Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2405-107

Issue Date: November 1, 2024

Revision Date: November 1, 2024

Subject to Renewal: January 1, 2026

Use of Enverge® EZ-U™ Spray Foam Insulation as Interior Finish and in Attics and Crawlspaces

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 21 29 - Sprayed Insulation

Section: 07 26 00 - Vapor Retarders

Section: 07 27 36 - Sprayed Foam Air Barrier

1 Innovative Product Evaluated[1]

1.1 Enverge EZ-U Spray Foam Insulation

2 Product Description and Materials

2.1 The innovative product evaluated in this report is shown in **Figure 1** and **Figure 2**.

Figure 1. Enverge EZ-U Spray Foam Insulation Isocyanate (A-Side) and Resin (B-Side)

Figure 2. Application of Enverge EZ-U Spray Foam Insulation in an Unvented Attic

2.2 Enverge EZ-U Spray Foam Insulation is a two-component (Isocyanate or A-side and Resin or B-side), low-density open-cell Spray Polyurethane Foam (SPF) insulation product.

2.3 Enverge EZ-U Spray Foam Insulation has a nominal density of 0.4 pounds per cubic foot (pcf) (6 kg/m^3).

2.4 *DC315 Intumescent Coating*

2.4.1 DC315 is a single-component, water-based, liquid-applied intumescent coating available in white, ice gray, dark gray and charcoal black.

2.4.2 The coating is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums and has a shelf life of one year when stored in factory-sealed containers at temperatures between 50° and 80°F (10 and 27°C).

2.5 *No-Burn® Plus ThB Intumescent Coating*

2.5.1 No-Burn Plus ThB is a white, water-based latex liquid that exhibits intumescent properties when exposed to elevated temperatures and flame. No-Burn Plus ThB is packaged in 5-gallon (19 L) pails and 55-gallon (208 L) drums.

2.5.2 No-Burn Plus ThB has a shelf life of eighteen months when stored in unopened containers between 40°F and 90°F (4.4°C and 32.2°C). No-Burn Plus ThB shall be mixed with a power mixing wand or equivalent at or between 500-1500 RPM for a mixing time of five (5) minutes per container.

2.6 *Flame Seal FS-IB™ Intumescent Coating*

2.6.1 Flame Seal FS-IB is a white, water-based, latex liquid that exhibits intumescent properties when exposed to elevated temperatures and flame. Flame Seal FS-IB is packaged in 5-gallon (19 L) pails and 55-gallon (208 L) drums.

2.6.2 Flame Seal FS-IB has a shelf life of six (6) months when stored in unopened containers between 40°F and 80°F (4.4°C and 26.7°C).

2.6.3 Flame Seal FS-IB shall be thoroughly mixed using a high-speed drill mixer before application.

2.7 As needed, review material properties for design in **Section 6** and to regulatory evaluation in **Section 8**.

3 Definitions

3.1 New Materials[2] are defined as building materials, equipment, appliances, systems or methods of construction not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[3] The design strengths and permissible stresses shall be established by tests[4] and/or engineering analysis.[5]

3.2 Duly authenticated reports[6] and research reports[7] are test reports and related engineering evaluations, which are written by an approved agency[8] and/or an approved source.[9]

3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the Defend Trade Secrets Act (DTSA).[10]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[11]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body and/or a licensed Registered Design Professional (RDP).

3.5.1 The Center for Building Innovation (CBI) is ANAB[12] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[13] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[14] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[15]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.[16] Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[17]

3.9 Approval equity is a fundamental commercial and legal principle.[18]

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation[19]

4.1 *Standards*

4.1.1 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

4.1.2 *ASTM D1622: Standard Test Method for Apparent Density of Rigid Cellular Plastics*

4.1.3 *ASTM D1623: Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics*

4.1.4 *ASTM D2126: Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging*

4.1.5 *ASTM D6226: Standard Test Method for Open Cell Content of Rigid Cellular Plastics*

4.1.6 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*

4.1.7 *ASTM E96: Standard Test Method for Water Vapor Transmission of Materials*

4.1.8 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*

4.1.9 *NFPA 286: Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*

4.2 *Regulations*

4.2.1 *IBC – 15, 18, 21: International Building Code®*

4.2.2 *IRC – 15, 18, 21: International Residential Code®*

4.2.3 *IECC – 15, 18, 21: International Energy Conservation Code®*

4.2.4 *FBC – 20, 23: Florida Building Code*

5 Listed[20]

5.1 Equipment, materials, products or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), approved agency (i.e., CBI and DrJ), and/or approved source (i.e., DrJ) or other organization concerned with product evaluation (i.e., DrJ) that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 Enverge EZ-U Spray Foam Insulation is used in the following applications:

6.1.1.1 Thermal insulation in buildings constructed in accordance with the IBC, IRC or IECC.

6.1.1.2 Sealant for penetrations as part of an air barrier system.

6.1.2 When Enverge EZ-U Spray Foam Insulation is used in fire-rated construction, refer to manufacturer instructions for specific details.

