Code Compliance Research Report
CCRR-0374

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DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION
Section: 07 21 00 – Thermal Insulation
Section: 07 21 19 – Foamed-in-Place Insulation
Section: 07 25 00 – Water-resistive Barriers/Weather Barriers

REPORT HOLDER:
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REPORT SUBJECT:
WALLTITE® (Max and One) Spray-applied Polyurethane Foam Insulations

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2024, 2021, 2018, 2015 *International Building Code®* (IBC)
- 2024, 2021, 2018, 2015 *International Residential Code®* (IRC)
- 2024, 2021, 2018, 2015 *International Energy Conservation Code®* (IECC)

The insulations described in this report have been evaluated for the following properties:

- Physical properties
- Surface-burning characteristics
- Thermal resistance
- Air permeability
- Vapor permeance
- Alternative to water-resistive barriers
- Alternatives to thermal barriers
- Alternatives to ignition barriers
- Use in fire-resistance-rated construction
- Use in Types I, II, III, and IV construction
- Use in Type V construction

See Table 1 for applicable Code sections related to these properties.

NOTE: This report references the most recent edition of the Codes cited. Section numbers may be different for earlier editions of the Codes.

2.0 USES

WALLTITE® (Max and One) insulations are nonstructural thermal insulating materials for use on interior and exterior walls, floors, and roofs.

The insulations may be used as air-impermeable insulation as described in Section 3.2.3.

The insulations may be used as a vapor retarder as described in Sections 3.2.5.

The insulations may be used in any Type of construction. When used in exterior walls in Types I, II, III, and IV construction (under the IBC), the wall construction must be in accordance with Section 4.7 and, as applicable, Section 4.6.

When installed as described in Section 4.5, the insulations may be used as an alternative to the water-resistive barrier required in IBC Section 1403.2 and IRC Section R703.2.

The insulations may be used in fire-resistance-rated construction when construction is as described in Section 4.6.

2.1 2024 IBC and IRC Evaluation Reports: The Intertek CCRR is an Evaluation Report for approval of 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 Materials:

3.1.1 Insulation: WALLTITE® (Max and One) are two-component, closed-cell, rigid foam plastic insulations classified as medium density foam plastic. The insulations are produced in the field by professional insulation contractors combining an isocyanate component "A" with a resin component "B", resulting in products. WALLTITE® insulations use an A component designated as ELASTOSPRAY® 8000A. Each insulation uses a proprietary blend for the B component. When stored in factory-sealed containers at temperatures between 50˚F and 80˚F the B component of WALLTITE® One and WALLTITE® Max have a shelf life of six months and the A component has a shelf life of twelve months.

3.1.2 Intumescent Coatings:

3.1.2.1 NoBurn® Plus ThB Intumescent Coating: No-Burn® Plus ThB is a one-part water-based intumescent coating manufactured by No-Burn, Inc. The coating is supplied in 5-gallon pails and 55-gallon drums and has a shelf life of 18 months when stored in unopened containers between 40ºF and 90ºF. No-Burn® Plus ThB complies with ICC-ES AC456 as recognized in IAPMO Uniform Evaluation Service Report ER-0305.

3.1.2.2 No-Burn® Plus XD Intumescent Coating: No-Burn® Plus XD is a one-part water-based intumescent coating manufactured by No-Burn, Inc. The coating is supplied in 5-gallon pails and 55-gallon drums and has a shelf life of three years when stored in unopened containers between 40°F and 90°F. No-Burn® Plus XD is recognized in IAPMO Uniform Evaluation Service Report ER-0305.

3.1.2.3 FIRESHELL® (F10E) Coating: FIRESHELL® (F10E) intumescent coating is a proprietary, water-based, one-part, nonflammable coating manufactured by ICP Construction. The coating is supplied in 5-gallon pails and 55-gallon drums and has a shelf life of twelve months when stored in factory-sealed containers at temperatures between 45°F and 75°F. F10E complies with ICC-ES AC456 as recognized in ICC-ES ESR-3997.

