

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 21 00—Thermal Insulation

Section: 07 27 00—Air Barriers

REPORT HOLDER:

GENERAL COATINGS MANUFACTURING CORPORATION (GCMC)

EVALUATION SUBJECT:

ULTRA-THANE 202 AND UPC 2.0

ADDITIONAL LISTEE:

UNIVERSAL POLYMERS CORPORATION

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

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

Properties evaluated:

- Surface-burning characteristics
- Physical properties
- Thermal resistance
- Attic and crawl space installation
- Air permeability
- Water vapor transmission

2.0 USES

Ultra-Thane 202 and UPC 2.0 spray foam insulation are used as nonstructural thermal insulating material in Type V-B construction under the IBC and dwellings under the IRC. The insulations are for use in wall cavities, floor assemblies, roof/ceiling assemblies or attics and crawl spaces when installed in accordance with Section 4.4. Under the IBC and IRC, the insulations may be used as air-impermeable insulation when installed in accordance with Section 3.4.

3.0 DESCRIPTION

3.1 General:

Ultra-Thane 202 and UPC 2.0 spray foam insulation are spray-applied, semi-rigid, medium-density, cellular polyurethane foam plastic that is installed as a nonstructural

component of floor/ceiling and wall assemblies. The materials are two-component, closed-cell spray-applied polyurethane foam plastic systems with nominal densities of 2.0 pcf (32.0 kg/m³). The polyurethane foams are produced in the field by combining a polymeric isocyanate (component A) and a resin (component B). The products have a shelf life of twelve months, when stored in factory-sealed containers at temperatures between 50°F and 80°F (10°C and 27°C).

3.2 Surface-burning Characteristics:

The Ultra-Thane 202 and UPC 2.0 spray foam insulation, at a maximum thickness of 4.0 inches (102 mm) and a density of 2.0 pcf (32.0 kg/m³), has a flame-spread index of less than 25 and smoke-developed index of less than 450 when tested in accordance with ASTM E84 (UL 723). Ultra-Thane 202 and UPC 2.0 spray foam insulation thickness is not limited when separated from the interior of the building by a prescriptive thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R316.4, as applicable.

3.3 Thermal Resistance, R-values:

The insulations have thermal resistance, R-values, at a mean temperature of 75°F (24°C), as shown in Table 1.

3.4 Air Permeability:

Ultra-Thane 202 and UPC 2.0 spray foam insulation, at a minimum of 2³/₁₆ inches (56 mm), are considered air-impermeable insulations in accordance with 2018 IBC Section 1202.3 [2015 IBC Section 1203.3] and 2018, 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4), based on testing in accordance with ASTM E2178.

3.5 Vapor Retarder:

The foam plastic has a vapor permeance of less than 1 perm [5.7 x 10⁻¹¹ kg/(m²sPa)], when applied at a minimum thickness of 2 inches (51 mm) and qualifies as a Class II vapor retarder as defined in IRC Section R202.

3.6 DC 315 Coating:

DC 315 Coating ([ESR-3702](#)), manufactured by International Fireproof Technology, Inc., / Paint to Protect, Inc. is a water-based intumescent coating supplied in 5-gallon (19L) pails and 55-gallon (208L) drums. The coating material has a shelf life of one (1) year when stored in factory-sealed containers at temperatures between 50°F (10°C) and 80°F (27°C).

4.0 DESIGN AND INSTALLATION

4.1 General:

Ultra-Thane 202 and UPC 2.0 spray foam insulation must be installed in accordance with the manufacturer's

published installation instructions and this report. A copy of the manufacturer's published installation instructions must be available at all times on the jobsite during installation.

4.2 Application:

The insulations are spray-applied on the jobsite using a volumetric positive displacement pump as identified in the General Coatings Manufacturing Corporation application manual. The insulations are applied in passes up to a maximum of 2 inches (51 mm) per pass, up to the total thickness specified in Sections 3.2, 4.3 and 4.4. The foam plastic insulations must not be used in electrical outlet or junction boxes or in contact with rain, water, or soil. The foam plastic insulations must not be sprayed onto a substrate that is wet, or covered with frost or ice, loose scales, rust, oil, or grease. Ultra-Thane 202 and UPC 2.0 resin (component B) must be stored in areas where the ambient temperature is between 50°F and 80°F (10°C and 27°C). Ultra-Thane 202 and UPC 2.0 must be used in areas where maximum ambient temperature is equal or less than 200°F (93°C). The insulations must be protected from the weather during and after application.

