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ICC-ES Evaluation Report

ESR-2668*

Issued January 1, 2009

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

REPORT HOLDER:

CERTAINTEED CORPORATION
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EVALUATION SUBJECT:

CERTASPRAY OPEN-CELL SPRAY FOAM INSULATION

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- Other Codes (see Section 8.0)

Properties evaluated:

- Surface-burning characteristics
- Attic and crawl space installation
- Physical properties
- Air permeability

2.0 USES

CertainTeed CertaSpray Open-Cell Spray Foam Insulation is used as a nonstructural thermal insulating material in buildings of Type V-B construction under the IBC, and in structures constructed in accordance with the IRC. The insulation is for use in wall cavities, floor assemblies, ceiling assemblies or attics and crawl spaces, when installed in accordance with Section 4.0.

3.0 DESCRIPTION

3.1 General:

CertaSpray Open-Cell Spray Foam Insulation is a spray-applied, semirigid, low-density, cellular polyurethane foam plastic insulation. The insulation is a two-component, open-cell, spray-applied, semirigid, polyurethane foam plastic system. The foam plastic has a nominal density of 0.5 pcf (8.0 kg/m^3). The polyurethane foam plastic is produced by combining a polymeric isocyanate Part A (CertaSpray A) with a resin-based Part B (CertaSpray BOC) on site, during the spraying application. The component products have a shelf life of six months when stored in factory-sealed containers at temperatures between 55°F and 80°F (13°C and 27°C).

3.2 Surface-burning Characteristics:

The insulation, at a maximum thickness of 6 inches (152.4 mm) and a nominal density of 0.5 pcf (8.0 kg/m^3), has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84.

3.3 Vapor Retarder:

The CertaSpray Open-Cell Spray Foam Insulation is not considered a vapor retarder when tested in accordance with ASTM E 96. Therefore, a vapor retarder must be provided when required by the applicable code.

3.4 Air Leakage:

The CertaSpray Open-Cell Spray Foam Insulation is considered air-impermeable, based on testing in accordance with ASTM E 283, when installed at a thickness of 5.5 inches (140 mm) or greater.

3.5 Intumescent Coatings:

3.5.1 Flame Seal TB: Flame Seal TB is a two-component, four-to-one-by-volume, liquid-applied, water-based polymer intumescent coating, manufactured by Flame Seal Products. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of six months when stored in a factory-sealed container at temperatures between 40°F and 90°F (4°C and 32°C).

3.5.2 Bay Seal IC: Bay Seal IC is a one-component, water-based polymer coating. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of one year when stored in a factory-sealed container at temperatures of 50°F (10°C) and above.

4.0 INSTALLATION

4.1 General:

CertaSpray Open-Cell Spray Foam Insulation must be installed in accordance with the manufacturer's published installation instructions, the applicable code and this report. A copy of the manufacturer's published installation instructions must be available at all times on the jobsite during installation.

4.2 Application:

The insulation is spray-applied on the jobsite using a volumetric positive displacement pump to combine the Part A and Part B components at a one-to-one ratio, as specified in the manufacturer's published installation instructions. The spray foam insulation may be applied at a maximum of 6 inches (152.4 mm) per pass to a maximum thickness of 6 inches (152.4 mm). CertaSpray Open-Cell

Spray Foam Insulation must not be applied in areas that are exposed to a maximum ambient temperature greater than 180°F (82°C). The substrates to which the insulation is applied must be clean, dry and free of frost, ice, loose debris, or contaminants that will interfere with adhesion of the spray foam insulation. The spray foam insulation must not be applied in electrical outlet or junction boxes or in direct contact with water or soil. The spray-applied foam insulation must be protected from the weather during and after application.

4.3 Thermal Barrier:

CertaSpray Open-Cell Spray Foam Insulation at a maximum thickness of 6 inches (152.4 mm) must be separated from the interior of the building by an approved thermal barrier of $^1/_2$-inch-thick (12.7 mm) gypsum wallboard or an equivalent 15-minute thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R314.4, as applicable, except when installation is in attics or crawl spaces as described in Section 4.4.

4.4 Attics and Crawl Spaces:

4.4.1 Application with a Prescriptive Ignition Barrier: When CertaSpray Open-Cell Spray Foam Insulation is applied within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Section R314.5.3 or R314.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in a manner so that the foam plastic insulation is not exposed. The insulation may be installed as described in this section in unvented conditioned attics in accordance with IRC Section R806.4.

4.4.2 Application without a Prescriptive Ignition Barrier: Where CertaSpray Open-Cell Spray Foam Insulation is installed in accordance with Sections 4.4.2.1 and 4.4.2.2, the following conditions apply:

- Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
- There are no interconnected crawl space or attic areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Ventilation of the attic or crawl space is provided in accordance with the applicable code, except when insulation is permitted in unvented conditioned attics in accordance with IRC Section R806.4.