6.2 *Air Permeability*

6.2.1 Enverge EZ-U Spray Foam Insulation has the air permeability characteristics shown in **Table 1**, and is an air-impermeable insulation is an air-impermeable insulation as defined in IRC Section R202, IRC Section N1101.10.5, IECC Section C402.5.1.3 and IECC Section R303.1.5.

Table 1. Enverge EZ-U Spray Foam Insulation Air Barrier Properties

Product	Air Barrier Properties[3]
Enverge EZ-U Spray Foam Insulation[1,2]	< 0.02 [L/(s·m²)

SI: 1 in = 25.4 mm, 1 L/(s·m²) = 0.2 cfm/ft²

1. Sprayed to a minimum thickness of 3.5 inches.
2. Tested in accordance with ASTM E2178.
3. Liter per second per square meter when tested at a pressure differential of 75 Pa.

6.3 *Thermal Resistance*

6.3.1 Enverge EZ-U Spray Foam Insulation has the thermal resistance as defined in **Table 2**.

Table 2. Enverge EZ-U Spray Foam Insulation Thermal Resistance Values

Product	Thickness (in)	Thermal Resistance, R-values[2,3] [(hr·ft·°F)/Btu]	Thermal Resistance, U-values [Btu/(hr·ft²·°F)] per inch of thickness
Enverge EZ-U Spray Foam Insulation[1]	1.0	3.8	0.26
	2.0	7.1	0.28
	3.0	11.0	0.28
	3.5	13.0	0.28
	4.0	14.0	0.28
	5.0	18.0	0.28
	5.5	20.0	0.28
	6.0	21.0	0.28
	7.0	25.0	0.28
	7.5	27.0	0.28
	8.0	29.0	0.28
	9.0	32.0	0.28
	10.0	36.0	0.28
	11.5	41.0	0.28
	12.0	43.0	0.28
	13.0	46.0	0.28
	14.0	50.0	0.28
	15.0	54.0	0.28
	16.0	57.0	0.28

SI: 1 in = 25.4 mm, 1 (hr·ft·°F)/Btu = 0.176 (K·m²)/W, 1 Btu/(hr·ft²·°F) = 5.678 W/(K·m²)

1. One inch (1") product tested after 90 day aging. Three and one-half inch (3½") samples tested after 180 day aging.
2. Tested at a mean temperature of 75° F and fifty percent (50%) relative humidity in accordance with ASTM C518.
3. R-values are calculated from testing at 1" and 3.5". Calculated values over 10 are rounded to the nearest integer

6.4 *Surface Burning Characteristics*

6.4.1 Enverge EZ-U Spray Foam Insulation has been evaluated for surface burning characteristics in accordance with ASTM E84, and the flame spread and smoke developed indices are shown in **Table 3**.

Table 3. Flame Spread and Smoke Developed Indexes of Enverge EZ-U Spray Foam Insulation

Product	Flame Spread	Smoke Developed
Enverge EZ-U Spray Foam Insulation[1]	< 25	< 450
1. Tested in accordance with ASTM E84 at a nominal thickness of 4".		

6.4.2 Insulation thicknesses in walls and ceilings are not limited when covered by a code prescribed thermal barrier or as described in **Section 6.5**, **Section 6.6** and **Section 6.7**.

6.5 *Installation as an Interior Finish without a Code Prescribed Thermal Barrier*

6.5.1 The code prescribed thermal barrier required by IBC Section 2603.4, IBC Section 2603.5.2 or IRC Section R316.4, may be omitted when all of the following apply:

6.5.1.1 The thickness of Enverge EZ-U Spray Foam Insulation shall not exceed the amounts listed in **Table 4**.

6.5.1.2 Enverge EZ-U Spray Foam Insulation is coated with an intumescent coating as described in **Table 4**.

6.5.2 The coating shall be applied in accordance with the coating manufacturer instructions and this report. Surfaces to be coated shall be dry, clean and free of dirt, loose debris and other contaminants that could affect adhesion of the coating.

