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ICYNENE PRIME NM SPRAY-APPLIED POLYURETHANE FOAM PLASTIC INSULATION

CSI Section:

07 21 00 Thermal Insulation

1.0 RECOGNITION

Icynene Prime NM open cell spray foam insulation has been evaluated for use as spray foam insulation complying with IBC Section 2603, 2024 IRC Section R303; 2021 and 2018 IRC Section R316, IECC Sections C303, C402, R303, and R402. The surface burning, physical properties, thermal resistance, and applications in Type V construction of Icynene Prime NM spray foam insulation were evaluated to comply to the intent of the following codes and regulations:

- 2024, 2021, and 2018 International Building Code® (IBC)
- 2024, 2021, and 2018 International Residential Code® (IRC)
- 2024, 2021, and 2018 International Energy Conservation Code® (IECC)

2.0 LIMITATIONS

Use of the Icynene Prime NM open cell spray foam insulation recognized in this report is subject to the following limitations:

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

2.2 The insulation shall be separated from the interior of the building by a code approved thermal barrier.

2.3 During installation, the insulation and the surfaces to which it is applied shall be protected from exposure to weather.

2.4 The contractors that will be installing the insulation shall be approved by Huntsman Building Solutions or by the Spray Polyurethane Foam Alliance.

2.5 Use of the insulation in areas of "very heavy" termite infestation shall be in accordance with the IBC Section 2603.8, 2024 IRC Section R305.4, or 2021 and 2018 IRC Section R318.4, as applicable.

2.6 Labeling and jobsite certification of the insulation and coatings shall comply with IBC Section 2603.2; IRC Sections N1101.10 and N1101.10.1.1; and IECC Sections C303.1.1 and C303.1.2, as applicable.

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

2.8 The use of Icynene Prime NM spray foam insulation in fire-rated assemblies is beyond the scope of this review.

2.9 The insulation shall be produced by Huntsman Building Solutions, Inc. in Arlington, TX.

3.0 PRODUCT USE

3.1 General: When installed in accordance with Section 3.3 of this report, Icynene Prime NM spray foam insulation can be used in wall cavities, floor assemblies or ceiling assemblies, and in attic and crawl spaces as nonstructural thermal insulation material. The spray-applied foam plastic insulation is used in Type V construction under the IBC and in dwellings under the IRC. Icynene Prime NM spray foam insulation is permitted to be used in Types I through IV construction when the requirements of Section 2603.5.5 Exception 1 or Exception 2 are met.

3.2 Design: Icynene Prime NM spray foam insulation shall comply with requirements in IECC Chapter 4-Commercial Energy Efficiency and Residential Energy Efficiency, as applicable.

3.2.1 Thermal Resistance (R-Values): Icynene Prime NM spray foam insulation has a thermal resistance (R-Value) at a mean temperature of 75°F (24°C) as shown in [Table 1](#) of this report.

3.2.2 Surface Burning Characteristics: At a maximum thickness of 4 inches (102 mm) and a nominal density of 0.5 pcf (8.0 kg/m³), the Icynene Prime NM spray foam insulation 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.

3.2.3 Air Permeability: Icynene Prime NM spray foam insulation is classified as an air-impermeable insulation when tested in accordance with ASTM E2178 at a minimum thickness of 3½ inches (89 mm) in accordance with IBC Section 202 and IRC Section R202.

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 Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.

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3.3 Installation:

3.3.1 Installation General: The manufacturer's published installation instructions for Icynene Prime NM spray foam insulation and this report shall be available and strictly adhered to at all times on the jobsite during installation.

The spray foam insulation shall be spray-applied on the jobsite using a volumetric positive displacement pump in accordance with the manufacturer's published installation instructions. Icynene Prime NM can be applied in one pass (lift) or multiple passes (or lifts). When multiple passes (or lifts) are required, cure time between passes is negligible.

The in-service temperature for all areas shall not exceed 180°F (82°C). The spray-applied foam plastic insulation shall not be used in electrical outlets or junction boxes or in continuous contact with rain or water. The spray-applied foam plastic insulation shall be sprayed onto a substrate that is protected and clean from any debris or weather-related conditions during application.

3.3.2 Thermal Barrier

3.3.2.1: Application with an Approved Thermal Barrier: Icynene Prime NM spray foam insulation shall be separated from the interior of the building and installed with an approved thermal barrier such as a minimum ½-inch-thick (12.7 mm) gypsum wallboard or other material as allowed in Section 2603.4 of the IBC; 2024 IRC Section R303.4; or 2021 and 2018 IRC Section R316.4, as applicable. When installed in accordance with this section, the spray foam may be any thickness when installed behind a prescriptive thermal barrier.

3.3.2.2 Alternative Thermal Barrier Assemblies: Icynene Prime NM spray-applied polyurethane foam plastic insulation may be installed without a thermal barrier as defined in Section 3.3.2.1 of this report when installed in accordance with [Table 2](#) of this report and as referenced in International Fireproof Technology, Inc's [IAPMO UES ER-499](#).