3.1.2.4 Flame Seal® TB Intumescent Coating: Flame Seal TB intumescent coating, manufactured by Flame Seal Products, Inc., is a two-component, four-to-one by-volume, liquid-applied, water-based polymeric intumescent coating. The coating is supplied in 6-gallon pails and 55-gallon drums and has a shelf-life of six months when stored in factory-sealed containers at temperatures between 40°F and 90°F. When applied at a minimum thickness of 25 mils wet film over WALLTITE® (Max or One) insulations, the assembly 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.

3.1.2.5 DC315 Intumescent Coating: DC315 intumescent coating, manufactured by International Fireproof Technology, Inc., is a water-based coating supplied in 5-gallon pails and 55-gallon drums and has a shelf life of two years when stored in factory-sealed containers at temperatures between 41°F and 95°F. DC315 complies with ICC-ES AC456 as recognized in ICC-ES ESR-3702.

3.1.2.6 Flame Seal® IB (FS-IB) Intumescent Coating: Flame Seal IB intumescent coating, manufactured by Flame Seal Products, Inc., is a single component, water-based, liquid-applied intumescent coating. The coating is supplied in 5-gallon pails and 55-gallon drums and has a shelf life of six months when stored in factory-sealed containers at temperatures between 60°F and 80°F.

3.2 Performance Characteristics:

3.2.1 Surface Burning Characteristics: The insulations have a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 at a maximum thickness of 4 inches. Based on large-scale tests in accordance with NFPA 286, the insulations can be installed at greater thicknesses as described in Section 4.3 and 4.4. When the insulation is separated from the interior living space of the building with minimum 1/2-inch-thick gypsum board, the maximum insulation thickness of the insulations is not limited. Under the IRC, a thermal barrier of minimum 23/32-inch-thick wood structural panel is also permitted, and the maximum insulation thickness is not limited.

3.2.2 Thermal Resistance: The insulations have thermal resistance (*R*-value), at a mean temperature of 75°F, as shown in Table 2.

3.2.3 Air Permeability: WALLTITE® (Max and One) insulations, at a minimum thickness of 1 inch, are considered air-impermeable insulation in accordance with IBC Section 202 and IRC Section R202, based on testing in accordance with ASTM E2178 and/or ASTM E283.

3.2.4 Air Barrier: WALLTITE® (Max and One) insulations, at a minimum thickness of 1-1/2 inches, are considered air barrier materials in accordance with IECC Section C402.6.2.3.1.

3.2.5 Moisture Vapor Permeance: When applied at a minimum thickness of 1-1/2 inches, WALLTITE® One has a moisture vapor permeance of less than 1 perm and qualifies as a Class II vapor retarder, based on testing in accordance with ASTM E96 Procedure A.

4.0 INSTALLATION

4.1 General: The insulations 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.

4.2 Application: The insulations are spray-applied on the jobsite using plural-component metering and processing equipment as recommended in the manufacturer's published installation instructions.

WALLTITE® Max may be applied at thicknesses up to 4 inches maximum per pass or by utilizing up to a 3.5 inch and 3.5 inch back-to-back pass installation, which requires no cooling time between passes. WALLTITE® One may be applied at a minimum thickness of 0.5 inch and a maximum thickness of 3.5 inches per pass. Dual lifts can be applied back-to-back with no dwell time between passes up to a maximum of 3.5 inches per lift for a total of 7 inches in two lifts. For installation over 7 inches, or more than two passes, allow cooling time of 10 minutes per inch.

The insulations must not be used in areas that have a maximum continuous service temperature greater than 180°F or in contact with heat-producing appliances. The foam plastic insulations must not be used in electrical outlet or junction boxes. The substrate must be free of moisture, frost or ice, loose scales, rust, oil, and grease, or other surface contaminants.

The insulations must be protected from the weather during and after application, except for applications in accordance with Section 4.5.

