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PROFILL

CSI Section:
07 21 00 Thermal Insulation

1.0 RECOGNITION

Profoam Corporation's PROFILL spray-applied polyurethane foam plastic insulation recognized in this report has been evaluated for use as non-structural thermal insulation material. The surface burning characteristics and physical and thermal properties comply with the intent of the provisions of the following codes and regulations:

- 2024, 2021, 2018, and 2015 International Building Code® (IBC)
- 2024, 2021, 2018, and 2015 International Residential Code® (IRC)
- 2024, 2021, 2018, and 2015 International Energy Conservation Code® (IECC)
- 2023 Florida Building Code, Building (FBC, Building) – Supplement attached
- 2023 Florida Building Code, Residential (FBC, Residential) – Supplement attached
- 2023 Florida Building Code, Energy Conservation (FBC, Energy Conservation)

2.0 LIMITATIONS

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

2.1 The insulation shall be installed in accordance with the applicable code, the manufacturer's published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.2 PROFILL spray-applied polyurethane foam plastic insulation shall be installed by applicators approved by Profoam Corporation. Alternatively, applicators who have a current SPFA PCP certification may be authorized to install.

2.3 PROFILL spray-applied polyurethane foam plastic insulation when used in areas where, in the likelihood termite infestation is "very heavy," shall be installed in accordance with IBC Section 2603.8, 2024 IRC Section R305.4, or 2021, 2018, or 2015 IRC Section R318.4, as applicable.

2.4 Jobsite labeling and certification of the insulation shall comply with the IRC Sections N1101.10 and N1101.10.1.1, and IECC Sections C303.1.1 and C303.1.2, as applicable.

2.5 Where applicable, PROFILL spray-applied polyurethane foam plastic insulation shall be installed with a vapor retarder in accordance with the applicable code.

2.6 Except as indicated in Section 3.3.3.2 of this report or by the applicable code, the insulation shall be separated from the interior of the building by a code approved thermal barrier.

2.7 During installation, the insulation and the surfaces to which they are applied shall be protected from exposure to weather.

3.0 PRODUCT USE

3.1 General: PROFILL spray-applied polyurethane foam plastic insulation is an open cell spray foam used as a nonstructural thermal insulating material in Type V construction under the IBC and dwellings under the IRC. The insulation complies with IBC Section 2603; 2024 IRC Section R303, and 2021, 2018, and 2015 IRC Section R316; and IECC Sections C303, C402, R303; and R402.

3.2 Design:

3.2.1 Surface Burning Characteristics: PROFILL polyurethane foam plastic insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 0.45 pcf (7.2 kg/m^3), 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.

3.2.2 Thermal Resistance: For uses in accordance with the IECC or other codes, PROFILL spray-applied polyurethane foam plastic insulation has a thermal resistance, R-value, at a mean temperature of 75°F (24°C) as shown in Table 1 of this report.

TABLE 1— PROFILL
Thermal Resistance (R-Values)[1]

Thickness (inch)	**R-Value** (°F•ft^2•hr/Btu)
1.0	3.8
2.0	7.6
3.5	13
4.0	15
5.5	21
6.0	22
7.5	28
9.5	35
11.5	42

SI: 1 inch = 25.4 mm; 1 °F•ft^2•hr/Btu = 0.176 °K•m^2•hr/W

[1] R-values are calculated based on testing at 1- and 3.5-inch thicknesses.

3.3 Installation:

3.3.1 Installation General: PROFILL spray-applied polyurethane foam plastic insulation shall be installed in accordance with the manufacturer's published installation instructions and this report. A copy of these instructions and this evaluation report shall be available on the jobsite at all times during installation.

3.3.2 Application: PROFILL spray-applied polyurethane foam plastic insulation shall be applied using spray equipment specified by Profoam Corporation. PROFILL shall be sprayed, at the required conditions between passes, having a maximum thickness of 12 inches (304 mm) per pass up to the maximum insulation thickness specified in this report.

3.3.3 Thermal Barrier:

3.3.3.1 Application with a Prescriptive Thermal Barrier: PROFILL spray-applied polyurethane foam plastic insulation shall 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 the applicable code.

3.3.3.2 Application with an Alternative Thermal Barrier Assembly: PROFILL spray-applied polyurethane foam plastic insulation may be installed without a thermal barrier as defined in Section 3.3.3.1 of this report when installed with a fire-protective coating as described in Table 2 of this report based on testing in accordance with NFPA 286.

3.3.4 Attics and Crawl Spaces:

3.3.4.1 Application with a Prescriptive Ignition Barrier: When PROFILL spray-applied polyurethane foam plastic insulation is installed within attics or 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, 2024 IRC Sections R303.5.3 and R303.5.4, and 2021, 2018, and 2015 IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier shall be consistent with the requirements for the type of construction required by the applicable code and shall be installed in a manner so that the foam plastic insulation is not exposed.

The attic or crawl space area shall be separated from the interior of the building by an approved 15-minute thermal barrier as described in Section 3.3.3 of this report.

