ICC EVALUATION SERVICE®

ICC-ES Evaluation Report

ESR-5165

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DIVISION: 09 00 00—FINISHES
Section: 09 96 43—Fire-Retardant Coatings

REPORT HOLDER:

FLAME SEAL LLC

EVALUATION SUBJECT:

TB-PRO

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018 and 2015 *International Building Code®* (IBC)
- 2018 and 2015 *International Residential Code®* (IRC)

Property evaluated:

- Application without a prescriptive thermal barrier
- Physical properties
- Water vapor transmission

2.0 USES

TB-Pro is a liquid-applied coating intended to be applied over the surface of spray-applied foam plastic insulation complying with ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377). The coated assembly is intended for use without the application of a code-prescribed thermal barrier when installed as described in this report.

3.0 DESCRIPTION

3.1 General:

TB-Pro is a single-component, water-based, liquid-applied intumescent coating and is available in black, white and gray. The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of one (1) year when stored in factory-sealed containers at temperatures between 45° and 95°F (7.2 and 35°C).

3.2 Vapor Retarder:

At a minimum thickness of 13 mils [0.013 inch (0.33 mm)] dft, TB-Pro has a vapor permeance of less than 10 perms ($5.7x10^{-10}$ kg/Pa-s-m^2) when tested in accordance with ASTM E96 Procedure A (desiccant method), and qualifies as a Class III vapor retarder.

4.0 DESIGN AND INSTALLATION

4.1 Installation—General:

The TB-Pro coating must be applied in accordance with the manufacturer's published application instructions and this report. A copy of the instructions must be available on the job site at all times.

The TB-Pro coating must be mechanically mixed prior to application. The coating is applied to the required thickness using spray equipment, a brush or a roller having a medium nap. Surfaces to be coated must be inspected in accordance with the manufacturer's published installation instructions and must be dry, clean, and free of dirt, loose debris and other substances that could interfere with the adhesion of the coating. The coating must not be applied when the ambient or surface temperature is below 50°F (10.0°C) or above 95°F (35° C), and relative humidity of not more than 65%. The manufacturer must be consulted for specific application conditions.

The TB-Pro coating may be applied over spray-applied foam plastic insulation without covering the coated assembly with the thermal barrier prescribed in IBC Section 2603.4 and IRC Section R316.4.

5.0 CONDITIONS OF USE

The TB-Pro coating described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Application must comply with this report, the manufacturer's published installation instructions, and the applicable code. A copy of the installation instructions must be on the job site during application of the coating. In the event of a conflict, this report and the code govern.

5.2 The application of additional interior finishes over the TB-Pro coating is limited to interior satin latex paint applied at an average dry film thickness of 3.0 mils (0.08 mm). The use of this interior finish in conjunction with the vapor retardant coating in Item 5.3 is outside the scope of this report.

5.3 Application of a vapor retardant coating under the TB-Pro coating is limited to use of moisture vapor barrier interior latex primer/finish coating consisting of Vinyl Acrylic/Styrene Butadiene having a VOC (less exempt solvents) of no more than 72 g/L (0.60 lb/gal) and a volume solids content of 29 ± 3% applied at an average dry film thickness of 2.25 mils (0.06 mm). The use of this vapor retardant coating in conjunction with the interior finish in Item 5.2 is outside the scope of this report.

5.4 Evaluation in this report is for the specific assemblies and spray-applied foam plastic insulations described in Table 1. The spray-applied foam plastic insulation must be installed in accordance with the requirements set forth in the specific ICC-ES evaluation report spray foam manufacturer's report noted in Table 1. For

spray-applied foam plastic insulation that is not covered in an ICC-ES evaluation report, the evaluation is limited as noted in Table 1, Footnote 3.

5.5 The coating is manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Reports of testing in accordance with ICC-ES Acceptance Criteria for Fire-protective Coatings Applied to Spray-applied Foam Plastic Insulation Installed without a Code-prescribed Thermal Barrier (AC456), dated October 2015 (Editorially revised July 2018), including room corner fire testing in accordance with NFPA 286.

7.0 IDENTIFICATION

7.1 All containers of the TB-Pro coating must be labeled with the report holder's name (Flame Seal LLC) and address; the product name (TB-Pro); the date of manufacture; the shelf life or expiration date; the manufacturer's instructions for application; and the evaluation report number (ESR-5165).