4.4.2.1 Application with Flame Seal TB Intumescent Coating: In attics, CertaSpray Open-Cell Spray Foam Insulation may be spray-applied to the underside of roof sheathing, roof rafters and walls; and in crawl spaces, the insulation may be spray-applied to the underside of wood floors and walls as described in this section. The thickness of the foam plastic applied to the vertical surfaces or the underside of the wood floor or roof sheathing must not exceed 12 inches (304 mm). The foam plastic must be covered with Flame Seal TB, applied in accordance with the coating manufacturer's instructions, at an application rate of 0.64 gallon per 100 square feet, resulting in a 7-mil dry film thickness.

Surfaces to be coated must be dry, clean and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating. The Flame Seal TB coating is applied by airless sprayer at ambient temperatures between 50°F and 115°F (10°C and 46°C) and relative humidity of less than 70 percent.

The ignition barrier required by IBC Section 2603.4.1.6 or IRC Section R314.5.3 or R314.5.4 may be omitted. The foam plastic insulation described in this section may be installed in unvented conditioned attics in accordance with IRC Section R806.4 when the foam plastic is applied at a thickness of 1 inch (25.4 mm) or greater.

4.4.2.2 Application with Bay Seal IC Intumescent Coating: In attics, CertaSpray Open-Cell Spray Foam Insulation may be spray-applied to the underside of roof sheathing, roof rafters and walls; and in crawl spaces, the insulation may be spray-applied to the underside of wood floors and walls as described in this section. The thickness of the foam plastic applied to the vertical surfaces or the underside of the wood floor or roof sheathing must not exceed 12 inches (304 mm). The foam plastic must be covered with Bay Seal IC, applied in accordance with the coating manufacturer's instructions at a minimum application rate of 0.60 gallon per 100 square feet, resulting in a 5-mil dry film thickness.

Surfaces to be coated must be dry, clean and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating. The Bay Seal IC coating is applied with brush, roller or airless sprayer at ambient temperatures between 50°F and 115°F (10°C and 46°C) and relative humidity of less than 75 percent.

The ignition barrier required by IBC Section 2603.4.1.6 or IRC Section R314.5.3 or R314.5.4 may be omitted. The foam plastic insulation described in this section may be installed in unvented conditioned attics in accordance with IRC Section R806.4 when the foam plastic is applied at a thickness of 1 inch (25.4 mm) or greater.

4.4.2.3 Application with Fiberglass Batt Insulation: In attics, CertaSpray Open-Cell Spray Foam Insulation may be spray-applied to the underside of roof sheathing, roof rafters and walls; and in crawl spaces, the insulation may be spray-applied to the underside of wood floors and walls as described in this section. The thickness of the foam plastic applied to the vertical surfaces or the underside of the wood floor or roof sheathing must not exceed 8 inches (203 mm). The foam plastic must be covered with minimum 3½-inch-thick (88.9 mm) unfaced fiberglass batt insulation held in place using No. 16 gage steel wire spaced at 18 inches (457 mm) on center.

The ignition barrier required by IBC Section 2603.4.1.6 or IRC Section R314.5.3 or R314.5.4 may be omitted. The foam plastic insulation described in this section may be installed in unvented conditioned attics in accordance with IRC Section R806.4 when the foam plastic is applied at a thickness of 1 inch (25.4 mm) or greater.

4.4.2.4 Use on Attic Floors: CertaSpray Open-Cell Spray Foam Insulation may be installed between joists in attic spaces with one of the intumescent coatings described in Section 4.2.2.2 and 4.2.2.3 at a maximum thickness of 12 inches (304 mm), or covered with minimum $3^1/_2$-inch-thick (89 mm) unfaced fiberglass insulation at a maximum thickness of 8 inches (203 mm). The insulation must be separated from the interior of the building by an approved thermal barrier. The ignition barrier required by IBC Section 2603.4.1.6 or IRC Section R314.5.3 or R314.5.4 may be omitted.

5.0 CONDITIONS OF USE

The CertaSpray Open-Cell Spray Foam Insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 CertaSpray Open-Cell Spray Foam Insulation and FireFree88 coating must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. If there are any conflicts between the manufacturer's published installation instructions and this report, this report governs.

5.2 The insulation has been evaluated only for use in Type V-B construction under the IBC and dwellings under the IRC.

5.3 The thickness and density of the insulation must not exceed what is specified in Sections 3.2 and 4.4.

5.4 CertaSpray Open-Cell Spray Foam Insulation must be applied by contractors certified by CertainTeed Corporation.

5.5 CertaSpray Open-Cell Spray Foam Insulation must be separated from the building interior as described in Section 4.3, except when installation is in attics and crawl spaces.

5.6 Jobsite certification and labeling of the insulation must comply with IRC Sections N1101.4 and N1101.4.1 and IECC Sections 102.1.1 and 102.1.1.1, as applicable.

