



### CARLISLE SPRAY FOAM INSULATION

100 Enterprise Drive  
Cartersville, GA 30120  
Phone: (770) 607-0755  
[www.CarlisleSFL.com](http://www.CarlisleSFL.com)

### FOAMSULATE 70 SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

CSI Section:  
07 21 00 Thermal Insulation

#### 1.0 RECOGNITION

Foamsulate 70 spray-applied polyurethane foam plastic insulation described in this report has been evaluated for use as thermal insulation in construction Type V. The physical properties, thermal resistance, surface burning characteristics and attic and crawl space installations were evaluated for compliance with the following codes and regulations:

- 2018, 2015, 2012 and 2009 International Building Code® (IBC)
- 2018, 2015, 2012 and 2009 International Residential Code® (IRC)
- 2018, 2015, 2012 and 2009 International Energy Conservation Code® (IECC)

#### 2.0 LIMITATIONS

Use of Foamsulate 70 spray-applied polyurethane foam plastic insulation recognized in this report is subject to the following limitations:

2.1 The insulation and coating products shall 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, the more restrictive shall govern.

2.2 In accordance with Sections 4.5.1 and 4.5.2 of this report, the insulations shall be separated from the interior of the building by a code-complying thermal barrier or ignition barrier as appropriate.

2.3 The insulation shall not exceed the nominal density and thickness for the installation conditions described in this report.

2.4 During application, the insulation shall be protected from exposure to weather.

2.5 The insulations shall be installed by professional spray polyurethane foam installers approved by Carlisle Spray Foam Insulation, Accella Polyurethane Systems, LLC, or by the Spray Polyurethane Foam Alliance (SPFA).

2.6 Use of the insulation in areas of “very heavy” termite infestation probability shall be in accordance with 2018, 2015 and 2009 IBC Section 2603.8 and 2012 IBC Section 2603.9 or IRC Section R318.4, as applicable.

2.7 When required by the applicable code, a vapor retarder shall be installed.

2.8 Labeling and jobsite certification of the insulations and coatings shall comply with the following code sections as applicable:

- 2018, 2015 or 2012 IBC Section 2603.2
- 2018, 2015 or 2012 IRC Section R316.2
- 2018 and 2015 IRC Section N1101.10.1.1
- 2012 IRC Section N1101.12.1.1
- 2009 IRC Section N1101.4
- 2018, 2015, 2012 or 2009 IECC Section C303.1.1.1 or R303.1.1.1

2.9 Foam plastic used in plenums as interior finish or interior trim shall comply with Section 2603.7 of the IBC.

2.10 The insulation shall be produced by Carlisle Spray Foam Insulation in Cartersville, Georgia.

#### 3.0 PRODUCT USE

Foamsulate 70 spray-applied polyurethane foam plastic insulation complies with IBC Section 2603, IRC Section R316 and IECC Sections C303, C402, R303, and R402. When installed in accordance with Section 4.0 of this report, the foam plastic insulations can be used in wall cavities, floor assemblies or ceiling assemblies, and/or in attics and crawl spaces as nonstructural thermal insulation material. Foamsulate 70 insulation is used in Type V construction under the IBC and in one- and two-family dwellings under the IRC.

#### 4.0 PRODUCT DESCRIPTION

4.1 **Properties:** Foamsulate 70 is a low density, open cell, spray-applied polyurethane foam plastic insulation in accordance with Section 3.1.1 and Table 1 of AC377. The insulation has a nominal in-place density of 0.75 pcf (12 kg/m<sup>3</sup>). The two-component spray foam plastic is produced in the field by combining a polymeric isocyanate (A component) and a polymeric resin (B component). The liquid

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.





components shall be stored in 55-gallon (208 L) drums at temperatures between 70°F and 80°F (21°C and 27°C). When Component A and Component B are stored in factory-sealed containers at the recommended temperatures, the maximum shelf life is six months.

**4.2 Thermal Resistance (R-Values):** Foamsulate 70 spray-applied polyurethane foam plastic insulations have thermal resistance (R-Value) at a mean temperature of 75°F (24°C) as shown in Table 1 of this report.

