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This report is subject to re-examination in one year.

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DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07210—Building Insulation

REPORT HOLDER:

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EVALUATION SUBJECT:

ROY-LITE™ EXPANDED POLYSTYRENE INSULATION BOARDS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Energy Conservation Code*® (IECC)
- 2006 *International Residential Code*® (IRC)

Properties evaluated:

- Physical properties
- Surface-burning characteristics
- Attic and crawl space installation
- Thermal resistance

2.0 USES

Roy-Lite™ EPS insulation is an expanded polystyrene foam plastic board used as a nonstructural thermal insulation in wall cavities, ceiling assemblies, or on the outside face of exterior walls of buildings of Type V-B (IBC) construction, or on structures constructed in accordance with the IRC. The insulation board can also be used on walls in attics and crawl spaces, without the protective covering required by the applicable code, when installed as noted in Section 4.2 of this report.

3.0 DESCRIPTION

Roy-Lite™ EPS insulation boards are available with either tongue-and-groove or square edges, in various lengths and widths, and in thicknesses up to 4 inches (102 mm). The foam plastic boards are Type I, II, VIII and IX, complying with ASTM C 578, and have nominal densities of 1.0, 1.5, 1.25 and 2.0 pcf (16.0, 24.0, 20.0 and 32.0 kg/m^3) [minimum densities of 0.9, 1.35,1.15 and 1.8 pcf (14.4, 21.6, 18.4 and 28.8 kg/m^3), respectively]. The foam plastic boards have a flame-spread index not greater than 25 and a smoke-developed index not greater than 450, when tested in accordance with ASTM E 84. The foam plastic boards have the thermal resistance (*R*-values) listed in Table 1 of this report.

4.0 INSTALLATION

4.1 General:

Installation of the insulation boards must comply with this report, the manufacturer's published installation instructions and the applicable code. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

Except as noted in Section 4.2 of this report, the interior of the building must be separated from the foam plastic boards with an approved thermal barrier as required by IBC Section 2603.4 or IRC Section R314.1.2. A vapor retarder must be installed in wall and ceiling assemblies, in accordance with IRC Section R318.1 or N1102.5, as applicable. The insulation board may be applied to exterior faces of walls to a maximum thickness of $1^1/_2$ inches (38 mm), except that insulation board thicknesses greater than $1^1/_2$ inches (38 mm) may be permitted if such installation is recognized in a current ICC-ES evaluation report on a wall covering. Protection against condensation in exterior wall assemblies must be provided in accordance with IECC Section 502.5. The attachment of finish materials over the insulation board must allow for a minimum 1-inch (25.4 mm) penetration of the fasteners into wood framing. Sheathing or a wall covering over the insulation board must be structurally adequate to resist transverse loads. All walls must be braced in accordance with IBC Sections 2308.9.3 and 2308.12.4, or IRC Section R602.10.3, as applicable. Insulation boards must not be used as a nailing base for exterior siding materials. All nailing must be made through the insulation board into the wall framing or structural sheathing as required by the siding manufacturer's published installation instructions or the applicable code. The insulation boards may be used in an exterior insulation and finish system (EIFS) when specifically recognized in a current ICC-ES evaluation report. The insulation boards may be used in roof assemblies when such use is specifically recognized in a current ICC-ES evaluation report on Class A, B or C roof assemblies in accordance with IBC Section 1505.1 or IRC Section 907.1. The method of installing the insulation board must be in accordance with the ICC-ES evaluation report on the roof assembly.

4.2 Special Uses: Attics and Crawl Spaces:

The insulation board may be used on walls in attics and crawl spaces with no protective covering applied to the attic or crawl space side of the foam plastic boards, provided all of the following conditions are met:

a. Entry to the attic or crawl space is only to service utilities, and heat-producing appliances are not permitted.

b. There are no interconnected attic or basement areas.

c. Air in the attic or crawl space is not circulated to other parts of the building.

d. Attic ventilation is provided in accordance with IBC Section 1203.2 or IRC Section R806, as applicable. Under-floor ventilation is provided in accordance with IBC Section 1203.3 or IRC Section R408.1, as applicable.

e. Boards are produced in the maximum density and maximum thickness from EPS beads manufactured by the ICC-ES evaluation report holders specifically recognized in Appendix 1, Table 2, of the approved quality control manual as RoyLite A/C.

5.0 CONDITIONS OF USE

The Roy-Lite™ EPS insulation boards described in this report comply with, or are acceptable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 The insulation board used in exterior wall applications must be covered with an approved exterior wall covering, including a water-resistive barrier complying with IBC Section 1404.2 or IRC Section R703.2, as applicable.

5.3 Except as noted in Section 4.2 of this report, the insulation boards must be separated from the interior of the building with a thermal barrier complying with IBC Section 2603.4 or IRC Section R314.1.2, as applicable.

5.4 Use of the insulation board in areas of "very heavy" termite infestation must be in accordance with IBC Section 2603.8 or IRC Section R320.5, as applicable.

5.5 The insulation boards are produced in Phoenix, Arizona, under a quality control program with inspections by RADCO (AA-650).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated February 2007.

7.0 IDENTIFICATION

The insulation boards described in this report must be packaged in bundles bearing a label with the manufacturer's name (Henry Products, Incorporated); the manufacturing facility location; the date of manufacture; the density; the flame-spread and smoke-developed indices; the thermal resistance (*R*-value); the name of the inspection agency (RADCO); and the evaluation report number (ESR-2274).

Additionally, insulation boards used for installations in attics and crawl spaces in compliance with Section 4.2 of this report must be identified as RoyLite A/C.

TABLE 1—INSULATION BOARD PROPERTIES

EPS TYPE	NOMINAL DENSITY (pcf)	MINIMUM DENSITY (pcf)	THERMAL RESISTANCE (*R*-VALUE) AT 75°F (Mean Temperature)		
			At 1 Inch (per inch)	At 2 Inches (per inch)	At 4 Inches (per inch)
I	1.00	0.90	4.0	3.7	3.5
II	1.50	1.35	4.4	4.2	4.1
VIII	1.25	1.15	4.3	4.0	3.9
IX	2.00	1.80	4.5	4.4	4.2

For **SI:** 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m^3, *R* = hft^2°F/BTU (0.176 m^{2}K/W), 1 ° F = 1.8°C + 32.