3.3.3 Installation for Attics and Crawl Spaces:

3.3.3.1 General: When used in an attic or crawl space where entry is made only for service of utilities, Icynene Prime NM spray foam insulation shall be installed in accordance with this section. The insulation shall be separated from the interior of the attic or crawlspace by a prescriptive ignition barrier assembly as noted in Section 3.3.3.2.

3.3.3.2 Installation with a Prescriptive Ignition Barrier: Where entry is made only for the service of utilities, Icynene Prime NM spray foam insulation may be installed within attics or crawl spaces with an ignition barrier in accordance with IBC Section 2603.4.1.6, 2024 IRC Sections R303.5.3 and R303.5.4, and 2021 and 2018 IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier shall be installed

in a manner such that the foam plastic insulation is not exposed and is consistent with the requirements of the type of construction required by the applicable code. When installed in accordance with this section, the spray foam may be any thickness.

3.3.3.3 Installation in Attics and Crawl Spaces Using an Alternative Ignition Barrier Assembly (Commonly Known as Appendix X): Icynene Prime NM spray foam insulation may be installed in attics and crawl spaces without a prescriptive ignition barrier provided:

- 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 IBC Section 1202.2 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:

- IBC Section 1202.3
- IRC Section R806.5

Ventilated crawl spaces shall be provided with ventilation as required by the following code sections as applicable:

- IBC Section 1202.4
- IRC Section R408.1

- e. Icynene Prime NM spray foam insulation may be applied at a nominal density of 0.5 pcf (8.0 kg/m³) to the underside of roof sheathing or roof rafters and vertical surfaces of attics and in crawl spaces without a prescriptive ignition barrier when meeting the requirements of [Table 3](#) of this report.
- f. Combustion air is provided in accordance with the Uniform Mechanical Code Chapter 7, NFPA 31, or the International Mechanical Code® Section 701.

3.3.3.4 Unvented Attics:

3.3.3.4.1 General: Icynene Prime NM spray foam insulation may be installed in unvented attic assemblies and unvented enclosed rafter assemblies in accordance with Section 1202.3 of the IBC or Section R806.5 of the IRC, as applicable. The attic shall be protected as required in Sections 3.3.3.2, 3.3.3.3, or 3.3.3.4, as applicable.

3.3.3.4.2 Installation in an Unvented Attic Without Prescriptive Ignition Barrier (Commonly Known as Appendix U): Icynene Prime NM spray foam insulation, when installed in unvented attics at a maximum thickness of 8 inches (203 mm) in wall cavities and 14 inches (356 mm) in ceiling joist cavities and a minimum thickness of 3½ inches (89 mm) on walls and ceilings, is not required to be installed



with a prescriptive ignition barrier or alternative ignition barrier assembly as required in Section 3.3.3 of this report when meeting the following limitations as required by Appendix U in AC377:

- The insulation shall be separated from the interior of the building by an approved thermal barrier as described in Section 3.3.2 of this report.
- Entry to the attic is only to service utilities, and no storage is permitted.
- There are no interconnected attic areas.
- Air in the attic is not circulated to other parts of the building.
- The foam plastic insulation is limited to the maximum thickness and density tested.
- Combustion air is provided in accordance with the Uniform Mechanical Code Chapter 7, International Mechanical Code Section 701, or NFPA 31.
- If hot work is required to be performed, all necessary procedures, precautions, and limitations must be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work (welding/cutting) performed in the vicinity of combustible materials.
- A downward opening hatch shall be required. The hatch shall remain closed at all times except for when servicing of utilities is required. The hatch shall be able to be opened freely without disengaging a latching or locking mechanism.

Information shall be provided to the building official to show that the maximum uniform pressure required to open the downward opening attic hatch shall be less than or equal to 10 psf (479 Pa).

3.3.4 Installation Certificate: When meeting installation as required in Sections 3.3.3.3 or 3.3.3.4.2 of this report, an installation certificate shall be posted at each entrance to the attic or crawlspace, as applicable. The certificate shall be made of durable materials and red in color. The installation certificate shall include the following information as required by AC377:

- Icynene Prime NM spray foam insulation product name and installation thickness.
- Huntsman Building Solutions' name, address, and contact information, as applicable.
- If coating is used as shown in Section 3.3.3.3 and Table 3 of this report, the coating product name, installation rate, wet and dry film thickness shall be shown.
- Installation contractor name, address, and contact information.
- Attestation that the spray foam has been installed in accordance with the manufacturer's installation instructions and the requirements of this report.
- A notice that the certificate shall not be removed or altered.
- The following notices shall also be included on the certificate:

1. Entry to the space is only to service utilities, and no storage is permitted.
2. When meeting the requirements of Section 3.3.3.4.2 of this report, notification that the hatch shall always remain closed, except for when servicing of utilities is required. No lock or latches that would prevent the hatch from opening freely may be added to the hatch.
3. **FIRE SAFETY WARNING:** If hot work (welding/cutting) is required to be performed, all necessary procedures, precautions, and limitations shall be observed in accordance with OSHA 1926 Subpart J Standard 1926.352 requirements for hot work performed in the vicinity of combustible materials.

