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ESR-3826

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

SECTION: 07 21 00—THERMAL INSULATION

REPORT HOLDER:

NCFI POLYURETHANES

POST OFFICE BOX 1528
MOUNT AIRY, NORTH CAROLINA 27030

EVALUATION SUBJECT:

SEALITE™ OCX SPRAY-APPLIED POLYURETHANE INSULATION

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ICC-ES Evaluation Report

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

NCFI POLYURETHANES
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(800) 346-8229
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EVALUATION SUBJECT:

SEALITE™ OCX SPRAY-APPLIED POLYURETHANE INSULATION

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012 and 2009 *International Building Code®* (IBC)
- 2012 and 2009 *International Residential Code®* (IRC)
- 2012 and 2009 *International Energy Conservation Code®* (IECC)

Properties evaluated:

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

2.0 USES

Sealite™ OCX spray foam is used as a nonstructural thermal insulating material in buildings of Type VB construction under the IBC and dwellings under 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 4.4. Under the IRC, the insulation may be used as air-impermeable insulation when installed in accordance with Section 4.2.

3.0 DESCRIPTION

3.1 Sealite™ OCX Insulation:

Sealite™ OCX foam plastic insulation is a two-component, open-cell, spray-applied foam plastic with a nominal density of 0.5 pcf. The polyurethane foam is produced by combining a polymeric isocyanate (the A component) and a proprietary resin (the R component). The A and R components have a shelf life of six months when stored in factory-sealed containers at temperatures between 55°F and 80°F (12.8°C and 27°C).

3.2 Surface Burning Characteristics:

Sealite™ OCX insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 0.5 pound per cubic foot, has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 (UL 723). There is no thickness limit when installation is behind a code-prescribed 15-minute thermal barrier.

3.3 Thermal Resistance:

Sealite™ OCX insulation has thermal resistances, *R*-values, at a mean temperature of 75°F (24°C) as shown in Table 1.

3.4 Air Permeability:

Sealite™ OCX insulation, at a minimum $3^1/_2$-inch (89 mm) thickness, is considered air-impermeable insulation in accordance with 2012 IRC Section R806.5 (2009 IRC Section R806.4), based on testing in accordance with ASTM E283.

3.5 DC 315 Fireproof Paint:

DC 315 Fireproof Paint, manufactured by International Fireproof Technology, Inc., is a water-based, intumescent coating supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums. The coating material has a shelf life of 24 months when stored in factory-sealed containers at temperatures between 41°F (5°C) and 95°F (35°C).

4.0 DESIGN AND INSTALLATION

4.1 General:

The manufacturer's published installation instructions and this report must be strictly adhered to and a copy of the instructions and this evaluation report must be available on the jobsite at all times during installation.

4.2 Application:

Sealite™ OCX insulation must be spray-applied using a volumetric positive displacement pump as identified in the NCFI Polyurethanes application manual. The insulation must not be used in areas having a maximum service temperature greater than 180°F (82°C), must not be used in electrical outlet or junction boxes or in direct continuous contact with water. The surfaces to which the insulation is to be applied must be clean, dry and free of frost, ice loose debris or contaminants that will interfere with the adhesion

of the insulation. The insulation must be protected from the weather during and after application. Where the Sealite™ OCX is used as an air-impermeable barrier, such as in unventilated attic spaces regulated by IRC Section R806, the insulation must be installed at a minimum thickness of $3^1/_2$ inches (89 mm). The insulation can be installed at a maximum per pass thickness equal to the installed thickness. The Sealite™ OCX must be installed by factory-certified applicators.

4.3 Thermal Barrier:

4.3.1 Application with a Prescriptive Thermal Barrier: Sealite™ OCX spray foam insulation must be separated from the interior of the building by an approved thermal barrier of $^1/_2$-inch-thick (12.7 mm) gypsum board or an equivalent 15-minute thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R316.4, as applicable. When installation is within an attic or crawl space as described in Section 4.4, a thermal barrier is not required between the foam plastic and the attic or crawl space, but is required between the insulation and the interior of the building. There is no thickness limit when installation is behind a code-prescribed thermal barrier, except as noted in Section 4.4.2.2.

4.4 Protection from Ignition (Ignition Barrier):

4.4.1 Application with a Prescriptive Ignition Barrier: When Sealite™ OCX insulation is installed 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 Sections R316.5.3 and R316.5.4, as applicable, except where the installation complies with the requirements set forth in Section 4.4.2. 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. Sealite™ OCX insulation may be installed in unvented attics in accordance with 2012 IRC Section R806.5 (2009 IRC Section R806.4).