Table 1 Thermal Resistance (R-Values) <sup>1</sup>	
Thickness (inch)	Foamsulate 70 R-Value (°F·ft <sup>2</sup> ·h/Btu)
1	4.4
3.5	15
4	17
5.5	23
7.5	32
11.5	49
14	59

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.

**4.3 Surface Burning Characteristics:** At a maximum thickness of 4 inches (102 mm) and a nominal density of 0.75 pcf (12 kg/m<sup>3</sup>), the Foamsulate 70 insulation has a flame spread index of 25 or less and smoke-developed index of 450 or less when tested in accordance with ASTM E84. Greater thicknesses, depending on the end use, are recognized when installed in accordance with this report.

**4.4 Fire-Protective Coatings and Coverings:** Fire protective coatings, for use as alternative thermal barrier assemblies, shall be in accordance with Table 2 of this report, as applicable, and installed in accordance with Section 4.5 of this report.

**4.5 INSTALLATIONS:** Foamsulate 70 spray-applied polyurethane foam plastic insulations shall comply with one of the following requirements:

- 2018, 2015, 2012 and 2009 IECC Sections C402.1 (prescriptive)
- 2018, 2015, 2012 and 2009 IECC Section R402.1 (prescriptive)

The manufacturer’s published installation instructions for Foamsulate 70 insulation and this report shall be available on the jobsite during installation. Where conflicts occur, the most restrictive governs.

Foamsulate 70 insulations shall be spray-applied on the jobsite using equipment specified in the manufacturer’s published installation instructions. The maximum in-service temperature for all areas shall not exceed the maximum temperature stated in the manufacturer’s published

installation instructions. The insulation shall be sprayed onto a substrate that is protected and clean from any debris or weather-related conditions during and after application and shall not be used in electrical outlets or junction boxes or in contact with rain, water, or soil.

### 4.5.1 Thermal Barrier

**4.5.1.1 Application with a Prescriptive Thermal Barrier:** Foamsulate 70 spray-applied polyurethane foam plastic insulations at any thickness in ceiling cavities and in wall cavities shall be separated from the interior by an approved thermal barrier of minimum ½ inch thick (12.7 mm) gypsum wallboard or equivalent 15-minute thermal barrier. The thermal barrier shall comply with and be installed in accordance with IBC Section 2603.4 or IRC Section R316., as applicable.

**4.5.1.2 Alternative Thermal Barrier Assemblies:** Foamsulate 70 spray-applied polyurethane foam plastic insulation may be installed without a thermal barrier as defined in Section 4.5.1 of this report when installed in accordance with Table 2 of this report and as referenced in [IAPMO UES ER-499](#).

**4.5.2 Installation in Attics or Crawl Spaces:** Foamsulate 70 spray-applied polyurethane foam plastic insulation may be installed in attics or crawl spaces when installed in accordance with this section (Section 4.5).

When installed in attics or crawl spaces where entry is made only for the service of utilities, Foamsulate 70 insulation may be installed in accordance with this section. Foamsulate 70 insulations need not be surfaced with a thermal barrier, however, such attic and crawl space areas shall be separated from the interior of the building by a thermal barrier in accordance with Section 4.5.1 of this report when not meeting the requirements of Section 4.5.2.1 or 4.5.2.2 of this report.

**4.5.2.1 Installation Using a Prescriptive Ignition Barrier:** When installed within attics or crawl spaces where entry is made only for the service of utilities, Foamsulate 70 spray-applied polyurethane foam plastic insulation, at a maximum of 4 inches (102 mm) thick shall be covered with a prescriptive ignition barrier in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable.

**Exception:** The prescriptive ignition barrier may be omitted when installed in accordance with Section 4.5.2.2 of this report.