4.3 Thermal Barrier:

4.3.1 Application with a Prescriptive Thermal Barrier: Ultra-Thane 202 and UPC 2.0 spray foam insulation must 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 thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R316.4, as applicable, except when installation is in attics and crawl spaces, as described in Section 4.4. When installed behind a code prescribed thermal barrier, the insulations may be installed at the maximum thickness noted in Section 3.2.

4.3.2 Application without a Prescriptive Thermal Barrier: Ultra-Thane 202 and UPC 2.0 spray foam insulation may be installed without the code prescribed thermal barrier described in Section 4.3.1, when installation is in accordance with the following:

4.3.2.1 The insulation must be covered on all surfaces with a fire protective coating at the minimum thickness set forth in Table 2.

4.3.2.2 The maximum installed thickness of the insulation must not exceed the thickness set forth in Table 2.

4.3.2.3 The coating must be applied over the insulation in accordance with the coating manufacturer's instructions and this report.

4.4 Attics and Crawl Spaces:

4.4.1 Application with a Prescriptive Ignition Barrier: When Ultra-Thane 202 and UPC 2.0 insulation is installed within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code and must be installed in a manner, so the foam plastic insulation is not exposed. Ultra-Thane 202 and UPC 2.0 insulation as described in Section 3.4 may be installed in unvented attics in accordance with 2018 IBC Section 1202.2 (2015 IBC Section 1203.3) or 2018, 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4).

4.4.2 Application without a Prescriptive Ignition Barrier:

4.4.2.1 General: Where Ultra-Thane 202 and UPC 2.0 insulation is installed without a prescriptive ignition barrier in attics and crawl spaces in accordance with Section 4.4.2, 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 2018 IBC Section 1202.2.1 [2015, 2012 and 2009 IBC Section 1203.2] or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2018 IBC Section 1202.3 [2015 IBC Section 1203.3] or 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4).
- e. Under-floor (crawl space) ventilation is provided when required by 2018 IBC Section 1202.4 [2015 IBC Section 1203.4 (2012 and 2009 IBC Section 1203.3)] or IRC Section R408.1, as applicable.
- f. Combustion air must be provided in accordance with *International Mechanical Code*[®] (IMC) Section 701, if applicable.

4.4.2.2 Ultra-Thane 202 and UPC 2.0 Application with DC 315 Coating: In attics, Ultra-Thane 202 and UPC 2.0 foam insulation may be spray-applied to the underside of the roof sheathing and/or rafters and in crawl spaces. The insulation may be spray-applied to the underside of wood floors as described in this section. The thickness of the foam plastic applied to the underside of the top of the space must not exceed 12 inches (305 mm), and the thickness on vertical surfaces must not exceed 8 inches (203 mm). The foam plastic surface must be covered with a minimum nominal thickness of 3 dry mils (0.08 mm) [4 wet mils (0.10 mm)] of the DC 315 coating described in Section 3.6. The intumescent coating must be spray-applied over the insulation in accordance with the coating manufacturer's instructions, [ESR-3702](#), and this report at a rate of 0.25 gallon (0.85 L) per 100 square feet (9.3 m²) to obtain the recommended minimum dry film thickness noted in this section. Surfaces to be coated must be dry and clean, and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating.

5.0 CONDITIONS OF USE

The Ultra-Thane 202 and UPC 2.0 spray-applied foam insulation described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** This evaluation report and the manufacturer's published installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2** The products must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturer's published installation instructions and this report.

