### 1 SUMMARY

A. This Section includes the following:

1. Assembled insulation, vapor barrier and PEX tube holding grid panel under concrete or gypcrete slabs.

#### 2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Installation instructions

C. Product test reports.

D. Research/Evaluation Reports.

#### 3 PRODUCT HANDLING

A. Protect insulation from damage.

B. Comply with manufacturer's recommendations for handling, storage and protection.

C. Handle boards carefully so corners are not broken off or boards otherwise damaged.

## PART 2 - PRODUCTS

### 1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Products: Subject to compliance with requirements, provide one of the products specified.

### 2 FOAM-PLASTIC BOARD INSULATION

- A. 1 1/4 inch floor slab insulation: 2-1/8 inches total thickness with 1-1/4 inches of solid EPS foam providing an R 6 and a 25 psi compressive strength rating. Each panel to cover 8 square feet with an integral 10 mil polystyrene film providing a perm rating of .68 perms and a fastener for 1/2 inch and 5/8 inch PEX tubing. The panels are to have protrusions approximately 2.6 inches in diameter and a height of approximately 0.9 inches. The protrusions to be aligned in alternating rows 3 inches apart on center to allow for an accurate tube placement on a 3" grid system.

#### 1 Material Properties:

- a. Flexural Strength in accordance with ASTM C203-99: Method 1, Procedure A Modified with results as follows:  
Shell Covered Face in Tension: 531 kPa maximum fiber stress and  
Exposed EPS Foam Insulation Face in Tension: 448 kPa maximum fiber stress
- b. Compressive Resistance in accordance with ASTM C165-00 Modified with results of 25 psi compressive resistance.
- c. Density testing in accordance with ASTM D1622-03 Modified with results as follows:  
foam 1.654 lb./ft<sup>3</sup>, and plastic shell and foam 1.95 lb./ft<sup>3</sup>
- d. Dimensional Stability testing in accordance with ASTM D2126-04 7 day @ -40°C (-40°F) and 7 day @ 70C (158°F), 97% RH.
- e. Water Absorption testing in accordance with ASTM C272-01 Modified resulted in 1.00 % by Volume Absorbed.
- f. Water Vapor Permeance testing was done in accordance with ASTM E96-00 Modified, Plastic Shell Facing Humidity resulting in 0.69 perms.
- g. Thermal Resistance testing in accordance with ASTM C518 Modified resulting in R6.

B. 2 inch floor slab insulation: 2-7/8 inches total thickness with 2 inches of solid EPS foam providing an R 10 and a 25 psi compressive strength rating. Each panel to cover 8 square feet with an integral 10 mil polystyrene film providing a perm rating of .51 perms and a fastener for ½ inch and 5/8 inch PEX tubing. The panels are to have protrusions approximately 2.6 inches in diameter and a height of approximately 0.9 inches. The protrusions to be aligned in alternating rows 3 inches apart on center to allow for an accurate tube placement on a 3” grid system.

C.

1. Material Properties:

- a. Flexural Strength in accordance with ASTM C203-99: Method 1, Procedure A Modified with results as follows:  
Shell Covered Face in Tension: 240 kPa maximum fiber stress and  
Exposed EPS Foam Insulation Face in Tension: 457 kPa maximum fiber stress
- b. Compressive Resistance in accordance with ASTM C165-00 Modified with results of 25 psi compressive resistance.
- c. Density testing in accordance with ASTM D1622-03 Modified with results as follows:  
foam 1.646 lb./ft<sup>3</sup>, and plastic shell and foam 1.95 lb./ft<sup>3</sup>
- d. Dimensional Stability testing in accordance with ASTM D2126-04 7 day @ -40°C (-40°F) and 7 day @ 70C (158°F), 97% RH.
- e. Water Absorption testing in accordance with ASTM C272-01 Modified resulted in .83 % by Volume Absorbed.
- f. Water Vapor Permeance testing was done in accordance with ASTM E96-00 Modified, Plastic Shell Facing Humidity resulting in 0.51 perms.
- g. Thermal Resistance testing in accordance with ASTM C518 Modified resulting in R10.

D. Manufacturers:

1. Crete-Heat

E. Approvals

1. Wisconsin Building Product Evaluation Number 200613-I

## PART 3 - EXECUTION

### 1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated. Attending an installation course is strongly recommended.

- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

## 2 INSTALLATION OF FLOOR SLAB INSULATION

- A. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly interlock insulation units.
- B. Protect top surface of horizontal insulation from damage during concrete work by applying protection course with joints butted.

END OF SECTION 072120