7.2 The spray-applied foam plastic insulations must be labeled in accordance with the applicable spray foam manufacturer's evaluation report (see Table 1).

7.3 The report holder's contact information is the following:

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

INSULATION TYPE	MAXIMUM THICKNESS (in.) (Vertical Surfaces)	MAXIMUM THICKNESS (in.) (Overhead Surfaces)	COATING TYPE & THICKNESS[1] (Applied to all Foam Surfaces)	MINIMUM THEORETICAL APPLICATION RATE OF COATING[2]
BASF WALLTITE® (ESR-2642)	5 1/2	7 1/2	TB-Pro 15 mils DFT / 23 mils WFT	1.23 gal / 100 ft^2
BASF WALLTITE® 178 and 81206 (ESR-2642)	5 1/2	7 1/2	TB-Pro 15 mils DFT / 23 mils WFT	1.23 gal / 100 ft^2
BASF SPRAYTITE® 158 and 81205 (ESR-2642)	5 1/2	9 1/2	TB-Pro 14 mils DFT / 21 mils WFT	1.16 gal / 100 ft^2
BASF ENERTITE® NM (ESR-3102)	9 1/2	11 1/2	TB-Pro 11 mils DFT / 18 mils WFT	1.18 gal / 100 ft^2
Sealection® NM Open-Cell (ESR-2668)	9 1/4	11 1/4	TB-Pro 12 mils DFT / 18 mils WFT	1.15 gal/100 ft^2
CertainTeed CertaSpray® Closed-Cell (See Note 3)	5 1/2	9 1/2	TB-Pro 11 mils DFT / 17 mils WFT	1.10 gal / 100 ft^2
CertainTeed CertaSpray® X Open Cell (See Note 3)	9 1/2	11 1/2	TB-Pro 11 mils DFT / 18 mils WFT	1.12 gal / 100 ft^2
Chemical Brothers Quadfoam 500 (See Note 3)	11	13 1/2	Fireshell® Primer 5 mils DFT / 9 mils WFT TB-Pro 9 mils DFT / 15 mils WFT	0.53 gal / 100 ft^2 1 gal / 100 ft^2
Chemical Brothers Quadfoam NatureSeal OCX (See Note 3)	6 1/2	10	TB-Pro 12 mils DFT / 18 mils WFT	1.15 gal / 100 ft^2
Chemical Brothers Quadfoam 2.0 (See Note 3)	8 1/2	12 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.08 gal / 100 ft^2
Covestro EocBay™ Closed Cell (See Note 3)	7 1/4	9 1/4	TB-Pro 12 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2
Covestro Bayseal™ OC (See Note 3)	7 1/2	9 1/2	TB-Pro 12 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2

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

INSULATION TYPE	MAXIMUM THICKNESS (in.) (Vertical Surfaces)	MAXIMUM THICKNESS (in.) (Overhead Surfaces)	COATING TYPE & THICKNESS[1] (Applied to all Foam Surfaces)	MINIMUM THEORETICAL APPLICATION RATE OF COATING[2]
Accella Bayseal™ Closed Cell (See Note 3)	7 1/4	9 1/4	TB-Pro 12 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2
Huntsman Building Solutions *SEAL*ECTION® 500 (ESR-1172)	7 1/2	11 1/2	TB-Pro 11 mils DFT / 17 mils WFT	1.2 gal / 100 ft^2
Huntsman Building Solutions Agribalance® (ESR-2600)	5 1/2	11 1/2	TB-Pro 15 mils DFT / 23 mils WFT	1.23 gal / 100 ft^2
Huntsman Building Solutions HEATLOK SOY® 200 PLUS (ESR-3210)	9 1/4	11 1/4	TB-Pro 11 mils DFT / 17 mils WFT	1.2 gal / 100 ft^2
Huntsman Building Solutions APX™ (ESR-3470)	7 1/2	11 1/2	TB-Pro 11 mils DFT / 17 mils WFT	1.2 gal / 100 ft^2
Huntsman Building Solutions Heatlok® XT-s (ESR-3824)	7 1/2	11 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Huntsman Building Solutions Heatlok® XT-w (ESR-3883)	7 1/2	11 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Huntsman Building Solutions Heatlok® HFO (ESR-4073)	7 1/2	11 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Elastochem Proline Plus (See Note 3)	7 1/4	9 1/4	TB-Pro 12 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2
EnergyOne America EOA500 (ESR-3686)	11 1/2	11 1/2	TB-Pro 14 mils DFT / 20 mils WFT	1.25 gal / 100 ft^2
Gaco Western GacoGreen 052 and GacoGreen 052N (See Note 3)	5 1/4	9 1/4	TB-Pro 14 mils DFT / 26 mils WFT	1.6 gal / 100 ft^2
Gaco Western GacoOnePass F1850 (See Note 3)	7 1/2	11 1/4	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Gaco Western F1880 CC (See Note 3)	9	11	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2
Gaco Western F4500 OC (See Note 3)(See Note 4)	13	21	TB-Pro 11 mils DFT / 17 mils WFT	1.16 gal / 100 ft^2
Henry Company Permax 2.0X and Permax 2.0X Fast (See Note 3)	7 1/4	9 1/4	TB-Pro 12 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2
Huntsman Building Solutions Classic Max (ESR-1826)	7 1/2	11 1/2	TB-Pro 14 mils DFT / 21 mils WFT	1.1 gal / 100 ft^2
Icynene ProSeal (ESR-3500)	7 1/2	11 1/4	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Icynene ProSeal LE (ESR-3500)	7 1/2	11 1/4	TB-Pro 12 mils DFT / 18 mils WFT	1.2 gal / 100 ft^2
Johns Manville JM Corbond MCS™ (See Note 3)	6	9 1/2	TB-Pro 12 mils DFT / 20 mils WFT	1.1 gal / 100 ft^2
Johns Manville JM Corbond® oc (See Note 3)	7 1/2	9 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2
Johns Manville JM Corbond® ocx (See Note 3)	7 1/2	9 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2
Johns Manville JM Corbond® III (See Note 3)	7 1/2	11 1/2	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2

