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

**REPORT HOLDER:**

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**EVALUATION SUBJECT:**

**CELLOFOAM EPS INSULATION BOARD**

## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2003 *International Building Code*® (IBC)
- 2003 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

**Properties evaluated:**

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

## 2.0 USES

Cellofoam EPS Insulation is an expanded polystyrene foam plastic board used as a nonstructural thermal insulation in wall cavities, ceiling assemblies, roof assemblies, and doors, or on the outside face of exterior walls of buildings of Type V-B (IBC) or V-N (UBC) 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 ignition barrier required by the applicable code; or as the core material for non-fire-resistance rated doors when installed as noted in Section 4.2.1 or Section 4.2.2 of this report.

## 3.0 DESCRIPTION

Cellofoam EPS Insulation boards are available in flat faces and square edges with various lengths and widths and in thicknesses up to 6 inches (152 mm). The foam plastic boards are Type I, II and IX boards, complying with ASTM C 578, and have nominal densities of 1.0, 1.5 and 2.0 pcf (16.0, 24.0 and 32.0 kg/m<sup>3</sup>) [minimum densities of 0.9, 1.35 and 1.8 pcf (14.4, 21.6 and 28.8 kg/m<sup>3</sup>), 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 (UBC Standard 8-1). 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, 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, IRC Section R314.1.2 or UBC Section 2602.4. A vapor retarder must be installed in wall and ceiling assemblies, in accordance with IBC Section 1403.3 or IRC Sections R318.1 and R703.2, as applicable. A vapor barrier may be required to be installed in wall and ceiling assemblies by the code official for installations in jurisdictions adopting the UBC. The insulation board may be applied to exterior faces of walls to a maximum thickness of 1½ inches (38 mm), except that insulation board thicknesses greater than 1½ inches (38 mm) may be permitted if such installation is recognized in a current ICC-ES evaluation report on a wall covering. 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, IRC Section R602.10.3, or UBC Sections 2320.11.3 or 2320.11.4, 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, IRC Section 907.1 or UBC Section 1504.1. 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:

**4.2.1 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:

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- 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, IRC Section R806 or UBC Section 1505.3, as applicable. Under-floor ventilation is provided in accordance with IBC Section 1203.3, IRC Section R408.1 or UBC Section 2306.7, as applicable.
- e. Boards are produced from NOVA beads recognized in ICC-ES evaluation report ESR-1798, having a maximum density of 1.0 or 2.0 pcf (16.0 or 32.0 kg/m<sup>3</sup>) and a maximum thickness of 5 or 2 inches (127 or 51 mm), respectively; or boards are produced from Huntsman beads recognized in ICC-ES evaluation report ESR-1634, having a maximum density of 1.0 or 2.0 pcf (16.0 or 32.0 kg/m<sup>3</sup>) and a maximum thickness of 4 or 2 inches (102 or 51 mm), respectively.

**4.2.2 Doors:** The insulation board may be used as the core material for doors that do not require a fire-resistance rating, when installed in accordance with IBC Sections 2603.4.1.7, 2603.4.1.8, and 2603.4.1.9; IRC Section R314.2.4; or UBC Sections 2602.5.4 and 2602.5.5.

## 5.0 CONDITIONS OF USE

The Cellofoam 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 UBC Section 1402.1, or a weather-resistant sheathing paper complying with IRC Section R703.2, as applicable.

- 5.3 Except as noted in Sections 4.2.1 or 4.2.2, the insulation boards must be separated from the interior of the building with a thermal barrier complying with IBC Section 2603.4, IRC Section R314.1.2 or UBC Section 2602.4, as applicable.
- 5.4 In jurisdictions adopting the IRC, use of the insulation board in areas of "very heavy" termite infestation must be in accordance with IRC Section R320.4.
- 5.5 The insulation boards are produced in Conyers, Georgia; Orlando, Florida; Falmouth, Virginia; Sallisaw, Oklahoma; and Greenwood, Indiana, 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 June 2006.

## 7.0 IDENTIFICATION

The insulation boards described in this report must be packaged in bundles bearing a label with the manufacturer's name (Cellofoam North America Inc.); 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-1820).

Additionally, insulation boards used for installations in attics and crawl spaces in compliance with Section 4.2.1 of this report must be identified as being produced from NOVA beads recognized in ICC-ES evaluation report ESR-1798, with a maximum density of 1.0 or 2.0 pcf (16.0 or 32.0 kg/m<sup>3</sup>) and a maximum thickness of 5 or 2 inches (127 or 51 mm), respectively; or as being produced from Huntsman beads recognized in ICC-ES evaluation report ESR-1634, with a maximum density of 1.0 or 2.0 pcf (16.0 or 32.0 kg/m<sup>3</sup>) and a maximum thickness of 4 or 2 inches (102 or 51 mm), respectively.

TABLE 1—INSULATION BOARD PROPERTIES

EPS TYPE	NOMINAL DENSITY (pcf)	MINIMUM DENSITY (pcf)	THERMAL RESISTANCE (R-VALUE) (FOR 1-INCH THICKNESS)	
			At 75°F (Mean Temperature)	At 40°F (Mean Temperature)
I	1.0	0.90	3.6	4.0
II	1.5	1.35	4.0	4.4
IX	2.0	1.80	4.2	4.6

For SI: 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m<sup>3</sup>, *R* = hft<sup>2</sup> °F/Btu (0.176 m<sup>2</sup>K/W), 1°F = 1.8°C + 32.