4.4.2 Application without a Prescriptive Ignition Barrier: Where Sealite™ OCX spray foam is installed in an attic or crawl space without a prescriptive ignition barrier, in accordance with Sections 4.4.2.1 and 4.4.2.2, the following conditions apply:

1. Entry to the attic or crawl space is only for the service of utilities and no storage is permitted.
2. There are no interconnected attic, crawl space or basement areas.
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Combustion air is provided in accordance with IMC (*International Mechanical Code*®) Section 701.
5. Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2012 IRC Section R806.5 (2009 IRC Section R806.4).
6. Under-floor (crawl space) ventilation is provided when required by IBC Section 1203.3 or IRC Section R408.1, as applicable.

4.4.2.1 Attics and Crawl Spaces: In attics, the insulation may be spray-applied to the underside of roof sheathing or roof rafters, and/or vertical surfaces, and in crawl spaces the insulation may be spray-applied to the underside of floors and/or vertical surfaces as described in this section. The thickness of the foam plastic applied to the underside of the top of the space and/or vertical surfaces must not exceed 11 inches (279 mm). The foam plastic may be installed without a covering or coating. The insulation may be installed in unvented attics in accordance with 2012 IRC Section R806.5 (2009 IRC Section 806.4). The ignition barrier in accordance with IBC Section 2603.4.1.6 or IRC Section R316.5.3 may be omitted.

Optional: It is permitted to cover all surfaces of the foam plastic with DC 315 Fireproof Paint, as described below and in Section 3.5. The coating must be applied over the Sealite™ OCX insulation in accordance with the coating manufacturer's instructions and this report. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and other substances that could interfere with adhesion of the coating. The coating is applied in one coat with low-pressure airless spray equipment, and must be applied to a minimum wet film thickness of 5 mils (0.13 mm).

Sealite™ OCX insulation may be installed in unvented attics or crawl spaces as described in this section in accordance with 2012 IRC Section R806.5 (2009 IRC Section R806.4).

4.4.2.2 Use on Attic Floors: Sealite™ OCX insulation may be installed exposed at a maximum thickness of 11 inches (279 mm) between and over the joists in attic floors. The insulation must be separated from the interior of the building by an approved thermal barrier. The ignition barrier in accordance with the IBC Section 2603.4 and IRC Section R316.5.3 may be omitted and the insulation left exposed.

5.0 CONDITIONS OF USE

The Sealite™ OCX 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 The product must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturer's published installation instructions and this report.

5.2 The insulation must be separated from the interior of the building by an approved 15-minute thermal barrier in accordance with IBC Section 2603.4 or IRC Section R316.4, unless allowed otherwise by the applicable code or when installation is in attics and crawl spaces as described in Section 4.4.2.

5.3 The insulation must not exceed the thicknesses noted in Sections 3.2, 4.3 and 4.4 of this report.

5.4 The insulation must be protected from the weather during and after application.

5.5 The insulation must be applied by installers certified by NCFI Polyurethanes.

5.6 Use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with IRC Section R318.4 or 2012 IBC Section 2603.9 or 2009 IBC Section 2603.8, as applicable.

5.7 Jobsite certification and labeling of the insulation must comply with 2012 IRC Section N1101.12 (2009 IRC Section N1101.14), 2012 IECC Sections C303.1.1

and R401.3 [2009 IECC Section 303.1], as applicable.

5.8 The A and R components of the insulation are produced under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, (AC377), dated November 2012 (editorially revised April 2014), including reports of tests in accordance with Appendix X of AC377.

6.2 Report of air permeance tests in accordance with ASTM E283.

7.0 IDENTIFICATION

Containers of Sealite™ OCX components are identified with a label bearing the NCFI Polyurethanes name and address; the product trade name (Sealite™ OCX); the lot number; the flame spread and smoke developed indices; mixing instructions; density; the shelf life and the expiration date; and the evaluation report number (ESR-3826).

The intumescent coating is identified with the manufacturer's name and address, the product trade name and use instructions.

TABLE 1—THERMAL RESISTANCE (*R*-VALUES) OF THE SEALITE™ OCX

THICKNESS (inches)	*R*-VALUE (°F.ft².h/Btu)
1	3.5
2	7.2
3	11
$3^1/_2$	13
4	14
5	18
6	21
7	25
$7^1/_2$	27
8	29
9	32
10	36
11	39
$11^1/_2$	41
12	43
16	57

For **SI:** 1 inch= 25.4 mm; 1°F.ft².h/Btu = 0.176110°K.m².h/W.

[1] *R*-values are calculated based on tested K-values at 1- and 3.5-inch thicknesses.
[2] *R*-values greater than 10 are rounded to the nearest whole number.