Code Compliance Research Report
CCRR-0447

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DIVISION: 07 – THERMAL AND MOISTURE PROTECTION
Section: 07 57 00 – Coated Foam Roofing

REPORT HOLDER:
Creative Polymer Solutions, LLC
2720 Southeastern Cir.
Birmingham, Alabama 35215
https://accufoam.com

REPORT SUBJECT:
Creative Polymer Solutions Accufoam CCR-HFO Roofing Foam

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

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

NOTE: This report references the most recent Code editions noted. Section numbers in earlier editions may differ.

1.2 The Accufoam CCR-HFO Roofing Foam has been evaluated for the following properties (see Table 1):

- Physical properties
- Flame spread characteristics
- Wind resistance
- Thermal resistance (R-value)

1.3 The Accufoam CCR-HFO Roofing Foam has been evaluated for the following uses (see Table 1):

- Use as sprayed polyurethane foam roofing complying with IBC Section 1507.13 and R905.13

2.0 STATEMENT OF COMPLIANCE

The CCR-HFO Roofing Foam complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2, and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.0.

2.1 2024 IBC and IRC Evaluation Reports

The Intertek CCRR is an *Evaluation Report* for approval of an alternate material, design, or method of construction in accordance with Section 104.2.3.6.1 of the 2024 IBC and Section R104.2.2.6.1 of the 2024 IRC.

3.0 DESCRIPTION

3.1 CCR-HFO: The roofing foam consists of two components, "A" (isocyanate) and "B" (polyol resin), which are mixed at the jobsite in a one-to-one ratio by volume, and spray-applied to form a closed cell rigid foam plastic roof covering/insulation material with a nominal density of 3.0 pounds per cubic foot. The A and B components are available in 55-gallon drums and have a shelf life of 12 and 6 months, respectively, when stored at temperatures between 50°F and 80°F.

3.2 Roof Coatings:

3.2.1 Rugged Coatings Ac50 Eternalasitc Elastomeric Roof Coating: Ac50 is an acrylic roof coating. The coating is supplied in 5-gallon pails and 55-gallon drums and has a shelf life of 12 months when stored at temperatures between 40°F and 110°F. The coating is listed with PRI for compliance with ASTM D6083.

3.2.2 Rugged Coatings Si92 and Si95 Silicone Roof Coatings: Si92 and Si95 are silicone elastomeric coatings. Si92 is supplied in 55-gallon drums and Si95 is supplied in 5-gallon pails. The coatings have a shelf life of 12 months when stored at temperatures between 50°F and 70°F. The coatings are listed with PRI for compliance with ASTM D6694.

4.0 PERFORMANCE CHARACTERISTICS

4.1 Physical Properties: CCR-HFO Roofing Foam complies with ASTM C1029, Type III or IV.

4.2 Surface-burning Characteristics: CCR-HFO Roofing Foam has a flame-spread rating of 75 or less when tested in accordance with ASTM E84 (UL 723) at a thickness of 4 inches.

4.3 Wind Resistance: The wind resistance of the roofing system is limited to the wind resistance for the roof deck and structural framing to which it is applied.

4.4 Thermal Resistance: The CCR-HFO Roofing Foam complies with the minimum requirements of ASTM C1029 for a thermal resistance (R-value) of 6.2 hr-ft^2-°F/Btu at a 1-inch thickness. Thermal resistance values at 1- and 3-1/2-inch thicknesses are reported in Table 2.

4.5 Fire Classification: The CCR-HFO roofing foam has a Class B fire classification when installed as described in Sections 5.6 and 5.7.

4.6 Impact Resistance: Impact resistance is outside the scope of this report and must be provided for the coating and foam system approved for installation at the jobsite.

5.0 INSTALLATION

5.1 General:

The CCR-HFO Roofing Foam must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

5.2 Preparation of Substrates: The substrates to be covered must be prepared as described in the manufacturer's installation instructions.

5.3 Substrates:

5.3.1 Combustible Substrates: Combustible substrates must be minimum 15/32 inch thick, code-complying, exterior grade or Exposure 1 plywood. All plywood edges must be supported by blocking or have tongue and groove joints as required by IBC Section 2603.4.1.5.

5.3.2 Noncombustible Substrates:

5.3.2.1 Cementitious Substrates: Structural concrete substrates must have a minimum compressive strength of 2500 psi.

5.3.2.2 Metal Substrates: Metal substrates must be a minimum No. 22 gauge galvanized steel [0.030 inch (0.76mm)] substrate.

5.4 Roof Slope: Minimum slope must be 1/4:12 and the maximum roof slope is as specified for the listed assembly complying with ASTM E108 or UL 790 (provided by others).