5.7 In areas where the probability of termite infestation is "very heavy" as determined in accordance with IBC Figure 2603.8 or IRC Figure R301.2 (6), the foam plastic must be installed in accordance with IBC Section 2603.8 or IRC Section R320.5.

5.8 The Part A component is produced in Geismar, Louisiana, and St. Rose, Louisiana, under a quality control program, with inspections by Intertek Testing Services NA, Inc. (AA-657).

5.9 The Part B component is produced in Mississauga, Ontario, Canada, under a quality control program, with inspections by Intertek Testing Services NA, Inc. (AA-657).

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated June 2009.

6.2 Reports of air leakage tests in accordance with ASTM E 283.

6.3 Reports of tests in accordance with Appendix X of AC377, dated June 2009.

7.0 IDENTIFICATION

The Part A and Part B components for CertaSpray Open-Cell Spray Foam Insulation are packaged in 55-gallon drums that bear the report holder's name (CertainTeed Corporation) and address; the date of manufacture or the lot number; the product trade name (CertaSpray); the product type (Part A or Part B); the installation instructions; the density; the flame-spread and smoke-developed indices; the name of the inspection agency (Intertek Testing Services NA, Inc.); and the evaluation report number (ESR-2668).

Each pail of Flame Seal TB or Bay Seal IC intumescent coating is labeled with the manufacturer's name (Flame Seal Products or CertainTeed Corporation) and address and the product trade name.

8.0 OTHER CODES

8.1 Scope:

In addition to the codes referenced in Section 1.0, the products in this report were evaluated for compliance with the requirements of the following codes:

- 2003 *International Building Code*® (2003 IBC)
- 2003 *International Residential Code*® (2003 IRC)
- BOCA® *National Building Code*/1999 (BNBC)
- 1999 *Standard Building Code*© (SBC)
- 1997 *Uniform Building Code*™ (UBC)

8.2 Uses:

CertainTeed CertaSpray Open-Cell Spray Foam Insulation is used as a nonstructural thermal insulating material in buildings of Type V-B construction under the 2003 IBC, and in structures constructed in accordance with the 2003 IRC; and in Type 5-B under the BNBC, Type VI under the SBC and Type V-N under the UBC. The insulation is for use in wall cavities, floor assemblies, ceiling assemblies or attics and crawl spaces, when installed in accordance with Section 8.4.

8.3 Description:

8.3.1 General: See Section 3.0.

8.3.2 Surface-burning Characteristics: The insulation, at a maximum thickness of 6 inches (152.4 mm) and a density of 0.5 pcf (8.0 kg/m^3), has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with UBC Standard 8-1.

8.3.3 Vapor Retarder: See Section 3.3.

8.3.4 Air Leakage: See Section 3.4.

8.3.5 Intumescent Coating: See Section 3.5.

8.4 Installation:

8.4.1 General: See Section 4.1.

8.4.2 Application: See Section 4.2.

8.4.3 Thermal Barrier: See Section 4.3. Applicable code sections are 2003 IBC Section 2603.4, 2003 IRC Section R314.1.2, BNBC Section 2603.4, SBC Section 2603.5 or UBC Section 2602.4.

8.4.4 Attics and Crawl Spaces:

8.4.4.1 Application with a Prescriptive Ignition Barrier: See Section 4.4.1. Applicable code sections are 2003 IBC Section 2603.4.1.6, 2003 IRC Section R314.2.3, BNBC Section 2603.4.1.4, SBC Section 2603.5.1.6 or UBC Section 2602.4. Attics and crawl spaces must be ventilated per applicable code.

8.4.4.2 Application without a Prescriptive Ignition Barrier: See Section 4.4.2. Applicable codes sections are 2003 IBC Section 2603.4.1.6, 2003 IRC Section R314.2.3, BNBC Section 2603.4.1.4, SBC Section 2603.5.1.6, and UBC Section 2602.4. Attics and crawl spaces must be ventilated per the applicable code.

8.5 Conditions of Use:

The CertaSpray Open-Cell Spray Foam Insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 8.0 of this report, subject to the following conditions:

8.5.1 See Section 5.1.

8.5.2 CertaSpray Open-Cell Spray Foam Insulation has been evaluated only for use in Type V-B construction under the 2003 IBC, dwellings under the 2003 IRC, Type 5-B under the BNBC, Type VI under the SBC and Type V-N under the UBC.

8.5.3 See Section 5.3.

8.5.4 See Section 5.4.

8.5.5 CertaSpray Open-Cell Spray Foam Insulation must be separated from the building interior as described in Section 8.4.3 of this report.

8.5.6 See Section 5.6.

8.5.7 See Section 5.7.

8.5.8 In areas where the probability of termite infestation is “very heavy” as determined in accordance with 2003 IRC Figure R301.2 (6) or SBC Figure 2304.1.4, the foam plastic must be installed in accordance with 2003 IRC Section R320.4 or SBC Section 2603.3, respectively.

8.5.9 See Section 5.9.

8.5.10 See Section 5.10.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.