4.3 Thermal Barrier:

4.3.1 Application with a Prescriptive Thermal Barrier: The insulations must be separated from the interior of the building by a prescriptive thermal barrier of minimum 1/2-inch gypsum wallboard or an approved equivalent 15-minute thermal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section R303.4, as applicable. Exceptions are provided in Section 4.3.2 and Section 4.4, or when the installation is in sill plates and headers at a total thickness of 3-1/4 inches or less as permitted by IRC Section R303.5.11.

When the insulations are separated from the interior living space of the building with minimum 1/2-inch-thick gypsum board, the maximum insulation thickness of the insulations is not limited. Under the IRC, a thermal barrier of minimum 23/32-inch-thick wood structural panel is also permitted, and the maximum insulation thickness is not limited.

4.3.2 Application without a Prescriptive Thermal Barrier: The WALLTITE® (Max and One) insulations may be installed without the 15-minute thermal barrier prescribed in IBC Section 2603.4 and IRC Section R303.4, in assemblies conforming to one of the assemblies described in Table 3. The insulation and coating may be left exposed as an interior finish as indicated in Table 3.

4.4 Attics and Crawl Spaces:

4.4.1 Application with a Prescriptive Ignition Barrier: When the insulations are 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 R303.5.3 and R303.5.4, 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 that the foam plastic insulation is not exposed.

4.4.2 Application without a Prescriptive Ignition Barrier: The WALLTITE® (Max and One) insulations may be

installed in attics and crawl spaces as described in this section and Table 4, without the ignition barriers described in IBC Section 2603.4.1.6 and IRC Sections R303.5.3 and R303.5.4, subject to the following conditions:

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 1202.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with IBC Section 1202.3 or IRC Section R806.5. Under-floor (crawl space) ventilation is provided when required by IBC Section 1202.4or IRC Section R408.1, as applicable.
e. Combustion air is provided in accordance with the International Mechanical Code (IMC) Section 701.

In attics, the insulation may be spray-applied to the underside of roof sheathing or roof rafters, and/or vertical surfaces provided the assembly conforms to one of the assemblies described in Table 4. In crawl spaces, the insulations may be spray-applied to the underside of floors and/or vertical surfaces provided the assembly conforms to one of the assemblies described in Table 4. When an intumescent coating is used, surfaces to be coated must be dry, clean, and free of dirt, loose debris, and any other substances that could interfere with adhesion of the coating. The intumescent coating must be applied to all surfaces in accordance with the respective coating manufacturer's installation instructions. The coating must be applied when ambient and substrate temperatures are above 50°F unless otherwise permitted by the intumescent coating manufacturer's installation instructions. The insulations may be installed in unvented attics as described in this section in accordance with IBC Section 1202.3 or IRC Section R806.5.

4.4.3 Use on Attic Floors: The WALLTITE® (Max and One) insulations may be installed in accordance with this section and Table 4 between and over the joists in attic floor.

The insulation must be separated from the interior of the building by an approved thermal barrier. The ignition barrier required in IBC Section 2603.4.1.6 and IRC Section R303.5.3 may be omitted.

4.5 Water-Resistive Barrier: WALLTITE® (Max and One) insulations may be used as an alternative to the water-resistive barrier prescribed in IBC Section 1403.2 and IRC Section R703.2, when installed on exterior walls as described in this section. The insulation must be spray-applied to the exterior side of the sheathing, masonry, or other suitable exterior wall substrates to form a continuous layer of 1 inch minimum thickness. All construction joints and penetrations must be sealed with WALLTITE® (Max or One) insulation. The insulation must be covered with an exterior wall covering within the time specified in the BASF installation instructions.

4.6 Fire-Resistance-Rated Wall Assemblies:

4.6.1 Two-hour Fire-resistance-rated Wall Assembly (Load Bearing): WALLTITE® (Max and One) may be installed on interior load bearing 2-hour fire-resistance-rated walls, when installed in accordance with the following:

4.6.1.1 Wood Framing: Two rows on separate plates, 3 inches apart, of minimum 2 × 4 wood studs (No. 2 Douglas fir) spaced a maximum of 16 inches on-center.