5.5 Foam Application: The CCR-HFO Roofing Foam is applied in a 1:1 ratio by volume of the A and B components, using foam spraying equipment recommended by Creative Polymer Solutions. Application of the spray foam must be performed when the substrate temperature is at least 50°F, the ambient temperature is at least 50°F, and the wind speed is equal to or less than 15 miles per hour. The spray foam must not be applied to wet or damp substrates, or when dew, condensation, precipitation, or freezing temperatures are expected prior to completion of the foam and coating application.

The roofing foam must be applied in uniform passes ranging from 1/2 to 1-1/2 inches, to reach the desired thickness, with the maximum thickness permitted being 4 inches. The total finished thickness must be achieved within the same day. The finished surface of the foam must be smooth and free of voids, pinholes, and crevices.

5.6 Roof Coating Application:

5.6.1 General: The surface of the foam plastic must be dry and free of all damaged foam, dirt, and foreign materials before application of the coating. If the insulation surface is damaged to the point where cracks, voids, or large depressions appear, additional insulation must be applied to create a satisfactory surface. After the insulation has developed sufficient strength to support foot traffic, but within 24 hours, the coating must be brush-, roller-, or spray-applied in accordance with the application rates specified in the ASTM E108/UL 790 listing. The ambient temperature must be at least 50°F during coating application and above 32°F for the 24-hour period after application. The coating must not be applied when dew, condensation, precipitation, or freezing temperatures are anticipated prior to completion of the coating application.

5.6.2 Application: The roofing foam must be covered with one of the roof coatings described in Section 3.2 and Table 3. Rugged Coatings Ac50 Eternalastic coating is applied in one coat at an application rate of 3.4 gal./100 ft^2, with No. 11 granules embedded in the surface to rejection. Rugged Coatings Si92 and Si95 coatings are applied in one coat at an application rate of 2.1 gal./100 ft^2, with No. 11 granules embedded in the surface to rejection.

5.7 Fire Classification: For Class B roofing, the roofing assembly must be as described in Table 3.

5.8 Reroofing: Prior to installation of new roof coverings, inspection in accordance with IBC Section 1512 or IRC R908, as applicable, and approval from the Authority Having Jurisdiction are required.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 The foam roofing system must be applied by qualified trained applicators.

6.3 A roof coating must be applied over the foam plastic in accordance with Section 5.6 of this report.

6.4 Where moderate to heavy foot traffic occurs for maintenance of equipment, or is otherwise necessary, the roof covering must be adequately protected to prevent mechanical damage or wearing of the surface.

6.5 The foam plastic insulation must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Sections 1508.1 and 2603.4, and IRC Section R303.4.

6.6 The CCR-HFO Roofing Foam is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Reports of tests in accordance with ASTM C1029, ASTM E84, ASTM C518 and ASTM E108.

7.2 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated February 2020.

7.3 Data in accordance with ICC 1100 (2019).

7.4 Intertek Listing Report "Accufoam CCR-HFO Roofing Foam", on the Intertek Directory of Building Products.

8.0 IDENTIFICATION

Containers for the A and B components of the CCR-HFO Roofing Foam are identified with the manufacturer's name (Creative Polymer Solutions, LLC), the product name, use instructions, the product density, the flame-spread and smoke-developed indices, the shelf life, the batch number, the Intertek Mark as shown below, the Intertek Control Number, and the Code Compliance Research Report number (CCRR-0447).

Containers of the Rugged Coatings roof coatings must be labeled with the product name, the PRI listing number (2554C), the lot number and the expiration date.

9.0 OTHER CODES

This section is not applicable.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the https://bpdirectory.intertek.com is recommended to ascertain the current version and status of this report.

TABLE 1 - PROPERTIES EVALUATED

PROPERTY	2024 IBC SECTION[1]	2024 IRC SECTION[1]	2024 IECC SECTION[1]
Physical properties	1507.13	R905.13	NA
Surface burning characteristics	2603.3	R303.3	NA
Thermal barrier	1508.1, 2603.4	R303.4	NA
Wind resistance	1504.4	R905.13.4	NA
Impact resistance	1504.7	NA	NA
Fire classification	1505	R902	NA
Thermal resistance	1301	N1101.10 N1102	C303.1 R303.1

[1]Section numbers in earlier editions of the Codes may differ

TABLE 2 - THERMAL RESISTANCE

Thickness (in.)	R-Value[1] (hr-ft^2-°F/Btu)
1	7.0
3.5	22

[1]Results are normalized for the stated thickness.

TABLE 3 – ASSEMBLIES FOR FIRE CLASSIFICATION

Assembly	Roof Slope	Roof Deck	Foam Plastic	Coating
1	Any	Min. 15/32-in. plywood	CCR-HFO Min. 1.5 in. Max. 5 in.	Rugged Coatings Ac50 applied in one coat at 3.4 gal/100 ft^2 with No. 11 granules embedded to rejection
2	Any	Min. 15/32-in. plywood	CCR-HFO Min. 1.5 in. Max. 5 in.	Rugged Coatings Si92 applied in one coat at 2.1 gal/100 ft^2 with No. 11 granules embedded to rejection