**4.5.2.2 Installation Using an Alternative Ignition Barrier Assembly:** Foamsulate 70 spray-applied polyurethane foam plastic insulation may be installed in attics and crawl spaces using an alternative ignition barrier assembly provided:



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- a. Entry is only to service utilities in the attic or crawl space and no storage is permitted.
- b. Attic or crawl space areas cannot be interconnected.
- c. Air from the attic or crawl space cannot be circulated to other parts of the building.
- d. Attic ventilation is provided as required by 2018 IBC Section 1202.2, 2015 and 2012 IBC Section 1203.2 or IRC Section R806 except where air-impermeable insulation is permitted in unvented attics and shall comply with the following code sections as applicable:

For Unvented Attics:

- 2018 IBC Section 1202.3
- 2015 IBC Section 1203.3
- 2018, 2015, 2012 and 2009 IRC Section R806.5

Crawl space ventilation is provided as required by the following code sections as applicable:

- 2018 IBC Section 1202.4
- 2015 IBC Section 1203.4
- 2012 and 2009 IBC Section 1203.3
- 2018, 2015, 2012 and 2009 IRC Section R408.1

- e. The foam plastic insulation is limited to the maximum thickness and density tested as shown in Section 4.5.2.2.1 of this report.
- f. In accordance with IMC (International Mechanical Code®) Section 701, combustion air is provided.
- g. The installed coverage rate or thickness of coatings shall be equal to what is described in Section 4.5.2.2.1 of this report.

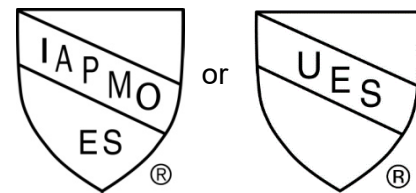
**4.5.2.2.1 Application with a Fire Protective Coating for Alternative Ignition Barrier Assembly:** Foamsulate 70 spray-applied polyurethane foam plastic insulation may be installed without an ignition barrier on walls, floors, ceilings and other vertical and horizontal surfaces as defined in Section 4.5.2.1 of this report when installed in accordance with Table 3 of this report and as referenced in [IAPMO UES ER-499](#).

## 5.0 IDENTIFICATION

The spray foam insulation is identified with the following:

- a. Manufacturer's name (Carlisle Spray Foam Insulation)
- b. address and telephone number,
- c. the product trade name ( Foamsulate 70)
- d. use instructions
- e. density, flame-spread and smoke-development indices
- f. date of manufacture or batch/run number
- g. thermal resistance values
- h. the evaluation report number (ER-627)
- i. the name or logo of the inspection agency

Either Mark of Conformity may be used as shown below:



### IAPMO UES ER-627

Each container of DC315 Fire Protective Coating is labeled in accordance with [IAPMO UES ER-499](#).

## 6.0 SUBSTANTIATING DATA

**6.1** Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation, AC377, dated April 2016, including Appendix X.

**6.2** Flammability Testing to NFPA 286, Standard Methods of Fire Tests for Evaluation Contribution of Wall and Ceiling Interior Finish to Room Fire Growth

**6.3** Test reports are from Laboratories in conformance with ISO/IEC 17025.

## 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Foamsulate 70 to assess conformance to the codes and standards shown in Section 1.0 of this report and documents the product's certification.

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



**TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLY**

FIRE-PROTECTIVE COATING/COVERING <sup>1</sup>			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS (mils)	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315 <sup>2</sup>	20 WFT (13 mils DFT)	1.3 gal/100 ft <sup>2</sup>	11.5	11.5

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft<sup>2</sup> = 0.0929 m<sup>2</sup>

<sup>1</sup> Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer's instructions and this report.

<sup>2</sup> International Fireproof Technology, Inc, recognized in [IAPMO UES ER-499](#).

**TABLE 3 - ALTERNATIVE IGNITION BARRIER ASSEMBLY**

FIRE-PROTECTIVE COATING/COVERING <sup>1</sup>			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS (mils)	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS, FLOORS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315 <sup>2</sup>	4 WFT (3 mils DFT)	1.0 gal/100 ft <sup>2</sup>	14	14

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft<sup>2</sup> = 0.0929 m<sup>2</sup>

<sup>1</sup> Fire-protective coatings and coverings shall be applied over all exposed SPF surfaces in accordance with the coating/covering manufacturer's instructions and this report.

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