



## EVALUATION SUBJECT: .50 OC HY SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

**REPORT HOLDER:**  
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**CSI Division:** 07 00 00 – THERMAL AND  
MOISTURE PROTECTION  
**CSI Section:** 07 21 00 – Thermal Insulation

### 1.0 SCOPE OF EVALUATION

#### 1.1 Compliance to the following codes & regulations:

- 2015, 2012, 2009 and 2006 International Building Code® (IBC)
- 2015, 2012, 2009 and 2006 International Residential Code® (IRC)
- 2015, 2012, 2009 and 2006 International Energy Conservation Code® (IECC)

#### 1.2 Evaluated in accordance with:

- ICC-ES AC 377

#### 1.3 Properties assessed:

- Surface-burning characteristics
- Physical properties
- Thermal Resistance
- Use in attics and crawl spaces
- Air permeability

### 2.0 PRODUCT USE

.50 OC HY spray foam is used as a nonstructural thermal insulating material in Type VB construction under the IBC and dwellings under the IRC. The insulation complies with IBC Section 2603, IRC Section R316 (2006 IRC Section 314), and IECC Sections C303, C402, R303 and R402 (2009 IECC Sections 303 and 402; 2006 IECC Section 402).

### 3.0 PRODUCT DESCRIPTION

**3.1 Product information:** .50 OC HY is a two-component, spray applied, open cell polyurethane foam plastic insulation having a nominal density of 0.5 pcf (8 kg/m<sup>3</sup>).

Shelf life is six months from date of manufacture when stored in original unopened containers at 50 to 85°F (10 to 29°C).

### 3.2 Surface Burning Characteristics

**3.2.1** The .50 OC HY insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 0.5 pounds per cubic foot (8.0 kg/m<sup>3</sup>), has a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84.

**3.2.2** Thicknesses of up to 11½ inches (292 mm) for ceiling cavities and 7½ inches (191 mm) for wall cavities are recognized based on testing in accordance with NFPA 286, when covered with a minimum ½ inch (12.7 mm) thick gypsum board or an equivalent thermal barrier complying with, and installed in accordance with the IBC or IRC.

### 3.3 Thermal Resistance

.50 OC HY insulation has a thermal resistance, R-value, at a mean temperature of 75° F (24° C) as shown in Table 1 of this report.

Thickness (inch)	R-Value (°F·ft <sup>2</sup> ·hr/Btu)
1	3.6
2	7.1
3	11
4	14
7.5	26
11.5	40

For SI: 1 inch = 25.4 mm, 1°F·ft<sup>2</sup>·h/Btu = 0.176 110 K·m<sup>2</sup>/W.

<sup>1</sup>R-Values are calculated based on tested K values at 1-inch and 4-inch thicknesses

### 3.4 Intumescent Coatings

**DC 315:** Intumescent coating is manufactured by International Fireproof Technology Inc., and is a water-based coating supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums. The coating material has a maximum shelf life of 12 months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 90°F (32°C). The material shall comply with IAPMO UES ER-499.

### 4.0 DESIGN AND INSTALLATION

**4.1 General:** .50 OC HY spray-applied foam insulation shall be installed in accordance with the manufacturer's published installation instructions and this report. Where conflicts occur, the more restrictive governs. A copy of these instructions and this evaluation report shall be available on the jobsite at all times during installation.

**4.2 Application:** .50 OC HY shall be applied using spray equipment specified by Sustainable Polymer Products.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.





**4.3 Thermal Barrier:** .50 OC HY spray foam insulation with maximum nominal thicknesses of 11.5 inches (292 mm) in ceiling cavities and 7.5 inches (190 mm) in wall cavities shall be separated from the interior of the building by a thermal barrier. The IBC and IRC specify an approved thermal barrier of ½-inch thick (12.7 mm) gypsum board wallboard or equivalent 15-minute thermal barrier complying with IBC Section 2603.4 or IRC Section R316.4 (2006 IRC Section 314.4), as applicable and installed in accordance with the applicable code.

**4.4 Attics and Crawl Spaces:** When installing .50 OC HY in attics and/or crawl spaces and a thermal barrier is omitted in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 or R316.5.4 (2006 IRC Sections R314.5.3 and R314.5.4), installation shall comply with either Sections 4.4.1 or 4.4.2 of this report.

.50 OC HY spray-foam insulation qualifies as an air-impermeable insulation at a minimum thickness of 3.5 inches (89 mm) and, when installed in accordance with Sections 4.4.1 or 4.4.2.1 of this report, may be used to insulate unvented attics in accordance with IRC Section R806.4.

**4.4.1 Application with a Prescriptive Ignition Barrier:** When .50 OC HY insulation is installed within attics and crawl spaces where entry is made only for service of utilities, an ignition barrier shall be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4 (2006 IRC Section R314.5.3 and R314.5.4), as applicable. The ignition barrier shall be consistent with the construction type of the building.