Table 4. Alternative Thermal Barriers

Insulation Product	Ceiling (Horizontal) Thickness (Maximum)	Wall (Vertical) Thickness (Maximum)	Intumescent Coating	Wet Film Thickness (Minimum)	Coverage Rate (Minimum)
Enverge EZ-U Spray Foam Insulation	14 inches	8.5 inches	DC315	14 mils	114 ft²/gal
SI: 1 in = 25.4 mm, 1 mil = 0.0254 mm, 1 ft²/gal = 0.025 m²/L 1. Tested in accordance with NFPA 286.					

6.6 *Installation in Attics and Crawlspaces with a Prescriptive Ignition Barrier*

6.6.1 Where entry is made only for the service of utilities, Enverge EZ-U Spray Foam Insulation may be installed within attics or crawlspaces provided an ignition barrier be installed in accordance with IBC Section 2603.4.1.6, or IRC Section R316.5.3 and IRC Section R316.5.4, as applicable.

6.6.2 The ignition barrier shall be installed in a manner so that the foam plastic insulation is not exposed and is consistent with the requirements of the type of construction required by the applicable code.

6.7 *Installation in Attics and Crawlspaces with an Alternative Ignition Barrier Assembly*

6.7.1 When installation is in accordance with this section, the prescriptive ignition barrier specified by IBC Section 2603.4.1.6, or IRC Section R316.5.3 and IRC Section R316.5.4, as applicable, may be omitted when the following conditions apply:

6.7.1.1 Enverge EZ-U Spray Foam Insulation may be spray-applied in attics to the underside of roof sheathing, roof rafters and vertical surfaces, and in crawl spaces to the underside of floors and vertical surfaces as described in this section.

6.7.1.2 The thickness of the foam plastic insulation applied shall not exceed the thickness specified in **Table 4**.

6.7.1.3 Entry is only to service utilities in the attic or crawlspace and no storage is permitted.

6.7.1.4 Attic or crawlspace areas cannot be interconnected.

6.7.1.5 Air from the attic or crawlspace cannot be circulated to other parts of the building.

6.7.1.6 Attic ventilation is provided in accordance with IBC Section 1202.2[21] or IRC Section R806, as applicable.

6.7.1.7 Crawlspace ventilation is provided in accordance with IBC Section 1202.4[22] or IRC Section R408.1, as applicable.

6.7.1.8 Combustion air is provided where required in accordance with International Mechanical Code®, IMC Section 701.

6.7.1.9 The Spray Foam Insulation must be coated with an intumescent coating as described in **Table 5**.

Table 5. Ignition Barrier Coverage Rates

Insulation	Vertical (Ceiling) Thickness (Maximum)	Horizontal (Wall) Thickness (Maximum)	Intumescent Coating	Wet Film Thickness (Minimum)	Coverage Rate (Maximum)
Enverge EZ-U Spray Foam Insulation	16.5 inches	11 inches	DC315	4 mils	400 ft²/gal
	16.5 inches	11 inches	Flame Seal FS-IB	6 mils	266 ft²/gal
	16.0 inches	10 inches	No-Burn PLUS ThB	6 mils	271 ft²/gal
SI: 1 in = 25.4 mm, 1 mil = 0.0254 mm, 1 ft²/gal = 0.025 m²/L					

6.8 *Unvented Attic and Unvented Enclosed Rafter Assemblies*

6.8.1 Holcim Solutions and Products US, LLC has conducted end-use configuration testing and analysis per IBC Section 2603.9 and IRC Section R316.6, to qualify the use of Enverge EZ-U Spray Foam Insulation without a prescriptive ignition barrier or intumescent coating in unvented attics conforming with IBC Section 1202.3[23] or IRC Section R806.5 (unvented attics were not addressed in the 2012 and earlier versions of the IBC).

6.8.2 When Enverge EZ-U Spray Foam Insulation is applied in unvented attics conforming to IBC Section 1202.3[24] or IRC Section R806.5, the insulation may be applied to the underside of roof sheathing and/or rafters and to vertical surfaces to a minimum thickness of 3½". Maximum thickness on the underside of roof sheathing or on vertical wall surfaces is 16". The insulation may be left exposed to the attic without a prescriptive ignition barrier or an intumescent coating.