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

INSULATION TYPE	MAXIMUM THICKNESS (in.) (Vertical Surfaces)	MAXIMUM THICKNESS (in.) (Overhead Surfaces)	COATING TYPE & THICKNESS[1] (Applied to all Foam Surfaces)	MINIMUM THEORETICAL APPLICATION RATE OF COATING[2]
LaPolla Industries Foam-Lok open cell foam (See Note 3)	$7^1/_2$	$11^1/_4$	TB-Pro 13 mils DFT / 20 mils WFT	1.24 gal / 100 ft^2
LaPolla Industries FL-2000-4G closed cell foam (See Note 3)	$7^1/_2$	$11^1/_4$	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2
Rhino Linings ThermalGuard OC.5R (ESR-2100)	$7^1/_2$	$11^1/_2$	TB-Pro 11 mils DFT / 17 mils WFT	1.16 gal / 100 ft^2
Rhino Linings ThermalGuard OC.5 (ESR-2100)	$7^1/_2$	$11^1/_2$	TB-Pro 11 mils DFT / 17 mils WFT	1.16 gal / 100 ft^2
Rhino Linings ThermalGuard CC2 (ESR-2100)	$7^1/_2$	$9^1/_2$	TB-Pro 12 mils DFT / 18 mils WFT	1.23 gal / 100 ft^2
SES Foam Sucraseal™ 0.5 (ESR-3375)	$11^1/_2$	$11^1/_2$	TB-Pro 14 mils DFT / 20 mils WFT	1.25 gal / 100 ft^2
SWD QS 108 Open Cell (See Note 3)	8	13	TB-Pro 11 mils DFT / 17 mils WFT	1.16 gal / 100 ft^2
SWD QS 112 Closed Cell (See Note 3)	6	8	TB-Pro 11 mils DFT / 17 mils WFT	1.16 gal / 100 ft^2

For **SI:** 1 inch = 25.4 mm; 1 mil = 0.0254 mm; 1 gallon = 3.38 L; 1 ft^2 = 0.93 m^2.

Notes:

[1]DFT = Dry Film Thickness; WFT = Wet Film Thickness

[2]As reported in the coating manufacturer's application instructions. Actual application rate, based upon specific project conditions, must be in accordance with the coating manufacturer's application instructions.

[3]Evaluation is limited to the NFPA 286 test data for the coated assembly described. Evaluation for compliance of the spray foam insulation with the other applicable requirements of ICC-ES AC377 and the IBC and IRC are outside the scope of the report.

[4]Use of gray or black coatings at the noted thickness for this product has not been evaluated. Use of black and gray coatings are limited to a maximum thickness of $11^1/_2$ inches on vertical surfaces and $13^1/_2$ inches on overhead surfaces.