4.6.1.2 Wall Finish: Base layer of 5/8-inch-thick Type X gypsum wallboard applied horizontally and fastened to each outer side of a double row of studs with 6d by 1-7/8-inch-long coated nails, spaced 24 inches on-center. Face layer of 5/8-inch-thick Type X gypsum board is applied horizontally and fastened to each outer side of studs over the base layer with 8d by 2-3/8-inch-long coated nails, spaced 8 inches on-center. Gypsum wallboard joints must be staggered 24 inches between layers and on opposite sides of the wall.

4.6.1.3 Insulation: WALLTITE® (Max and One) is applied in the stud cavities of both rows at a thickness of 3 inches.

4.6.2 Other Fire-resistance-rated Assemblies: WALLTITE® (Max and One) insulations have been tested for compliance with UL 263 (ASTM E119). Refer to the UL LLC Fire-resistance Directory at iq.ulprospector.com.

The UL design listings have not been evaluated under this Research Report.

4.7 Exterior Walls in Types I, II, III, and IV Construction: WALLTITE® (Max and One) may be installed in or on exterior walls of buildings of Type I, II, III, and IV construction complying with IBC Section 2603.5 and as described in this section. The maximum thickness of the foam plastic is 3-1/2 inches when installed on the exterior of the sheathing and 3-5/8 inches when installed in stud cavities. The potential heat of WALLTITE® Max and WALLTITE® One is 2112 Btu/ft^2 per inch of thickness. The tested wall assemblies were extended through a third-party engineering analysis to include additional wall constructions described in Tables 5 through 8.

Specific constructions complying with NFPA 285 may be found in Intertek Design Listing BASF/FI 30-10.

5.0 CONDITIONS OF USE

The BASF Corporation spray-applied polyurethane foam insulations described in this Research Report comply with, or are 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 Installation must comply with this Research Report, the applicable Code, and the report holder's published installation instructions. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 The insulations must be separated from the interior of the building by an approved 15-minute thermal barrier or approved alternate thermal barrier, as described in Section 4.3, except where installation is in an attic or crawl space as described in Section 4.4.

5.3 The insulations must not exceed the thickness limitations noted in Section 3.2, 4.3, 4.4, 4.5, 4.6, or 4.7, as applicable.

5.4 The insulations must be applied by professional spray polyurethane foam installers approved by BASF Corporation or approved by the Spray Polyurethane Foam Alliance (SPFA) for the installation of spray polyurethane foam insulation.

5.5 Use of the insulations in areas where the probability of termite infestation is "very high" must be in accordance with IBC Section 2603.8 or IRC Section R305.4, as applicable.

5.6 Jobsite certification and labeling of the insulation must comply with IRC Section N1101.10, N1101.14, and IECC Section C303.1 or R303.1 and R401.3, as applicable.

5.7 The polyurethane foam plastic insulation components are produced in Houston, Texas; Orange, California; and Toronto, Ontario; under a quality control program with inspections by Intertek Testing Services NA, Inc.

6.0 SUPPORTING EVIDENCE

6.1 Reports of tests in accordance with ASTM C518, ASTM E84, ASTM E96, ASTM E119, ASTM E283, ASTM E2178, NFPA 259, NFPA 285, NFPA 286, UL 263, and UL 1715.

6.2 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated February 2020, including reports of tests in accordance with Appendix X.

6.3 Data in accordance with ICC 1100 (2019).

6.4 Data in accordance with 16 CFR Part 460.

6.5 Research Reports for evaluation of data 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.

6.6 Intertek Listing Reports:
"WALLTITE Spray-applied Polyurethane Foam Insulation (HFO)"

6.7 Hughes Associates, Inc., letters dated April 18, 2011; April 14, 2014; and October 7, 2014, Re. HAI Project 1JJB00019.001; and dated March 23, 2010, Re. HAI project 1JJB00019000.