6.8.3 Enverge EZ-U Spray Foam Insulation may be installed in unvented attic assemblies and unvented enclosed rafter assemblies in accordance with IBC Section 1202.3[25] or IRC Section R806.5. A vapor retarder shall be installed in direct contact with the insulation as required in IBC Section 1202.3[26] in Climate Zones 4M, 5, 6, 7 and 8.

6.8.4 The perimeter of penetrating items (annular space) does not require fire caulking. However, for penetrating items not needing full coverage, the perimeter (annular space) of the items must be covered with SPF at a minimum 3½" thickness.

6.8.5 Roof rafter or truss top chord member edges may be left exposed.

6.8.6 Wall stud edges may be left exposed.

6.8.7 Penetration through the attic floor or soffit not conveying air, such as can lights, electrical wiring, potable water, HVAC condensation lines, etc., do not need to be covered with foam or air sealed to the perimeter of the penetration (annular space).

6.8.8 Skylights penetrating through the attic floor, soffit, gable or roof deck where the tubular daylighting pathway is constructed of gypsum, steel or other noncombustible material (with melting temperature greater than steel) do not need full coverage of foam.

6.9 *For All Attic Volumes*

6.9.1 Rigid or flexible HVAC ducts penetrating only the attic floor including all plastic materials, rigid or semi-rigid/flexible aluminum, any ducts wrapped in fiberglass and steel or copper components may be left uncovered by foam.

6.9.2 The attic space must be separated from the interior of the building by a 15-minute code prescribed thermal barrier such as 1/2" gypsum wallboard.

6.9.3 Attics shall have access complying with IRC Section R807, horizontally placed in the floor as shown in **Figure 3**, and shall feature one of the following:

6.9.3.1 A downward-opening hatch

6.9.3.2 A pull down stair

6.9.3.3 Access opening in accordance with IRC Section R807 using Rockfon® Pacific™ 201 Square Edge Ceiling Tile to cover the opening.

6.9.3.4 An attic access opening of 22 1/2" x 30", or the baseline standard IRC size, was used to evaluate performance. The Rockfon Pacific 201 Square Edge Ceiling Tile is set on 1" x 2" trim, installed around the opening. The typical installation is installing trim around the opening, where one-half of the trim width extends into the opening to support the panel. This allows fastening of the trim to the rough framing, where it is expected that there will be a 1" lip around the opening for Rockfon Pacific 201 Square Edge Ceiling Tile bearing.

6.9.3.5 The Rockfon Pacific 201 Square Edge Ceiling Tile shall have a maximum density of 8 pcf, a maximum binder content of three percent (3%) and shall be listed as a Class A product in accordance with ASTM E1264.

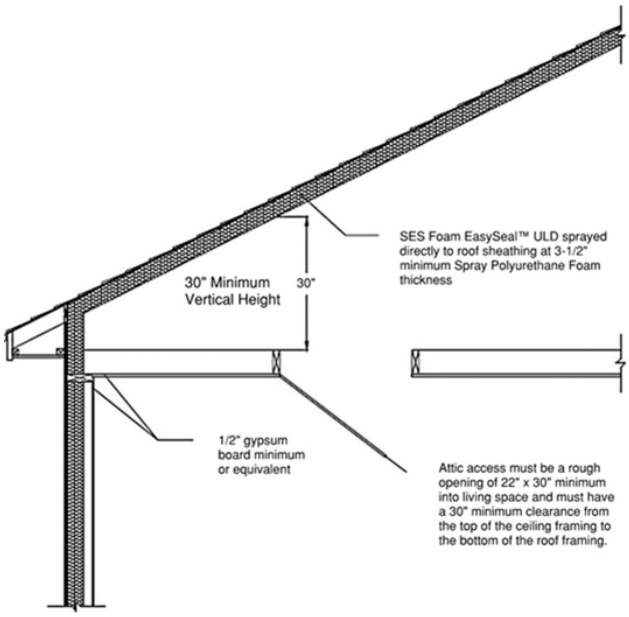

Figure 3. Attic Access

6.10 *For Attics Up to 46,080 Cubic Ft*

6.10.1 Any schedule 40 (minimum) ABS or PVC vent pipe does not need to be covered in SPF.

6.10.2 Rigid or flexible vent ducts/pipes that only penetrate the attic floor and/or soffit, including rigid or semi rigid/flexible aluminum, any ducts wrapped in fiberglass, any ducts with higher melting/softening points than aluminum, and steel or copper do not need to be protected with SPF. Additionally, where exhaust fans with capacity of 60 cubic feet per minute (cfm) or less are installed, plastic materials thinner than schedule 40 do not need to be protected with SPF.

