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DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07220—Roof and Deck Insulation

REPORT HOLDER:

STYRO-STOP, INC.
8800 WYOMING AVENUE NORTH
BROOKLYN PARK, MINNESOTA 55445-1837
(763) 425-4001

EVALUATION SUBJECT:

STYRO-STOP ROOF INSULATION

ADDITIONAL LISTEE:

STYROTECH, INC.
8800 WYOMING AVENUE NORTH
BROOKLYN PARK, MINNESOTA 55445

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2000 *International Building Code*® (IBC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

Elimination of the thermal barrier when applied directly to steel roof decks

2.0 USES

Styro-Stop roof insulation is used as part of a roof covering system applied directly to steel roof decks.

3.0 DESCRIPTION

3.1 General:

Styro-Stop is an expanded polystyrene (EPS) foam plastic insulation applied directly to steel decks. System 1 incorporates a coated board, installed with the coating toward the steel deck. System 2 incorporates typical (uncoated) EPS insulation boards. Both systems may be installed, in accordance with the applicable sections of this report, directly to steel roof decks.

3.2 System 1:

3.2.1 General: Styro-Stop roof insulation is an EPS foam plastic insulation board used as a component in a Class A, B, or C roof covering assembly installed on steel decks in accordance with this report. The insulation board is available with or without a proprietary protective coating on one side.

3.2.2 Materials:

3.2.2.1 Steel Deck: Steel roof decking must be minimum No. 22 MSG [0.030 in. (0.8 mm)], 1½-inch-deep (38 mm),

unperforated, painted or galvanized steel decking, with flutes spaced a maximum of 6 inches (152 mm) on center. The deck must be welded or mechanically fastened to structural supports.

3.2.2.2 Foam Plastic Insulation: Styro-Stop EPS foam plastic roof insulation has nominal densities of 1, 1.25, 1.50, and 2.00 pcf (16, 20, 24, and 32 kg/m³) and complies with ASTM C 578 as, respectively, Type I, Type VIII, Type II, and Type IX.

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 ½-inch (13 mm) thickness increments up to a maximum thickness of 8 inches (203 mm) [9 inches (229 mm) for uncoated].

3.2.2.3 Insulation Board Coating: The coated EPS boards have the coating on one side only. The EPS molder coats the boards with a proprietary mixture whose components and rate of application are in accordance with the approved quality control manual.

3.2.2.4 Roof Covering: The roof covering must be a Class A, B, or C single-ply membrane roof covering that is listed in a current ICC-ES evaluation report. The evaluation report for the roof covering assembly must specify a generic polystyrene insulation board, having the same density and thickness as the Styro-Stop roof insulation recognized in this report, as a component of the classified roof covering assembly.

3.2.3 Installation: The Styro-Stop EPS insulation boards with the protective coating on one side are loosely laid directly over the steel deck, with the first layer of the insulation boards installed with the protective coating side facing the steel deck. Succeeding layers of EPS insulation boards, without the protective coating, are placed on top of the coated insulation boards. Minimum and maximum total thicknesses of insulation in the roof covering assembly are 2 and 8 inches (51 and 203 mm), respectively. The method of attaching the roof covering and insulation boards to the steel roof deck must be in accordance with the ICC-ES evaluation report for the roof covering material.

3.3 System 2:

3.3.1 Steel Deck: Uncoated Styro-Stop roof insulation may be used as a component of a Class A, B, or C roof covering installed on steel decks when installation is in accordance with Section 3.3 of this report.

3.3.2 Materials:

3.3.2.1 Steel Deck: Steel roof decking must be minimum No. 22 MSG [0.030 in. (0.8 mm)], 1½-inch-deep (38 mm), unperforated, painted or galvanized steel decking, with flutes spaced a maximum of 6 inches (152 mm) on center. The deck must be welded or mechanically fastened to structural supports.

3.3.2.2 Foam Plastic Insulation: The uncoated foam plastic roof insulation is as described in Section 3.2.2.2 of this report.

3.3.2.3 Cover Board: When used, the cover board in the roof covering assembly is 1/4-inch-thick (6 mm) Dens-Deck Board, manufactured by Georgia-Pacific Corporation.