**4.4.2 Application without a Prescriptive Ignition Barrier:** Where the spray-applied insulation is installed in accordance with Section 4.4.2.1 or 4.4.2.2 of this report, the following conditions apply:

- 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 or IRC Section R806, except when an air-impermeable insulation is permitted in unvented attics in accordance with Section R806.4 of IRC. Under-floor (crawl space) ventilation is provided when required by IBC Section 1203.4 (2012, 2009 and 2006 IBC Section 1203.3) or IRC Section R408.1, as applicable.
- e) The foam plastic insulation is limited to the maximum thickness and density tested.
- f) Combustion air is provided in accordance with Sections 701 of the International Mechanical Code® (IMC) (2006 IMC Sections 701 and 703).

- g) The installed coverage rate or thickness of coatings, if part of the insulation system, shall be equal to or greater than that which was tested.

**4.4.2.1 Attics and Crawl Spaces:** .50 OC HY spray foam insulation is permitted to be spray-applied without a prescriptive ignition barrier to the underside of the roof deck to thicknesses not exceeding 11.5 inches (292 mm) and/or vertical surfaces to thicknesses not exceeding 7.5 inches (190 mm), as described in this section. The foam plastic shall be covered on all exposed surfaces with an application of DC 315 intumescent coating as described in Section 3.4 of 4 mils wet film thickness and 3 mils dry film thickness. Surfaces to be coated shall be dry, clean, and free of dirt, loose debris and other substances. The coating shall be applied in one-coat with low-pressure airless air equipment.

**4.4.2.2 Use on Attic Floors:** .50 OC HY insulation may be installed exposed (no coating), without an ignition barrier up to a maximum thickness of 11½ inches (292 mm) between and over the joist in attic floors. The insulation shall be separated from the interior of the building by an approved thermal barrier complying with Section 4.3 of this report. The ignition barrier required by IBC Section 2603.4 and IRC Section R316.5.3 (2006 IRC Section 314.5.3) may be omitted in this case.

## 5.0 LIMITATIONS

The .50 OC HY 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 limitations:

**5.1** The product shall be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The more restrictive governs if there are any conflicts between the manufacturer's published installation instructions and this report.

**5.2** .50 OC HY insulation shall be protected by a 15-minute thermal barrier in accordance with Section 2603.4 of the IBC; except installation in attics and crawl spaces may be protected by an ignition barrier in accordance with Section 2603.4.1.6 of the IBC.

**5.3** The A and B components of the insulation are produced under a quality control program with inspections by IAPMO Uniform ES.

**5.4** .50 OC HY insulation shall be installed by contractors certified by Sustainable Polymer Products

**5.5** When .50 OC HY insulation is used in areas wherein the likelihood of termite infestation is "very heavy," it shall be installed in accordance with IBC Section 2603.8 (2012 IBC Section 2603.9) or IRC Section R318.4 (2006 IRC Section R320.5), as applicable.



5.6 Jobsite labeling and certification of the insulation shall comply with 2015 IRC Sections N1101.10 and N1101.10.1.1, 2012 IRC Sections N1101.12 and N1101.12.1, 2009 and 2006 IRC Sections N1101.4 and N1101.4.1 and IECC Sections C303.1.1 and C303.1.2 (2009 IECC Section 303.1.1.1; 2006 IECC Sections 102.1.1 and 102.1.1.1) as applicable.

5.7 Where applicable, .50 OC HY shall be installed with a vapor retarder in accordance with the applicable code.

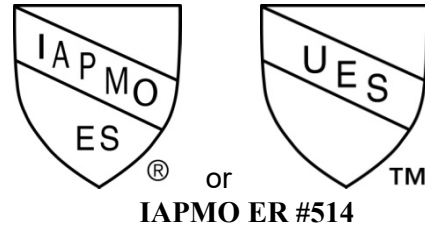
5.8 Use of .50 OC HY insulation under this report is limited to Construction Type VB.

### 6.0 EVIDENCE SUBMITTED

6.1 Data and test reports submitted are from laboratories in compliance with ISO/IEC 17025 and in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, (AC377), Approved April 2016, including reports of tests in accordance with Appendix X of AC 377.

### 7.0 IDENTIFICATION

Containers of .50 OC HY components are identified with a label bearing the Sustainable Polymer Products name address; the product trade name (.50 OC HY, Grade S, W, AS or AW); the lot number; the flame spread and smoke developed indices; mixing instructions; density; the shelf life; the expiration date; and the IAPMO Uniform ES Evaluation Report number (ER-514).



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For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email at [info@uniform-es.org](mailto:info@uniform-es.org)