6.10.3 Rigid or flexible vent ducts/pipes that only penetrate the roof deck and/or gable, including rigid or semi rigid/flexible aluminum, any ducts wrapped in fiberglass, any ducts with higher melting/softening points than aluminum and steel or copper do not need to be protected with SPF. Additionally, where exhaust fans with capacity of 60 cfm or less AND the total area of penetrations from this section do not exceed 36 square inches, any plastic materials, any rigid or semi-rigid/flexible aluminum, any ducts wrapped in fiberglass, and vinyl or other plastic with lower melting/softening points than aluminum do not need to be protected by SPF.

6.11 *For Attics Greater Than 46,080 Cubic Ft*

6.11.1 Rigid or flexible vent ducts/pipes that only penetrate the attic floor and/or soffit, including any materials with higher melting/softening points than aluminum, steel or copper do not need to be protected with SPF. Additionally, where exhaust fans with capacity of 60 cfm or less are installed, any plastic materials, rigid or semi-rigid/flexible aluminum, ducts wrapped in fiberglass, and vinyl or other plastic with lower melting/softening points than aluminum do not need to be protected by SPF.

6.11.2 Rigid or flexible vent ducts/pipes that only penetrate the roof deck and/or gable, including any materials with higher melting/softening points than aluminum, steel or copper, do not need to be protected with SPF. Additionally, where exhaust fans with capacity of 60 cfm or less AND the total area of penetrations from this section do not exceed 36 square inches, any plastic materials, rigid or semi-rigid/flexible aluminum, ducts wrapped in fiberglass, and vinyl or other plastic with lower melting/softening points than aluminum do not need to be protected by SPF.

6.12 Other items penetrating the roof deck or gable not specifically named above (other than steel or copper) need to be covered in SPF at a minimum $3^1/_2$".

6.13 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science and fire science.

7 Certified Performance[27]

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.[28]

7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.[29]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 Enverge EZ-U Spray Foam Insulation complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Physical properties of the product in accordance with the standards listed in **Section 4**.

8.1.2 Air permeability in accordance with IRC Section N1102.4, IECC Section C402.5 and IECC Section R402.4.

8.1.3 Thermal performance (R-values) complying with the provisions of IRC Section N1102, IECC Section R402 and IECC Section C402.

8.1.4 Surface burning characteristics complying with the provisions of IBC Section 2603.3 and IRC Section R316.3.

8.1.5 Use in unvented attic spaces and crawlspaces without a thermal barrier or ignition barrier in accordance with IBC Section 2603.9, IRC Section R316.4 and IRC Section R316.6, subject to conditions listed in **Section 6.5** of this report.

8.1.6 Use in vented attic spaces and crawlspaces without the ignition barrier in accordance with IBC Section 2603.9, IRC Section R316.5.3, IRC Section R316.5.4 and IRC Section R316.6 when used with DC315 (International Fireproof Technologies Inc.), or Flame Seal FS-IB (Flame Seal Products Inc.) or No-Burn PLUS ThB by No-Burn, Inc.).

8.1.7 Use without a thermal barrier in accordance with IBC Section 2603.4 and IRC Section R316.4, when used with DC315 (International Fire Proof Technologies Inc.).

8.2 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP/approved sources. DrJ is qualified[30] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which are also its areas of professional engineering competence.

8.4 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report and the applicable building code.

9.2 In the event of a conflict between the manufacturer installation instructions and this report, the more restrictive shall govern.

9.3 *Installation Procedure*

9.3.1 The insulation shall be applied by certified and trained contractors of Holcim Solutions and Products US, LLC.

9.3.2 A copy of manufacturer installation instructions shall be available at all times.

9.3.3 Enverge EZ-U Spray Foam Insulation shall be applied using two-component spray equipment and shall be applied using a 1.5:1 ratio of Component A (isocyanate) and Component B (resin).

9.3.4 The substrate shall be dry and free of frost, ice, rust, oil, grease, dirt or any other substances that may prevent adhesion of the SPF to the substrate.

9.3.5 Enverge EZ-U Spray Foam Insulation is intended for interior use only and shall not to be used where the product could come in contact with water.

9.3.5.1 Protection from weather during and after installation shall be provided.

9.3.6 When used as an air barrier in unventilated attics, the insulation shall be installed to a minimum thickness of 3 1/2" and shall be installed in accordance with the provisions of IRC Section R806.