- 5.3 The insulations must be separated from the interior of the building by an approved thermal barrier, except when installation is as described in Section 4.3.2 or in attics and crawl spaces as described in Section 4.4.2.
- 5.4 The insulations must not exceed the density and thicknesses noted in Sections 3.2, 4.3.1, 4.3.2 and 4.4.2 of this report.
- 5.5 The insulations must be protected from the weather during and after application.
- 5.6 The insulations must be applied by contractors authorized by General Coatings Manufacturing Corporation. Use of the insulation in areas where the probability of termite infestation is “very heavy” must be in accordance with IRC Section R318.4 or 2018, 2015 and 2009 IBC Section 2603.8 (2012 IBC Section 2603.9), as applicable.
- 5.7 The insulations have been evaluated only for use in Type V-B construction under the IBC and non-fire-resistance-rated assemblies in dwellings under the IRC.
- 5.8 Jobsite certification and labeling of the insulation must comply with 2018 or 2015 IRC Sections N1101.10.1 and N1101.10.1.1 (2012 IRC Sections N1101.12.1 and N1101.12.1.1 or 2009 IRC Sections N1101.4 and N1101.4.1)] and 2018, 2015 and 2012 IECC Sections C303.1.1, C303.1.1.1, R303.1.1 and R303.1.1.1 (2009 IECC Sections 303.1.1 and 303.1.1.1), as applicable.
- 5.9 A vapor retarder must be installed when required by the applicable code.
- 5.10 The insulations are produced in Fresno, California and Arlington, Texas, under a quality control program with inspections by ICC-ES.
- 6.0 EVIDENCE SUBMITTED**
- 6.1 Data in accordance with ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated April 2016 (editorially revised April 2018), including testing in accordance with Appendix X.
- 6.2 Report of room corner fire test in accordance with NFPA 286.
- 6.3 Report of air permeance test in accordance with ASTM E2178.
- 6.4 Report of water vapor transmission test in accordance with ASTM E96.
- 7.0 IDENTIFICATION**
- 7.1 Components of Ultra-Thane 202 and UPC 2.0 spray foam insulation are identified with the manufacturer’s name (General Coatings Manufacturing Corporation), address; the product Name (Ultra-Thane 202 and UPC 2.0); the product type (component A or component B); the shelf life expiration date, the lot number, density; the flame-spread and smoke-development indices; and the evaluation report number (ESR-3805).
- International Fireproof Technology, Inc. / Paint to Protect Inc., DC 315 coating is labeled with the manufacturer’s name and address; the product name; the date of manufacture, the shelf life or expiration date; the manufacturer’s instructions for application and evaluation report number ([ESR-3702](#)).
- 7.2 The report holder’s contact information is the following:
- GENERAL COATINGS MANUFACTURING CORPORATION**
1220 E. NORTH AVENUE
FRESNO, CALIFORNIA 93725
(559) 495-4004
www.generalcoatings.net
- 7.3 The Additional Listee’s contact information is the following:
- UNIVERSAL POLYMERS CORPORATION**
3001 E. PIONEER PARKWAY
ARLINGTON, TEXAS 76010
(682) 503-8069
www.upcfoam.com

TABLE 1—THERMAL RESISTANCE (R-VALUES)

| THICKNESS (INCH) | ULTRA-THANE 202/UPC 2.0 R-VALUE ¹ (°F.ft ² .h/Btu) |
|------------------|---|
| 1 | 6.6 |
| 2 | 13 |
| 3 | 19 |
| 3.5 | 22 |
| 4 | 25 |
| 5.5 | 35 |
| 6 | 38 |
| 7.5 | 47 |
| 9.25 | 58 |
| 9.5 | 60 |
| 10 | 63 |
| 11.25 | 71 |
| 11.5 | 72 |
| 14 | 88 |

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

¹R-values are calculated based on tested K-values at 1-and 3¹/₂ -inch thicknesses.

TABLE 2—USE OF INSULATION WITHOUT A PRESCRIPTIVE THERMAL BARRIER (TESTED IN ACCORDANCE WITH NFPA 286)¹

| INSULATION TYPE | MAXIMUM THICKNESS (in.) (Vertical Surfaces) | MAXIMUM THICKNESS (in.) (Overhead Surfaces) | COATING TYPE & MINIMUM THICKNESS (Applied to all Foam Surfaces) ^{2, 3, 4} | MINIMUM APPLICATION RATE OF COATING ⁴ |
|-------------------------|--|--|--|--|
| ULTRA-THANE 202/UPC 2.0 | 8 | 12 | DC 315 12 mils DFT 18 mils WFT | 1.13 gal / 100 ft ² |

For **SI**: 1 inch = 25.4 mm; 1 mil = 0.0254 mm; 1 gallon = 3.38 L; 1 ft² = 0.093 m².

Notes:

¹See Section 4.3.2.

²See Section 3.6.

³DFT = Dry Film Thickness; WFT = Wet Film Thickness

⁴As reported in the manufacturer’s application instructions. Actual application rate, based on specific project conditions, must be in accordance with the manufacturer’s application instructions.