3.3.2.4 Roof Covering: The roof covering membrane must be a mechanically attached, fully adhered or ballasted EPDM or thermoplastic membrane listed in a current ICC-ES evaluation report as part of a Class A, B, or C roof covering assembly. Thermoplastic membranes include polyvinyl chloride (PVC), modified PVC, chlorosulphonated polyethylene (CSPE), and thermoplastic polyolefin (TPO). The membrane is limited to a maximum nominal thickness of 0.045 inch (1 mm). The evaluation report on the roof covering assembly must specify one of the following assemblies as the only components of the classified roof covering assembly permitted under the conditions of this report:

- a. A generic EPS insulation board having the same density and installed thickness as the uncoated Styro-Stop roof insulation listed in this report, the cover board described in Section 3.3.2.3, and the roof covering membrane described in this section (3.3.2.4), installed over a steel deck as described in Section 3.3.1.1.
- b. A generic insulation board having the same density and installed thickness as the uncoated Styro-Stop roof insulation listed in this report, the roof covering membrane described in this section (3.3.1.4), and stone ballast, installed on a steel deck as described in Section 3.3.1.1 of this report.

3.3.3 Installation: The uncoated Styro-Stop roof insulation boards are loosely laid directly over the steel deck in single or multiple layers, to a maximum total thickness and density 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. Tapered EPS foam boards may be installed, provided the maximum allowable thickness is not exceeded. The cover board described in Section 3.3.2.3, when required, 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 the ICC-ES evaluation report on the roof covering membrane, and as described in Section 3.3.2.4 of this report.

3.3.4 Fire-extinguishing System: In jurisdictions using the UBC, buildings or portions of buildings covered with the roof covering assembly must be fully sprinklered with a wet-pipe automatic fire-extinguishing system complying with Chapter 9 of the UBC.

3.3.5 Reroofing: New roofing must not be applied over existing roof covering assemblies described in this report. In jurisdictions using the UBC, the components of the existing roofing that are to remain on the roof deck must be inspected in accordance with Section 1515 of the Appendix to the UBC. Additional EPS foam insulation may be added over the 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 1. The existing roof covering and, if necessary, the cover board must be removed before new roofing materials, having characteristics specifically described in this report, can be installed.

4.0 INSTALLATION

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

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 codes specifically listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Evaluation of the roof covering system for Class A, B, or C classification in accordance with ASTM E 108 is outside the scope of this report.
- 5.2** For systems installed under Section 3.3 of this report:
 - 5.2.1** In jurisdictions using the UBC, a wet-pipe automatic fire extinguishing system complying with Chapter 9 of the UBC is installed as described in Section 3.3.4 of this report.
 - 5.2.2** Reroofing is applied as described in Section 3.3.4 of this report.
 - 5.2.3** Permanent placards bearing the following words are attached to roof hatches and where other roof access is located: "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 ICC-ES evaluation report ESR-1025 before reroofing."

6.0 EVIDENCE SUBMITTED

- 6.1** Reports of tests in accordance with the ICC-ES Interim Criteria for Foam Plastics (AC12), dated July 2002, and the ICC-ES Interim Criteria for Foam Plastic Insulation Applied Directly to Steel Decks (AC142), dated April 1999.
- 6.2** Test reports in accordance with UL 1256.
- 6.3** A quality control manual.

7.0 IDENTIFICATION

The EPS insulation boards are identified with a printed label showing the name and address of one of the companies noted at the beginning of this report; the product name; the evaluation report number (ESR-1025); the name of the inspection agency (Underwriters Laboratories Inc.); 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.

Insulation boards installed in accordance with Section 5.0 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 name of the inspection agency (Underwriters Laboratories Inc.), and the designation "BASF." Additionally, there is the wording "When used in reroofing applications, limits exist for cover board and membrane. See ICC-ES evaluation report ESR-1025 before reroofing."

TABLE 1—MAXIMUM DENSITY AND THICKNESS

CLASSIFICATION	MAXIMUM DENSITY (pcf)	MAXIMUM THICKNESS (inches)	
		System 1	System 2
Type I	1.0	8.0	9.0
Type VIII	1.25	6.4	7.2
Type II	1.50	5.3	6.0
Type IX	2.0	4.0	4.5

For **SI**: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m³.