9.3.7 Enverge EZ-U Spray Foam Insulation may be installed to the required thickness with one pass of the spray equipment. If installation using multiple passes is desired, no cure time is required between passes.

9.3.8 Enverge EZ-U Spray Foam Insulation shall not be used inside of electrical or junction boxes.

9.3.9 Enverge EZ-U Spray Foam Insulation shall be installed only when the air temperature is at or above 30°F (-1°C).

9.3.10 Insulation shall not be installed in areas where the service temperature is greater than 180°F (82°C).

9.3.11 For general SPF installation guidelines, see the Guidance on Best Practices for the Installation of Spray Polyurethane Foam from the American Chemistry Council.

10 Substantiating Data

10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

10.1.1 Testing and data in accordance with NFPA 286 with DC315 for interior finish applications performed by ICC-NTA.

10.1.2 Testing and data in accordance with NFPA 286 modified for unventilated attics.

10.1.3 Testing and data in accordance with NFPA 286 modified for unventilated attics.

10.1.4 Engineering analysis for use of Enverge EZ-U Spray Foam Insulation in unvented attics.

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources and/or RDPs. Accuracy of external test data and resulting analysis is relied upon.

10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability and safety.

10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 Testing and engineering analysis: The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[31]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for Enverge EZ-U Spray Foam Insulation on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, Enverge EZ-U Spray Foam Insulation has performance characteristics that were tested and/or meet applicable regulations and is suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, Enverge EZ-U Spray Foam Insulation shall be approved for the following applications:

11.2.1 Use as thermal insulation in buildings constructed in accordance with the IBC or IRC.

11.2.2 Use in unvented attic spaces and crawlspaces without a thermal barrier or ignition barrier in accordance with IBC Section 2603.9, IRC Section R316.4 and IRC Section R316.6.

11.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Holcim Solutions and Products US, LLC.

11.4 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10[32] are similar) in pertinent part states:

> **104.11 Alternative materials, design and methods of construction and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons the alternative was not approved.

11.5 **Approved**:[33] Building regulations require that the building official shall accept duly authenticated reports.[34]

11.5.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.5.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.5.3 Federal law, Title 18 US Code Section 242, requires that where the alternative product, material, service, design, assembly and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

11.6 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB-Accredited Product Certification Body – Accreditation #1131.

11.7 Through the IAF Multilateral Agreements (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[35]

12 Conditions of Use

12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.

12.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

12.3 As listed herein, Enverge EZ-U Spray Foam Insulation shall:

12.3.1 Be separated from the interior of the building by an approved 15-minute thermal barrier, except as noted in this report.

12.3.2 Meet the minimum thicknesses and densities noted in this report.

12.3.3 Be protected from the weather during and after application.

12.3.4 Be applied by licensed dealers and installers certified by Holcim Solutions and Products US, LLC.

12.4 The manufacturer installation instructions and this report shall be available on the jobsite for inspection.

12.5 Use of the SPF insulation in areas where the probability of termite infestation is *"very heavy"* shall be in accordance with IBC Section 2603.8 and IRC Section R318.4, as applicable.

12.6 Jobsite certification and labeling of the SPF insulation shall comply with IRC Section N1101.10.1, IRC Section N1101.10.1.1, IECC Section C303.1.1 and IECC Section C303.1.1.1.

12.7 A vapor retarder shall be installed in accordance with the applicable code.

12.8 The resin used to produce Enverge EZ-U Spray Foam Insulation is manufactured in Spring, Texas and Saint Louis, Missouri under a quality control program with inspections in accordance with IBC Section 2603.2 and IRC Section R316.2.

12.9 When required by adopted legislation and enforced by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:

12.9.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

12.9.2 This report and the installation instructions shall be submitted at the time of permit application.

12.9.3 This innovative product has an internal quality control program and a third-party quality assurance program.

12.9.4 At a minimum, this innovative product shall be installed per **Section 9** of this report.

12.9.5 The review of this report by the AHJ shall comply with IBC Section 104 and IBC Section 105.4.

12.9.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4 and IRC Section R109.2.

12.9.7 The application of this innovative product in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2 and any other regulatory requirements that may apply.

12.10 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, "*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new material or assemblies as provided for in Section 104.11*," all of IBC Section 104, and IBC Section 105.4.

12.11 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.12 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

13.1 The innovative product listed in **Section 1.1** is identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number and other information to confirm code compliance.