When meeting the requirements of Section 3.3.3.4.2 of this report, notification that the space has been designed and constructed / installed as an unvented attic assembly; introduction of any penetrations to the exterior or alterations to the insulation shall be designed by a registered design professional. The design of the change shall be submitted to the building official for approval, as required by the local jurisdiction.

4.0 PRODUCT DESCRIPTION

4.1 General: Icynene Prime NM is a low-density spray-applied, foam plastic complying with Section 301.1 and Table 1 of ICC 1100. The insulation is a two-component spray foam plastic with a nominal in-place density of 0.5 pcf (8 kg/m³).

The spray-applied insulation is a non-mixed system that combines a polymeric isocyanate (A component) and a resin blend (B component). The liquid components shall be stored in 55-gallon (208-L) drums at temperatures between 50°F and 100°F (10°C and 38°C). When Component A and Component B are stored in factory-sealed containers at the recommended temperatures, the maximum shelf life is twelve months for Component A and six months for Component B.

4.2 Self-Ignition Temperature: When tested to the requirements of ASTM D1929, Icynene Prime NM spray foam insulation has a self-ignition temperature of 678°F (359°C).

4.3 Potential Heat: When tested to the requirements of NFPA 259, Icynene Prime NM spray foam insulation has potential heat of 11,616 BTU/lb (27,019 kJ/kg).

4.4 Evaluation of Chemical Emissions: When tested to the requirements of UL2821, Icynene Prime NM spray foam insulation is in compliance with UL 2821 GREENGUARD Gold. For further information, please contact Huntsman Building Solutions.

5.0 IDENTIFICATION

Icynene Prime NM spray foam insulation containers are identified by the manufacturer's name (Huntsman Building



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Solutions), address and telephone number, product name, use instructions, density, flame-spread and smoke-development indices, date of manufacture, and evaluation report number (IAPMO UES ER-1007).

The identification may also include the IAPMO Uniform Evaluation Service Mark of Conformity as shown below:



IAPMO UES ER-1007

6.0 SUBSTANTIATING DATA

6.1 Manufacturer's descriptive literature and installation instructions.

6.2 Data in accordance with 2019 ICC 1100 Standard for Spray-applied Polyurethane Foam Plastic Insulation, including Appendix X.

6.3 Data in accordance with the Acceptance Criteria for Spray-applied Foam Plastic Insulation, ICC-ES AC377, dated June 2023, including Appendix U and Appendix X.

6.4 Data in accordance with IAPMO ES1000-2020 Standard for Building Code Compliance of Spray-Applied Polyurethane Foam.

6.5 Testing to the requirements of NFPA 259 for potential heat.

6.6 Testing to the requirements of UL2821 UL GREENGUARD Certification Program.

6.7 Testing to the requirements of NFPA 286 for room corner testing.

6.8 Testing to the requirements of ASTM D1929 for self-ignition temperature.

6.9 Reports of air permeance testing in accordance with ASTM E2178.

6.10 Test reports are from laboratories in compliance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Icynene Prime NM open cell spray foam insulation to assess its conformance to the codes shown in Section 1.0 of this report and documents the product's certification. Products are manufactured at the location noted in Section 2.9 of this report under a quality control program with periodic inspections under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org



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TABLE 1
Thermal Resistance (R-Value) ^{1,2}
(°F·ft²·h/BTU)

Thickness (inch)	R-Value
	Icynene Prime NM
1	3.9
2	7.6
3	11
3.5	13
4	15
5	19
5.5	21
6	22
7	26
7.25	27
8	30
9	34
9.25	35
10	37
11	41
11.25	42
12	45
13	49
14	52

For SI: 1 inch = 25.4 mm, 1°F·ft²·h/Btu = 0.176 110 K·m²/W.

¹ R-Values are calculated based on tested values at 1-inch and 3.5-inch thicknesses.

² R-Values greater than 10 are rounded to the nearest whole number.

TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLY

FIRE-PROTECTIVE COATING/COVERING ¹			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315 ²	18 mils WFT (12 mils DFT)	1.1 gal/100 ft ²	10	12

For SI: 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft² = 0.0929 m²

¹ 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.

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

TABLE 3 - ALTERNATIVE IGNITION BARRIER ASSEMBLIES¹

FIRE-PROTECTIVE COATING/COVERING			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS (mils)	THEORETICAL APPLICATION RATE	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315 ²	6 mils WFT (4 mils DFT)	0.37 gal/100 ft ²	8	16

For SI: 1 inch = 25.4 mm, 1 mil = 0.0254 mm, 1 gallon = 3.785 L, 1 ft² = 0.0929 m²

¹ 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.

² International Fireproof Technology, Inc, recognized in [IAPMO UES ER-499](#)