7.0 IDENTIFICATION

The A and B components of the insulation are identified with the BASF Corporation name and address, the product name,

the product type (A or B component), density, the flame-spread and smoke-developed indices, the shelf life, the manufacturing location, the date of manufacture, the Intertek Mark shown below, and the Code Compliance Research Report number (CCRR-0374). Intumescent coatings are identified with the manufacturer's name, the product trade name, use instructions and the applicable Evaluation Report number.

8.0 OTHER CODES

This section is not applicable.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1 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.

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

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

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TABLE 1 – PROPERTIES EVALUATED

PROPERTY	2024 IBC SECTION[1]	2024 IRC SECTION[1]	2024 IECC SECTION[1]
Physical properties	2603.1	Not required	Not required
Surface-burning characteristics	2603.3	R303.3	Not applicable
Alternative to thermal barrier/ignition barrier	2603.4	R303.4	Not applicable
Air permeability	1202.3	R806.5	C402.6 R402.4
Vapor permeance	202, 1404.3	202, R702.7	Not applicable
Alternative to water-resistive barrier	1404.2	R703.2	Not applicable
Fire-resistance-rated construction	703	R302	Not applicable
Exterior walls in Types I-IV construction	2603.5	Not applicable	Not applicable
Thermal resistance	1301	N1101.10 N1102	C303.1 C303.1

[1] Section numbers may be different for earlier editions of the International Codes.

TABLE 2 – THERMAL RESISTANCE OF WALLTITE® Max and One INSULATIONS[2,3]

THICKNESS (in.)	R-VALUE (˚F.ft².h/Btu)[1,4]	
	WALLTITE® Max[2]	WALLTITE® One[3]
1	7.4	7.5
2	15	15
3	22	22
3.5	25	25
4	28	29
5	35	36
6	43	43
7	50	50
8	57	58
10	71	72
11	78	79
12	85	86

[1]*R*-values are calculated based on tested *K* values at 1- and 3.5-inch thicknesses.
[2]For WALLTITE MAX:
R-values greater than 3.5 inches are calculated using R = 7.1 / inch.
[3]For WALLTITE One
R-values greater than 3.5 inches are calculated using R = 7.2 / inch
[4]*R*-values greater than 10 are rounded to the nearest whole number.

TABLE 3 – USE OF INSULATION WITHOUT A PRESCRIPTIVE THERMAL BARRIER

INSULATION TYPE	MAXIMUM THICKNESS (in) (Wall Cavities)	MAXIMUM THICKNESS (in) (Ceilings, Underside of Roof Sheathing / Rafters & Floors)	COVERING (Applied to all Foam Surfaces)	MINIMUM APPLICATION RATE OF THE INTUMESCENT COATING	May be left exposed as an Interior Finish	TESTS SUBMITTED (AC377)
WALLTITE® (Max and One)	6	8	No-Burn Plus ThB 14 wet mils	0.87 gal / 100 ft²	Yes	UL 1715
	5-1/2	9-1/2	DC315 14 wet mils	0.88 gal / 100 ft²	Yes	NFPA 286
	5-1/2	9-1/2	Fireshell F10E 21 wet mils	1.16 gal / 100 ft²	Yes	NFPA 286
	5	7	Min. 1/8-in. thick steel	NA	Yes	NFPA 286

TABLE 4 – USE OF INSULATION IN ATTICS AND CRAWL SPACES WITHOUT A PRESCRIPTIVE IGNITION BARRIER

INSULATION TYPE	MAXIMUM THICKNESS (in) (Wall Cavities & Attic Floors)	MAXIMUM THICKNESS (in) (Underside of Roof Sheathing/Rafters & Floors)	INTUMESCENT COATING MINIMUM THICKNESS & TYPE (Applied to all Foam Surfaces)	MINIMUM APPLICATION RATE OF THE INTUMESCENT COATING	TESTS SUBMITTED (AC377)
WALLTITE® (Max and One)	7-1/4	11-1/4	No coating required	NA	Appendix X
	5-1/2	9-1/2	Fireshell F10E 21 wet mils	1.16 gal / 100ft²	NFPA 286
	8	8	No-Burn Plus XD 6 wet mils	0.31 gal / 100ft²	Appendix X
	11-1/4	11-1/4	Flame Seal TB 24 wet mils	1.60 gal / 100ft²	UL 1715
	11-1/2	11-1/2	Flame Seal FS-IB 8 wet mils	0.50 gal / 100ft²	Appendix X
	5-1/2	9-1/2	DC315 14 wet mils	0.88 gal / 100ft²	NFPA 286
	5-1/2	11-1/2	DC315 4 wet mils	0.25 gal / 100 ft²	Appendix X

NA = not applicable.

