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## DIVISION: 07—THERMAL AND MOISTURE PROTECTION

### Section: 07220—Roof and Deck Insulation

#### REPORT HOLDER:

STYROTECH, INC.

8800 WYOMING AVENUE NORTH

BROOKLYN PARK, MINNESOTA 55445-1837

(763) 425-4001

[SWehrmeyer@styrotech.com](mailto:SWehrmeyer@styrotech.com)

#### EVALUATION SUBJECT:

STYRO-STOP ROOF INSULATION

### 1.0 EVALUATION SCOPE

#### 1.1 Compliance with the following codes:

- 2006 *International Building Code*® (IBC)

#### 1.2 Evaluated in accordance with:

- ICC AC 12 Approved June 2009

#### Property evaluated:

- Application directly to steel roof decks without a thermal barrier

### 2.0 USES

Styro-Stop roof insulation is used as part of a Class A, B or C roof covering system applied directly over steel roof decks.

### 3.0 DESCRIPTION

#### 3.1 General

**3.1.1** Styro-Stop is an expanded polystyrene (EPS) foam plastic insulation board used in a Class A, B, or C roof covering assembly installed in accordance with this report on steel decks without a thermal barrier.

System 1 incorporates a board, coated on one side only, installed with the coating toward the

steel deck.

System 2 incorporates uncoated EPS insulation boards.

Both systems may be installed, in accordance with the applicable sections of this report, directly to steel roof decks.

**3.1.2 Steel Roof Deck** No. 22 MSG minimum [0.030 in. (0.8 mm)], 1-½ inch deep (38 mm), unperforated, painted or galvanized steel, fluted on 6 inch (152 mm) centers. The deck shall be welded or mechanically fastened to the structural supports in accordance with the deck manufacturers recommendations.

#### 3.2 System 1

##### 3.2.1 Materials

**3.2.1.1 Foam Plastic Insulation** Styro-Stop EPS roof insulation boards are 2 to 4 feet (610 to 1219 mm) wide and 4 to 8 feet (1219 to 2438 mm) long. They are available in 1/2 inch (13 mm) thickness increments. See Table 1 for maximum thicknesses.

Styro-Stop roof insulation is available in nominal densities of 1.00, 1.25, 1.50, and 2.00 pcf (16, 20, 24, and 32 kg/m<sup>3</sup>). See Table 1 for ASTM C578 Classifications.

**3.2.1.2 Insulation Board Coating** The coating is applied by the EPS molder, to one side of the board only. The coating is a proprietary mixture whose components and rate of application are as specified in the approved quality control manual.

**3.2.1.3 Roof Covering** The roof covering must be a Class A, B, or C single-ply membrane roof covering which incorporates a generic polystyrene insulation board, having the same density and thickness as the Styro-Stop roof insulation recognized in this report. The evaluation report for the roof covering assembly must be listed by an approved listing agency

**3.2.2 Installation** The Styro-Stop EPS coated insulation boards are laid directly on the steel deck, with the protective coating side against the steel deck. Succeeding layers of uncoated EPS insulation boards are placed on top of the coated insulation boards. The total thickness of insulation

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in the roof covering assembly is 2 inches minimum and 8 inches maximum (51 and 203 mm). The method of attaching the roof covering and insulation boards to the steel roof deck shall be as specified in the listing for the roof covering material.

### 3.3 System 2

#### 3.3.1 Materials

**3.3.1.1 Foam Plastic Insulation** Uncoated Styro-Stop EPS foam plastic roof insulation boards measure 2 to 4 feet (610 to 1219 mm) wide and 4 to 8 feet (1219 to 2438 mm) long, and are available in 1/2 inch (13 mm) thickness increments up to a maximum thickness of 10 inches (254 mm).

Styro-Stop EPS foam plastic roof insulation has nominal densities of 1.00, 1.25, 1.50, and 2.00 pcf (16, 20, 24, and 32 kg/m<sup>3</sup>). See Table 1 for ASTM C578 Classifications.

**3.3.1.2 Cover Board** When required, cover board in the roof covering assembly shall be one of the following:

- 1/4-inch-thick Dens-Deck Board, manufactured by Georgia-Pacific Corporation,
- 1/4-inch-thick Securock Roof Board, manufactured by United States Gypsum Company, or
- 1/2-inch-thick wood-fiber board complying with ANSI/AHA A194.1 or ASTM C 208.

**3.3.1.3 Slip Sheet** A slip sheet may be used as an alternate to the cover board described in 3.3.1.2. If a slip sheet is used it must be one layer of Atlas Roofing FR10 or FR50.

