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ICC-ES Evaluation Report

ESR-1349

Reissued January 1, 2013

This report is subject to renewal February 1, 2015.

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation
Section: 07 22 00—Roof and Deck Insulation

REPORT HOLDER:

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EVALUATION SUBJECT:

NORTHWEST FOAM PRODUCTS EXPANDED POLYSTYRENE INSULATION BOARDS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Surface-burning characteristics
- Thermal resistance (*R*-values)
- Attic and crawl space installation
- Physical properties

2.0 USES

Northwest Foam Products, Inc., insulation boards are expanded polystyrene foam plastic boards for use as a nonstructural thermal insulation in buildings of Type V (combustible) construction or structures constructed in accordance with the IRC. The boards are used as general insulation board on the exterior side of exterior walls, in wall cavities, in ceiling assemblies, in attics and crawl spaces, as roof insulation when evaluated as a component of a roof-covering assembly in a current ICC-ES evaluation report, and in exterior cementitious wall coating systems when listed as a component of such systems in a current ICC-ES evaluation report.

The insulation boards may be used as the core of sandwich panels specifically recognized in a current ICC-ES evaluation report.

3.0 DESCRIPTION

The foam boards are expanded polystyrene foam plastic that is available in various sizes and in thicknesses up to 4 inches (102 mm) with either square or tongue-and-groove edges. The foam plastic insulation complies with ASTM C 578 as Type I or Type II, with nominal densities of 1.0 and 1.5 pcf (16 and 24 kg/m^2), respectively. The foam plastic insulation board exhibits a flame-spread index of not greater than 25 and a smoke development index of not greater than 450 when tested in accordance with ASTM E 84. The insulation board is available with kraft paper and foil-laminated facer applied to one board face.

The thermal-resistance values for the foam plastic boards without the facer having nominal densities of 1.0 and 1.5 pcf (16 and 24 kg/m^2) are 3.6 and 4.0 *Hr* • ft^2 • °F/Btu (0.63 and 0.70 m^2 • K/W), respectively, per inch of thickness at 75°F (23.9°C) mean temperature.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of Northwest Foam Products Expanded Polystyrene Insulation Boards shall comply with this report and the manufacturer's published instructions. The manufacturer's published installation instructions shall be available at the jobsite at all times during installation.

The insulation boards shall be attached to supports in a manner that will secure the insulation securely in place.

The insulation boards shall not be used as exterior stud wall bracing. Wall bracing shall be provided in accordance with the applicable code.

The insulation boards shall not be used as a nailing base for exterior siding materials. All nailing shall be made through the foam board into the wall framing or into structural sheathing, as required by the siding manufacturer's installation instructions and in accordance with the applicable code. The maximum thickness of the insulation boards applied to exterior faces of walls shall be 1$^1/_2$ inches (38 mm). The attachment of finish materials over the insulation board shall provide a minimum 1-inch (25.4 mm) penetration of the fasteners into the wood framing members. Exterior wall coverings over the insulation shall be structurally adequate to resist the required horizontal forces perpendicular to the wall. A water-resistive barrier shall be provided over the insulation boards in accordance with IBC Section 1404, IRC Section R703.3 or UBC Section 1402.1, as applicable.

4.2 Special Use—Attics and Crawl Spaces:

The Northwest Foam Products insulation boards with a 4-inch (102 mm) maximum thickness and a 1.0-pound-per-cubic-foot (16 kg/m^3) maximum nominal density, are permitted to be installed exposed in attics and crawl spaces without a covering applied to the attic or crawl space side of the foam plastic as required in Section 2603.4.1.6 of the IBC, Section R314.2.3 of the IRC and Section 2602.4 (Exception 4) of the UBC, provided all of the following conditions are met:

a. Entry to the attic or crawl space is only to service utilities, and no storage is permitted.

b. There are no interconnected attic or crawl space areas.

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

d. Attic ventilation is provided when required by IBC Section 1203.2, IRC Section R806 or UBC Section 1505.3, as applicable. Under-floor (crawl space) ventilation is provided when required by IBC Section 1203.3, IRC Section 408.1 or UBC Section 2306.7, as applicable.

e. Combustion air is provided in accordance with Sections 701 and 703.1 of the *International Mechanical Code* and the *Uniform Mechanical Code*.

f. The foam plastic boards are produced with Nova Chemical, Inc., resins recognized in ESR-1798, and are identified as noted in Section 7.0.

g. The foam plastic boards are limited to a maximum thickness of 4 inches (102 mm) for Type I boards and 2$^1/_2$ inches (63.55 mm) for Type II boards.

5.0 CONDITIONS OF USE

The Northwest Foam Products insulation boards described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The boards shall be produced, identified and installed in accordance with this report, the manufacturer's published installation instructions and the applicable code. The installation instructions within this report shall govern if there are any conflicts between the manufacturer's published installation instructions and this report.

5.2 The insulation board used in exterior wall applications shall be covered with an approved exterior wall covering, including a water-resistive barrier complying with IBC Section 1404.2, IRC Section R703.2, or UBC Section 1402.1, as applicable.

5.3 The insulation boards shall be separated from the interior of the building by an approved 15-minute thermal barrier as required by the applicable code, except as permitted by Section 4.2 of this report.

5.4 When the insulation boards are used in areas where the probability of termite infestation is "very heavy" and when foam plastic insulation is used with wood construction, the foam plastic shall be installed in accordance with Section R320.5 of the IRC, where the IRC is the adopted code.

5.5 The insulation boards shall not be used structurally to resist transverse, vertical or in-plane loads. Walls on which the insulation boards are applied shall be braced in accordance with the applicable code.

5.6 The insulation board shall not be used as a nailing base.

5.7 The insulation boards shall be used only on buildings of Type V (combustible) construction or structures constructed in accordance with the IRC.

5.8 The Northwest Foam Products insulation boards are produced in Twin Falls, Idaho, 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 2012, including data in accordance with Appendix B.

7.0 IDENTIFICATION

The Northwest Foam Products, Inc., Expanded Polystyrene Insulation Boards described in this report are packaged in bundles bearing a label indicating the manufacturer's name (Northwest Foam Products, Inc.) and address, the product type, the name of the inspection agency (RADCO), the density, the flame-spread index and smoke developed index classification, the thermal-resistance *R*-value and the evaluation report number (ESR-1349). Individual boards are identified by a stamp bearing the manufacturer's name, the evaluation report number and the name of the inspection agency (RADCO). In addition, one board in each package shall be marked on both faces with the same information. Insulation boards intended for use in attics or on crawl space walls, in accordance with Section 4.2, shall also bear the word "NOVA".

TABLE 1—THERMAL RESISTANCE OF EPS FOAM PLASTIC INSULATION

EPS TYPE	MINIMUM DENSITY (pcf)	*R*-VALUE PER INCH OF THICKNESS (°F·ft^2·h/Btu)
I	0.90	3,6
II	1.35	4.00

For **SI:** 1 inch = 25.4 mm, 1 pcf = 16.02 kg/m^3, 1°F·ft^2·hr/Btu = 0.176 m^2·K/W, 1°F = 1.8°C+32.