TABLE 5 – NFPA 285 COMPLYING WALLS – WALLTITE (MAX OR ONE) ON EXTERIOR

Wall Component	Materials
Base Wall System – Use either 1, 2, or 3	1 – Concrete wall 2 – Concrete Masonry wall 3 – 1-layer of 5/8-inch-thick Type X gypsum wallboard installed on the interior side of minimum 3-5/8-inch-deep minimum 20-gauge thick steel studs or minimum nominal 2×4 fire-retardant-treated wood studs spaced a maximum of 24 inches on-center. Lateral bracing installed minimum every 4 ft. vertically or as required.
Floorline Firestopping	Wall Stud cavities shall be filled at each floor line with minimum 4 lbs/ft^3 mineral wool friction fit between wall studs
Interior Insulation – Use either 1, 2, 3, 4, or 5; or combination of 3 and 4 or combination of 3 and 5.	1 – None 2 – Maximum 6-inch thickness of ENERTITE® G, X or Max (CCRR-1032) or WALLTITE® Max or One (CCRR-0374), applied to interior surface of Base Wall System 1 and 2 (See Note 1) 3 – Full wall stud cavity depth or less of ENERTITE® G, X or Max or WALLTITE® Max or One applied using exterior gypsum sheathing of Base Wall System 3 as the substrate and covering the width of the cavity and the inside of the framing. 4 – Fiberglass batt insulation (faced or unfaced) 5 – Mineral wool insulation (faced or unfaced)
Exterior Sheathing – Use either 1 or 2	1 – None (for Base Wall Systems 1 or 2) 2 – Min. ½-inch-thick exterior type gypsum sheathing (for Base Wall System 3) and Interior Insulation 1, 3, 4, or 5.
Exterior Insulation	Maximum 5-inch thickness of WALLTITE® (Max or One)
(Optional) Exterior Insulation Covering – Use 1 or 2	1 – None 2 – As an option, cover WALLTITE® (Max or One) with minimum 2-inch thickness of minimum 4 pcf mineral wool insulation. Mineral wool insulation installation shall be in accordance with Table 8 requirements.
Exterior Wall Covering – Use either 1, 2, 3, 4, or 5	1 – Brick – Standard type brick veneer anchors, installed a maximum 24 inches on- center, vertically on each stud with maximum 2-inch air gap between exterior insulation and brick. Brick to be standard nominal 4-inch-thick clay brick installed in a running bond pattern using Type S mortar. 2 – Stucco – Minimum ¾-inch thick, exterior cement plaster and lath. A secondary water-resistive barrier can be installed between the exterior insulation and the lath. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes. 3 – Minimum 2-inch-thick natural stone (granite, limestone, marble, sandstone). Any standard non-open jointed installation technique can be used. 4 – Minimum 1-1/2-inch-thick concrete masonry unit (CMU), concrete, pre-cast concrete, or artificial cast stone. Any standard non-open jointed installation technique can be used. 5 – Minimum 1-1/4-inch-thick Terra Cotta non-open jointed. Any standard non-open jointed installation technique can be used.
Flashing of window, door and other exterior wall penetrations.	As an option, flash around window, door, and other exterior penetrations with limited amounts of maximum 12-inch-wide flashing tape (acrylic, asphalt or butyl-based) or liquid-applied membrane material with or without fiber mesh reinforcement.

Note 1: Fireblocking per IBC Section 718 and thermal barrier material requirements must be met for Base Wall Systems 1 and 2, as required by specific wall construction details when combustible concealed space is created on interior side of exterior wall assembly.