**3.3.1.4 Roof Covering** The roof covering membrane must be a mechanically attached, fully adhered or ballasted EPDM, chloro-sulphonated polyethylene (CSPE), polyvinyl chloride (PVC), modified PVC, or thermoplastic polyolefin (TPO), listed by an approved listing agency as part of a Class A, B, or C roof covering assembly. The membrane is limited to a maximum nominal thickness of 0.060 inch (1.52 mm). The roof covering assembly listing must specify the following as the only components permitted:

- a. A generic EPS insulation board having the same density and installed thickness as

the uncoated Styro-Stop roof insulation listed in this report,

- b. the optional cover board described in Section 3.3.1.2,
- c. the optional slip sheet described in Section 3.3.1.3,
- d. the roof covering membrane described in this section,
- e. installed over a steel deck as described in Section 3.1.2.

**3.3.2 Installation** The Styro-Stop uncoated roof insulation boards are laid directly over the steel deck in single or multiple layers, to a maximum total thickness as noted in Table 1. The top layer of insulation must be placed so that the labeling required in Section 5.0 is facing up.

Installation of tapered EPS foam boards shall not exceed the maximum allowable thickness.

The cover board described in Section 3.3.1.2 or the slip sheet described in Section 3.3.1.3, when used, is laid over the insulation. The method of attaching the roof covering, cover boards, and insulation boards to the steel roof deck must be in accordance with listing for the roof covering membrane.

**3.3.3 Reroofing** New roofing must not be applied over existing roof covering assemblies. Additional EPS foam insulation may be added over existing EPS foam insulation provided:

- inspection indicates the existing EPS is sound material,
- the density of the EPS being added is equal to the density of the existing EPS,
- the existing EPS meets the requirements of this report, and
- the total thickness of the existing EPS plus the new EPS being added conforms to Table I.

The existing roof covering and, if present, the cover board must be removed before new roofing materials, can be installed.

## 4.0 INSTALLATION

See Sections 3.2.2 and 3.3.2 of this report for installation requirements.



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## 5.0 CONDITIONS OF USE

Styro-Stop Roof insulation as described in this report complies with, or is an acceptable alternate to what is specified in the code listed in Section 1.0 of this report, subject to the following conditions:

**5.1** The manufacturer's published installation instructions and this report shall be strictly adhered to, and a copy of the instructions shall be available on the jobsite at all times during installation.

**5.2** Evaluation of the roof covering system for Class A, B, or C classification in accordance with ASTM E108 is outside the scope of this report.

**5.3** For Systems installed under Section 3.3 of this report:

**5.3.1** Reroofing must be applied as described in Section 3.3.3 of this report.

**5.3.2** Permanent placards with the following words shall be attached to roof hatches and any other roof access locations: "This roof covering includes foam plastic insulation applied directly to a steel deck. The existing roofing membrane, slip sheets, and cover boards must be removed before reroofing. Limits also exist for cover boards and membranes. See IAPMO ES evaluation report #0137 before reroofing."

## 6.0 EVIDENCE SUBMITTED

**6.1** Test Reports in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), approved June 2009, and the ICC-ES Reference Criteria for Foam Plastic Insulation Applied Directly to Steel Decks (AC142), approved April 1999.

**6.2** Test reports in accordance with UL 1256.

## 7.0 IDENTIFICATION

**7.1** The EPS insulation boards are identified with the following:

- a printed label showing the name and address of the report holder or additional listee identified at the beginning of this report;
- the product name;
- the evaluation report number (#0137);

- the name of the inspection agencies (Underwriters Laboratories Inc., IAPMO-ES); and
- information indicating that the end use complies with this evaluation report.

The coated side of the insulation boards with the proprietary coating is readily identifiable.

**7.2** Insulation boards installed in accordance with Section 5.3 of this report are labeled as follows:

- The edge of each EPS insulation board is marked with the name and address of one of the companies noted at the beginning of this report,
- the product name,
- the designation "BASF", and/or "Flint Hills Resources",
- the wording "When used in reroofing applications, limits exist for cover board and membrane. See IAPMO ES evaluation report #0137 before reroofing."
- the name of the Inspection Agency (Underwriters Laboratories Inc., IAPMO-ES),



IAPMO #0137

A handwritten signature in black ink, appearing to read "Amir Fall" with a long horizontal flourish extending to the right.

Director of Evaluation Services

# EVALUATION REPORT



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**TABLE 1—MAXIMUM DENSITY AND THICKNESS**

CLASSIFICATION PER ASTM C578	MAXIMUM DENSITY (pcf)	MAXIMUM THICKNESS (Inches)	
		System 1	System 2
Type I	1.00	8.0	10.0
Type VIII	1.25	6.4	8.0
Type II	1.50	5.3	6.7
Type IX	2.00	4.0	5.0

For SI: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m<sup>3</sup>