3.3.4.2 Application with an Alternative Ignition Barrier Assembly: Where the spray-applied insulation is installed in accordance with the following conditions, the prescriptive ignition barrier as required in Section 3.3.4.1 is not required:

a) Entry to the attic or crawl space is 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 air impermeable insulation is permitted in unvented attics in accordance with the IRC Section R806.5. Underfloor (crawl space) ventilation is provided when required by IBC Section 1203.3 or IRC Section R408.1, as applicable.
e) Combustion air is provided in accordance with International Mechanical Code® Section 701.
f) Alternative ignition barrier assembly is provided as required in Section 3.3.4.2.1.

3.3.4.2.1 PROFILL spray-applied polyurethane foam plastic insulation may be spray-applied in attics to the underside of roof sheathing or roof rafters, and vertical surfaces; and may be spray-applied in crawl spaces to the underside of floors and vertical surfaces as described in this section.

PROFILL foam plastic insulation shall be covered with a fire-retardant intumescent coating described in Table 3 of this report.

3.4 Air Permeability: PROFILL spray-applied polyurethane foam plastic insulation is classified as air-impermeable insulation when tested in accordance with ASTM E283 at a minimum thickness of $3^1/_2$ inches (89 mm) in accordance with 2024, 2021, and 2018 IBC Section 1202.3, 2015 IBC Section 1203.3, and IRC Section R806.5.

3.5 Unvented Attics: PROFILL spray-applied polyurethane foam plastic insulation meeting the requirements of Section 3.3, may be installed in unvented attic assemblies and unvented rafter assemblies in accordance with 2024, 2021, and 2018 IBC Section 1202.3; 2015 IBC Section 1203.3, or IRC Section R806.5, as applicable.

4.0 PRODUCT DESCRIPTION

PROFILL is a two-part low-density spray-applied, open-cell polyurethane foam plastic insulation having a nominal density of 0.45 pcf (7.2 kg/m^3). The two components of the insulation are polymeric isocyanate (A-Component) and proprietary resin (B-Component).

5.0 IDENTIFICATION

PROFILL is identified by the Profoam Corporation's name, address, and telephone number, product name, link to installation instructions, density, flame-spread and smoke-development indices, date of manufacture, lot number, shelf life, link to storage and handling instructions, and evaluation report number (IAPMO UES ER-1016).

The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:

IAPMO UES ER-1016

6.0 SUBSTANTIATING DATA

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

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

6.3 Reports of room corner fire testing in accordance with NFPA 286.

6.4 Reports of air permeance testing in accordance with ASTM E283.

6.5 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 Profoam Corporation's PROFILL to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured under a quality control program with periodic inspection under the supervision of IAPMO UES.

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

TABLE 2 - ALTERNATIVE THERMAL BARRIER ASSEMBLY

FIRE-PROTECTIVE COATING/COVERING[1]			MAXIMUM SPF THICKNESS (inch)	
TYPE	MINIMUM THICKNESS (mils)	THEORETICAL APPLICATION RATE (COATINGS ONLY)	WALLS AND VERTICAL SURFACES	CEILING AND OVERHEAD SURFACES
DC315[2]	14 WFT (9 DFT)	0.87 gal/100 ft^2	10	16
Plus ThB[3]	14 WFT (9 DFT)	0.87 gal/100 ft^2	10	14

For **SI:** 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft^2 = 0.0929 m^2

[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 and tested to the requirements of NFPA 286.
[3] No-Burn, Inc., recognized in IAPMO UES ER-305 and tested to the requirements of NFPA 286.

TABLE 3 - ALTERNATIVE IGNITION 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]	4 mils WFT (3 mils DFT)	0.25 gal/100 ft^2	7.75	11.5

For **SI:** 1 inch = 25.4 mm, 1 gallon = 3.785 L, 1 ft^2 = 0.0929 m^2

[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.

FLORIDA SUPPLEMENT

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1.0 RECOGNITION

Profoam Corporation's PROFILL spray-applied foam plastic insulation as evaluated and represented in IAPMO UES Evaluation Report ER-1016 with installation and design as shown in the 2021 IBC, 2021 IRC, and 2021 IECC, and with changes as noted in this supplement is a satisfactory alternative for use in buildings built under the following codes (and regulations) including locations in the High-velocity Hurricane Zone:

- 2023 Florida Building Code, Building, (FBC, Building)
- 2023 Florida Building Code, Residential (FBC, Residential)
- 2023 Florida Building Code, Energy Conservation (FBC, Energy Conservation)

2.0 LIMITATIONS

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

2.1 The clearance between the foam insulation installed above grade and exposed earth shall be in accordance with Sections 1403.8 and 2603.8 of the FBC, Building or Sections R318.7 and R318.8 of the FBC, Residential.

2.2 Verification shall be provided that a quality assurance agency audits the manufacturer's quality assurance program and audits the production quality of products in accordance with Section (5)(d) of Florida Rule 61G20-3.008. The quality assurance agency shall be approved by the Commission (or the building official when the report holder does not possess an approval by the Commission).

2.3 This supplement expires concurrently with IAPMO UES ER-1016.