Note 2: Building Code section references may change in different editions of the IBC.

TABLE 6 – NFPA 285 WALLS – WALLTITE® (MAX OR ONE) ON EXTERIOR WITH EXTERIOR INSULATION COVERING

Wall Component	Materials
Base Wall System – Use either 1, 2, or 3	1 – Concrete wall 2 – Concrete Masonry wall 3 – 1 layer of 5/8-inch-thick Type X gypsum wallboard installed on the interior side of minimum 3-5/8-inch-deep minimum 20-gauge thick steel studs spaced or minimum nominal 2×4 fire-retardant-treated wood studs a maximum of 24 inches on-center. Lateral bracing installed minimum every 4 ft. vertically or as required.
Floorline Fireblocking	Wall stud cavities shall be filled at each floor line with minimum 4 lb/ft^3 mineral wool friction fit between wall studs
Interior Insulation – Use either 1, 2, 3, 4, or 5; or combination of 3 and 4 or combination of 3 and 5	1 – None 2 – Maximum 6-inch-thickness of or ENERTITE® G, X or Max (CCRR-1032) or WALLTITE® Max or One (CCRR-0374), applied to interior surface of Base Wall System 1 and 2 (See Note 1) 3 – Full wall stud cavity depth or less of or ENERTITE® G, X or Max WALLTITE® Max or One applied using exterior gypsum sheathing of Base Wall System 3 as the substrate and covering the width of the cavity and the inside of the steel wall stud framing flange. 4 – Fiberglass batt insulation (faced or unfaced) 5 – Mineral wool insulation (faced or unfaced)
Exterior Sheathing – Use either 1 or 2	1 – None (for Base wall systems 1 or 2) 2 – Min. ½ inch-thick exterior type gypsum sheathing (for Base Wall System 3 and Interior Insulation 1, 3, 4, or 5)
Exterior Insulation	Maximum 5-inch-thickness of WALLTITE® (Max or One)
Exterior Insulation Covering	Cover WALLTITE® (Max or One) with minimum 2-inch thickness of minimum 4 pcf mineral wool insulation. Mineral wool insulation installation shall be in accordance with Table 8 requirements.
Water-resistive Barrier	A WRB may be used with Exterior Wall Coverings 2 and 3 when the WRB was part of the tested assembly.
Exterior Wall Covering – Use either 1, 2, or 3 (See Note 3)	1 – Any non-combustible exterior wall covering material using any standard installation technique; maximum air gap between gladding and insulations is 2 inches. 2 – Any non-combustible exterior wall covering system with a combustible WRB where the system with WRB has successfully been tested in accordance with NFPA 285; maximum air gap between gladding and insulations is 2 inches. 3 – Any combustible exterior wall covering system with or without a combustible WRB that has successfully been tested in accordance with NFPA 285; maximum air gap between gladding and insulations is 2 inches.
Flashing of window, door and other exterior wall penetrations.	As an option, flash around window, door, and other exterior penetrations with limited amounts of maximum 12-inch-wide flashing tape (acrylic, asphalt or butyl-based) or liquid applied membrane material with or without fiber mesh reinforcement.

Note 1: Fireblocking per IBC Section 718 and thermal barrier material requirements must be met for Base Wall Systems 1 and 2, as required by specific wall construction details when combustible concealed space is created on interior side of exterior wall assembly.
Note 2: Building Code section references may change in different editions of the IBC.
Note 3: Combustible exterior wall coverings shall be installed in accordance with manufacturer's installation requirements.

TABLE 7 – NFPA 285 COMPLYING WALLS – WALLTITE® (MAX AND ONE) IN INTERIOR WALL CAVITY

Wall Component	Materials
Base Wall System – Use either 1, 2, or 3	1 – Concrete wall 2 – Concrete Masonry wall 3 – 1 layer of 5/8-inch-thick Type X gypsum wallboard installed on the interior side of minimum 3-5/8-inch-deep minimum 20-gauge thick steel studs or minimum nominal 2×4 fire-retardant-treated wood studs spaced a maximum of 24 inches on-center. Lateral bracing installed minimum every 4 feet vertically or as required.
Floorline Fireblocking	Wall stud cavities shall be filled at each floor line with minimum 4 lb/ft^3 mineral wool friction fit between wall studs.
Interior Insulation – Use either 1, 2, 3, 4 or 5 or combination of 3 and 4 or combination of 3 and 5	1 – None 2 – Maximum 5-1/2-inch-thickness of WALLTITE® (Max or One) applied to interior surface of Base Wall System 1 and 2 (See Note 1) 3 – Full wall stud cavity depth or less of or WALLTITE® (Max or One) applied using exterior gypsum sheathing of Base Wall System 3 as the substrate and covering the width of the cavity and the inside of the steel wall stud framing flange. 4 – Fiberglass batt insulation (faced or unfaced) 5 – Mineral wool insulation (faced or unfaced)
Exterior Sheathing	Min. ½-inch-thick Type X exterior type gypsum sheathing (for Base Wall System 3)
Water-resistive Barrier	A WRB may be used with Exterior Wall Coverings 2 and 3 when the WRB was part of the tested
Exterior Wall Covering	1 – Any non-combustible exterior wall covering material using any standard installation technique 2 – Any non-combustible exterior wall covering system with a combustible WRB where the system with WRB has successfully been tested in accordance with NFPA 285.Concrete Masonry wall 3 - Any combustible exterior wall covering system, with or without a combustible WRB, that has successfully been tested in accordance with NFPA 285
Flashing of window, door and other exterior wall penetrations.	As an option, flash around window, door, and other exterior penetrations with limited amounts of maximum 12-inch-wide flashing tape (acrylic, asphalt or butyl-based) or liquid applied membrane material with or without fiber mesh reinforcement.

Note 1: Fireblocking per IBC Section 718 and thermal barrier material requirements must be met for Base Wall Systems 1 and 2, as required by specific wall construction details when combustible concealed space is created on interior side of exterior wall assembly.

Note 2: Building Code section references may change in different editions of the IBC.

Note 3: Combustible exterior wall coverings shall be installed in accordance with manufacturer's installation requirements.

TABLE 8 – MINERAL WOOL INSULATION INSTALLATION REQUIREMENTS FOR TABLES 5 AND 6

Wall Component	Requirements
Mineral Wool Insulation Installation Requirements	1 – Mineral wool insulation shall be mechanically fastened to the wall surface using perforated base insulation pins. 2 – Each insulation pin shall be screwed into exterior sheathing and/or steel wall studs. 3 – The length of the insulation pin shall be sized to accommodate the thickness of the SPF plus the mineral wool insulation thickness plus a minimum of 1 inch. 4 – Insulation pin spacing shall be such that a pin is located in each corner of each mineral wool batt as well as one pin located in the geometric center of each insulation batt. 5 – All pins shall be located nominally 2 inches in from the edge of the insulation batt. 6 – SPF shall be installed onto the exterior wall surface such that the perforated pin bases are fully encapsulated. 7 – Mineral wool insulation shall be impaled onto the insulation pins and secured using nominal 2-1/2-inch square galvanized speed friction washers. 8 – Insulation pin tips protruding beyond the speed friction washer shall be bent over to prevent the washer from falling off. 9 – Mineral wool batts shall be tightly fitted against adjacent batts and joints shall be staggered a minimum of one-half batt insulation width (minimum 12 inches).
Mineral Wool Specifications	1 – Mineral wool insulation shall meet the requirements of ASTM C612. 2 – Mineral wool insulation shall not have any type of facer (foil, etc.) on either side. 3 – Mineral wool insulation shall be noncombustible when tested in accordance with ASTM E136. 4 – The mineral wool insulation density shall be a minimum of 4.0 lbs/ft^3. 5 – The R-value per inch for the mineral wool insulation shall be a minimum of 3.45 6 – Mineral wool insulation shall be installed as described above.