13.2 Additional technical information can be found at www.envergesprayfoam.com.

14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

15 Approved for Use Pursuant to U.S. and International Legislation Defined in Appendix A

15.1 Enverge EZ-U Spray Foam Insulation is included in this report published by an approved agency that is concerned with evaluation of products or services, maintains periodic inspection of the production of listed materials or periodic evaluation of services. This report states either that the material, product or service meets recognized standards or has been tested and found suitable for a specified purpose. This report meets the legislative intent and definition of being acceptable to the AHJ.

Appendix A

1 Legislation that Authorizes AHJ Approval

1.1 **Fair Competition**: State legislatures have adopted Federal regulations for the examination and approval of building code referenced and alternative products, materials, designs, services, assemblies and/or methods of construction that:

1.1.1 Advance innovation

1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints

1.1.3 Benefit consumers through lower prices, better quality, and greater choice

1.2 **Adopted Legislation**: The following local, state and federal regulations affirmatively authorize this innovative product to be approved by AHJs, delegates of building departments and/or delegates of an agency of the federal government:

1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative products, materials, designs, services, assemblies, and/or methods of construction. The goal is to "*protect economic freedom and opportunity by promoting free and fair competition in the marketplace*."

1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have new products, materials, designs, services, assemblies and/or methods of construction approved for use in commerce. Disapproval of alternatives shall be based upon non-conformance with respect to specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved, with reference to the specific legislation violated.

1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),[36] where providing test reports, engineering analysis and/or other related IP/TS is subject to prison of not more than ten years[37] and/or a $5,000,000 fine or 3 times the value of[38] the Intellectual Property (IP) and Trade Secrets (TS).

1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of Listings, certified reports, Technical Evaluation Reports, duly authenticated reports and/or research reports prepared by approved agencies and/or approved sources.

1.2.4 For new materials[39] that are not specifically provided for in any regulation, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.

1.2.5 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design using accepted engineering practice.[40]

1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence provided in writing, that specific legislation have been violated by an individual registered PE.

1.2.7 The AHJ shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.[41]

1.3 **Approved**[42] **by Los Angeles**: The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards that apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The testing agency shall publish the scope and limitation(s) of the listed material or fabricated assembly.[43] The Superintendent of Building Approved Testing Agency Roster is provided by the Los Angeles Department of Building and Safety (LADBS). The Center for Building Innovation (CBI) Certificate of Approval License is TA24945. Tests and certifications found in a DrJ Listing are LAMC approved. In addition, the Superintendent of Building shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the California Building Code (CBC) Section 1707.1.[44]

1.4 **Approved by Chicago**: The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, service, design, assembly and/or method of construction not specifically provided for in the MCC. This technical data shall consist of research reports from approved sources (i.e., MCC defined Approved Agencies).

1.5 **Approved by New York City**: The 2022 NYC Building Code (NYCBC) states in part that an approved agency shall be deemed[45] an approved testing agency via ISO/IEC 17025 accreditation, an approved inspection agency via ISO/IEC 17020 accreditation, and an approved product evaluation agency via ISO/IEC 17065 accreditation. Accrediting agencies, other than federal agencies, must be members of an internationally recognized cooperation of laboratory and inspection accreditation bodies subject to a mutual recognition agreement[46] (i.e., ANAB, International Accreditation Forum also known as IAF, etc.).

1.6 **Approved by Florida**: Statewide approval of products, methods or systems of construction shall be approved, without further evaluation by:

1.6.1 A certification mark or listing of an approved certification agency,

1.6.2 A test report from an approved testing laboratory,

1.6.3 A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity, or

1.6.4 A product evaluation report based upon testing, comparative or rational analysis, or a combination thereof, developed, signed and sealed by a professional engineer or architect, licensed in Florida.

1.6.5 For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods:

1.6.5.1 A certification mark, listing or label from a commission-approved certification agency indicating that the product complies with the code,

1.6.5.2 A test report from a commission-approved testing laboratory indicating that the product tested complies with the code,

1.6.5.3 A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code,

1.6.5.4 A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code, or

1.6.5.5 A statewide product approval issued by the Florida Building Commission.

1.6.6 The Florida Department of Business and Professional Regulation (DBPR) website provides a listing of companies certified as a Product Evaluation Agency (i.e., EVLMiami 13692), a Product Certification Agency (i.e., CER10642), and as a Florida Registered Engineer (i.e., ANE13741).

1.7 **Approved by Miami-Dade County (i.e., Notice of Acceptance [NOA])**: A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami-Dade County shall accept the statewide and local Florida Product Approval as provided for in Florida legislation 553.842 and 553.8425.

1.8 **Approved by New Jersey**: Pursuant to the 2018 Building Code of New Jersey in IBC Section 1707.1 General,[47] it states: "*In the absence of approved rules or other approved standards, the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the administrative provisions of the Uniform Construction Code (N.J.A.C. 5:23)*".[48] Furthermore N.J.A.C 5:23-3.7 states: "*Municipal approvals of alternative materials, equipment, or methods of construction*."

1.8.1 **Approvals**: Alternative materials, equipment or methods of construction shall be approved by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability and safety of those conforming with the requirements of the regulations.

1.8.1.1 A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, shall be accepted by the appropriate subcode official as meeting the requirements of the above.

1.8.1.2 Reports of engineering findings issued by nationally recognized evaluation service programs such as but not limited to, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., shall be accepted by the appropriate subcode official as meeting the requirements of the above.

1.8.2 The New Jersey Department of Community Affairs has confirmed that technical evaluation reports, from any accredited entity listed by ANAB, meets the requirements of item the previous paragraph, given that the listed entities are no longer in existence and/or do not provide "*reports of engineering findings*."

1.9 **Approved by the Code of Federal Regulations Manufactured Home Construction and Safety Standards**: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[49] and Part 3280,[50] the Department encourages innovation and the use of new technology in manufactured homes. The design and construction of a manufactured home shall conform to the provisions of Part 3282 and Part 3280 where key approval provisions in mandatory language follow:

1.9.1 "*All construction methods shall be in conformance with accepted engineering practices*."

1.9.2 "*The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur*."

1.9.3 "*The design stresses of all materials shall conform to accepted engineering practice*."

1.10 **Approval by US, Local and State Jurisdictions in General**: In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:

1.10.1 For new materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests.[51]

1.10.2 For innovative alternatives and/or methods of construction, the building official shall accept duly authenticated reports from approved agencies with respect to the quality and manner of use of new materials or assemblies.[52]

1.10.2.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is in the ANAB directory.

1.10.2.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[53]

1.10.3 The design strengths and permissible stresses of any structural material…shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.[54]

1.11 **Approval by International Jurisdictions**: The USMCA and GATT agreements provide for approval of innovative materials, designs, services, and/or methods of construction through the Agreement on Technical Barriers to Trade and the IAF Multilateral Recognition Arrangement (MLA), where these agreements:

1.11.1 State that conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.

1.11.2 **Approved**: The purpose of the MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA and subsequently, acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, designs, services, and/or methods of construction.

1.11.3 ANAB is an IAF-MLA signatory where recognition of certificates, validation, and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope, shall be approved.[55]

1.11.4 Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.[56]

1.12 Approval equity is a fundamental commercial and legal principle.[57]

Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702

3 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11

4 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as

5 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706:~:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice

6 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies

7 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2

8 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency

9 https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source

10 https://www.law.cornell.edu/uscode/text/18/1832 (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of $5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

11 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

12 https://www.cbitest.com/accreditation/

13 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104:~:text=to%20enforce%20the%20provisions%20of%20this%20code

14 https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#105.3.1:~:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore

15 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11

16 https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

17 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

18 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

19 Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.

20 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed AND https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled

21 2015 IBC Section 1203.2

22 2015 IBC Section 1203.4

23 2015 IBC Section 1203.3

24 2015 IBC Section 1203.3

25 2015 IBC Section 1203.3

26 2015 IBC Section 1203.3

27 https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4

28 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

29 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

30 Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

31 See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition.

32 2018 IFC Section 104.9

33 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

34 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1

35 Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.

36 http://www.drjengineering.org/AppendixC AND https://www.drjcertification.org/cornell-2016-protection-trade-secrets

37 https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years

38 https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided

39 https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2

40 IBC 2021, Section 1706.1 Conformance to Standards

41 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General

42 See **Section 11** for the distilled building code definition of **Approved**

43 Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES

44 https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1

45 New York City, The Rules of the City of New York, § 101-07 Approved Agencies

46 New York City, The Rules of the City of New York, § 101-07 Approved Agencies

47 https://up.codes/viewer/new_jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1

48 https://www.nj.gov/dca/divisions/codes/codreg/ucc.html

49 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14

50 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

51 IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials. Adopted law pursuant to IBC model code language 1706.2.

52 IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General. Adopted law pursuant to IBC model code language 1707.1.

53 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

54 IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.

55 https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

56 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

57 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission