Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2010-01

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No-Burn® Plus and No-Burn® Plus Spray Seal™ Fire Protected Lumber and SCL Used as an Air Barrier and Water-Resistive Barrier Material

Trade Secret Report Holder:

No-Burn®, Inc.

Phone: 800-989-8577 Website: noburn.com Email: info@noburn.com

CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 05 73 - Fire Retardant Wood Treatment of Wood Products

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 25 00 - Water-Resistive Barriers/Weather Barriers

Section: 07 27 00 - Air Barriers

Section: 07 80 00 - Fire and Smoke Protection

Section: 07 82 00 - Board Fire Protection

DIVISION: 09 00 00 - FINISHES

Section: 09 23 82 - Fire Protected Gypsum Plastering

Section: 09 96 43 - Fire-Retardant Coatings

Section: 09 96 46 - Intumescent Painting

1 Innovative Products Evaluated[1]

1.1 No-Burn Plus and No-Burn Plus Spray Seal

1.1.1 No-Burn Plus and No-Burn Plus Spray Seal are used as a treatment for solid sawn lumber, Structural Composite Lumber (SCL), DensGlass® sheathing, and Magnum Board® Fiber reinforced MgO Cement Boards in limited interior, dry use conditions. It is a fire-protective coating and is used as an alternative to Fire-Retardant Treated Wood (FRTW).

1.1.2 No-Burn Plus and No-Burn Plus Spray Seal are used as part of a 2-hour fire-rated load bearing wall assembly.

1.1.3 No-Burn Plus and No-Burn Plus Spray Seal are used as part of a 1-hour fire-rated load bearing wall assembly.

1.1.4 No-Burn Plus and No-Burn Plus Spray Seal are used as part of an I-joist floor assembly.

1.1.5 No-Burn Plus Spray Seal is used as an air barrier and water-resistive barrier material for the treated materials.

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2 Product Description and Materials

2.1 A label for one of the innovative products, No-Burn Plus, is shown in **Figure 1**.

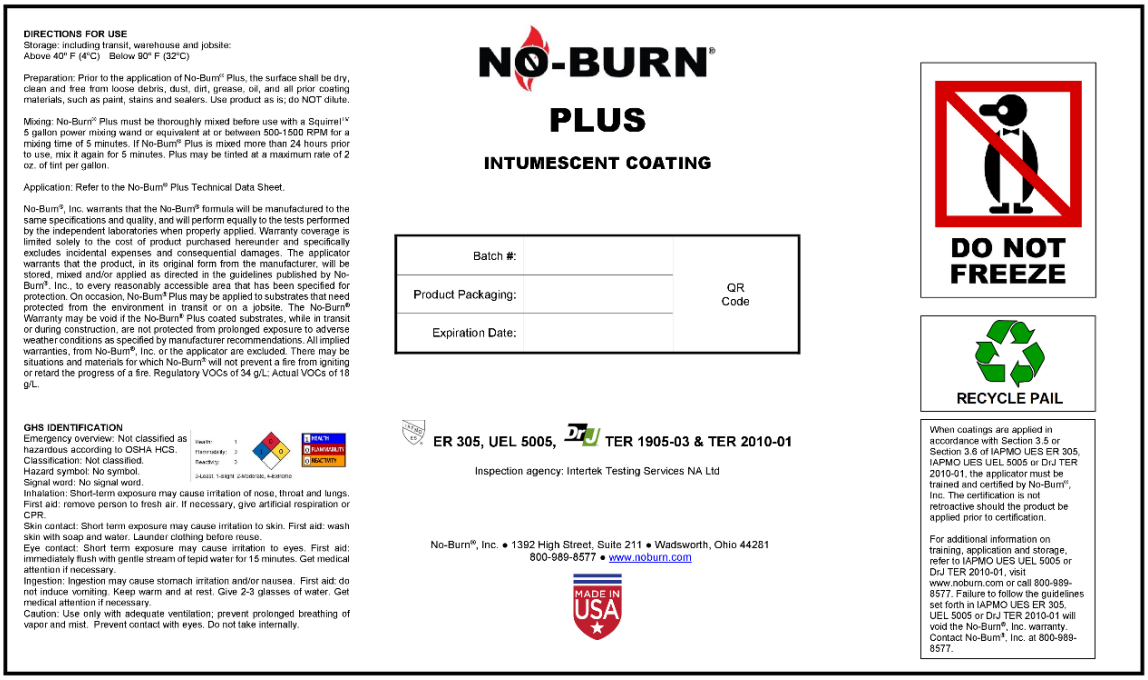

Figure 1. No-Burn Plus Label

2.2 No-Burn Plus is a water-based, liquid applied intumescent coating. When exposed to elevated temperatures and flame, it expands and forms a protective char layer.

2.3 No-Burn Plus Spray Seal is a water-based, liquid applied intumescent coating that performs as an air barrier and water-resistive barrier material. No-Burn Plus Spray Seal provides durability and UV protection for up to six (6) months.

2.4 No-Burn Plus and No-Burn Plus Spray Seal are packaged in 5-gallon (19 liter) pails or 55-gallon (208 liter) drums.

2.5 No-Burn Plus and No-Burn Plus Spray Seal have a shelf life of two years when stored in unopened containers between 40° F (4.4° C) and 90° F (32.2° C) and kept out of direct sunlight.

2.6 No-Burn Plus and No-Burn Plus Spray Seal must be prepared with a power mixer (500 - 1,500 RPM), or equivalent, for a minimum of five minutes per container prior to application.

2.7 The substrates covered in this report include the following:

2.7.1 *Solid Sawn Lumber:*

2.7.1.1 Douglas Fir (DF)

2.7.1.2 Southern Yellow Pine (SYP)

2.7.2 *Structural Composite Lumber (SCL):*

2.7.2.1 Laminated Strand Lumber (LSL)

2.7.2.2 Parallel Strand Lumber (PSL)

2.7.2.3 Laminated Veneer Lumber (LVL)

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2.7.2.4 Oriented Strand Board (OSB)

2.7.2.5 Huber® Engineered Woods ZIP System® Wall Sheathing (hereinafter referred to as ZIP System)

2.7.3 *Gypsum Sheathing:*

2.7.3.1 DensGlass sheathing

2.7.4 *Cement Boards:*

2.7.4.1 Magnum Board Fiber reinforced MgO Cement Boards between 1/8" - 3/4" thick

2.8 No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board are acceptable for use in the following AWPA use categories:

2.8.1 UC1 – Interior construction – millwork and finishing

2.8.2 UC2 – Interior construction – interior beams, timbers, flooring, framing, millwork, and sill plates

2.9 Minimum coverage rates are specified in **Table 1**, **Table 3**, **Table 4**, **Table 5**, **Table 7**, **Table 8**, and **Table 9**.

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

3 Definitions[2]

3.1 New Materials[3] 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.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

3.2.1 This report utilizes intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

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

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[12]

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 RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[13] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[14] 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[15] 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.[16]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[17] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[18] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[19]

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4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, St. Louis County, Texas Department of Insurance, and Wichita.[21]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Regulations*

4.2.1 *IBC – 18, 21, 24: International Building Code®*

4.2.2 *IRC – 18, 21, 24: International Residential Code®*

4.2.3 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.2.4 *IFC – 18, 21, 24: International Fire Code®*

4.2.5 *IMC – 18, 21, 24: International Mechanical Code®*

4.3 *Standards*

4.3.1 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*

4.3.2 *ASTM D610: Standard Practice for Evaluating Degree of Rusting on Painted Steel Surfaces*

4.3.3 *ASTM D3359: Standard Test Methods for Rating Adhesion by Tape Test*

4.3.4 *ASTM D4541: Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers*

4.3.5 *ASTM D4585: Standard Practice for Testing Water Resistance of Coatings Using Single-Sided Controlled Condensation*

4.3.6 *ASTM D8391: Standard Specification for Demonstrating Equivalent Fire Performance for Wood-Based Floor Framing Members to Unprotected 2 by 10 Dimension Lumber or Equal-Sized Structural Composite Lumber*

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

4.3.8 *ASTM E96: Standard Test Methods for Gravimetric Determination of Water Vapor Transmission of Materials*

4.3.9 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*

4.3.10 *ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*

4.3.11 *ASTM E2178: Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials*

4.3.12 *ASTM E2768: Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)*

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4.3.13 *ASTM G1: Standard Practice for Preparing, Cleaning, and Evaluating Corrosion Test Specimens*

4.3.14 *ASTM G85: Standard Practice for Modified Salt Spray (Fog) Testing*

4.3.15 *ASTM G154-16: Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Materials*

4.3.16 *AWPA E12: Standard Method of Determining Corrosion of Metal in Contact with Treated Wood*

4.3.17 *IAPMO EC 017: Evaluation Criteria for Field-Applied Fire Protective Coatings*

4.3.18 *NFPA 13: Standard for the Installation of Sprinkler Systems*

4.3.19 *NFPA 255: Standard Method of Test of Surface Burning Characteristics of Building Materials*

5 Listed[25]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (e.g., CBI), an approved agency (e.g., CBI and DrJ), and/or any approved source (e.g., DrJ), or other organization(s) concerned with product evaluation (e.g., DrJ), that maintains periodic inspection (e.g., 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 No-Burn Plus and No-Burn Plus Spray Seal are protective coatings for solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board used in floor, wall, roof, and ceiling framing.

6.1.1 Applications include, but are not limited to, fire inhibition treatment for beams, columns, headers, joists, studs, and sheathing, inclusive of ZIP System sheathing, and the creation of a fire-resistance rated wall assembly when applied to framing and on the inside face of exterior sheathing.

6.2 No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board are suitable for above ground applications.

6.3 *Design*

6.3.1 Allowable design stresses for No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber and SCL for dry conditions of use, are the same as the wood product before treatment in accordance with IBC Section 2303.2.6.

6.3.2 Since No-Burn Plus and No-Burn Plus Spray Seal are topically applied coating treatments and not a pressure treatment, the wood is not incised. Therefore, the Incising Factor of NDS Section 4.3.8 is not applicable.

6.3.3 Maximum duration of load design stress increase shall not exceed 1.6. The duration of load design stress increase, equal to or less than 1.6, shall be in accordance with NDS Section 2.3.4.

6.3.4 The design provisions for wood construction noted in IBC Section 2302.1 and IRC Section R301.1.3 apply to No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber and SCL, unless otherwise noted in this report.

6.3.5 *Connections:*

6.3.5.1 Lateral loads for nails, screws, bolts, and withdrawal loads for nails and screws installed in No-Burn Plus protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board, shall be in accordance with the NDS using the species-specific gravity for solid sawn lumber or the manufacturer published equivalent specific gravity for SCL, DensGlass sheathing, and MgO cement board products.

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6.4 *Fire Performance*

6.4.1 *Flame Spread and Smoke Developed Indexes:*

6.4.1.1 Solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board protected by No-Burn Plus and No-Burn Plus Spray Seal meet the requirements where flame spread and smoke developed index values are required to be tested in accordance with IBC Section 2303.2, IBC Section 803.1.2, 2021 IRC Section R802.1.5, IRC Section R302.9, IMC Section 602.2, and NFPA 13-25 Section 9.2.1.12 and Section 9.2.1.13,[26] in accordance with ASTM E84, extended 20 minutes, and ASTM E2768 (see **Table 1** and **Table 2**).

Table 1. Surface Burning Characteristics Minimum Coverage Rates

Product[1]	Substrate	Application Rate	Maximum Moisture Content (%)
No-Burn Plus	DF	6 mils wet (4 mils dry); 275 sq. ft. per gallon	19
	SYP	10 mils wet (6 mils dry); 160 sq. ft. per gallon	19
	LSL	10 mils wet (6 mils dry); 160 sq. ft. per gallon	16
	PSL	10 mils wet (6 mils dry); 160 sq. ft. per gallon	16
	LVL	10 mils wet (6 mils dry); 160 sq. ft. per gallon	16
	DensGlass	8 mils wet (5 mils dry); 200 sq. ft. per gallon	16
	MgO Cement Boards	8 mils wet (5 mils dry); 200 sq. ft. per gallon	16
	OSB	8 mils wet (5 mils dry); 200 sq. ft. per gallon	16
	ZIP System	10 mils wet (6 mils dry); 160 sq. ft. per gallon	16

SI: 1 mil = 0.0254 mm, 1 sq. ft per gallon = 0.0245 sq. meter per liter

1. No-Burn Plus Spray Seal is as listed in **Table 9**.

Table 2. Surface Burning Characteristics[1,2,3]

Product[4]	Substrate	Flame Spread Index	Smoke Developed Index
No-Burn Plus	DF	≤ 25	≤ 50
	LSL		
	PSL		
	LVL		
	DensGlass		
	MgO Cement Boards		
	OSB		
	SYP		
	ZIP System		

1. Tested in accordance with ASTM E84 extended 20 minutes, and ASTM E2768.
2. The flame front did not progress more than 10.5 feet beyond the centerline of the burners at any time during the test.
3. No-Burn Plus may be over coated with paint.
4. No-Burn Plus Spray Seal is as listed in **Table 9**.

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6.4.2 *Fire Resistance:*

6.4.2.1 *2-Hour Fire Resistance:*

6.4.2.1.1 The No-Burn Plus and No-Burn Plus Spray Seal coated load bearing wall assembly described in **Figure 2** and **Table 3**, met the requirements for a 120-minute fire-resistance rating when tested in accordance with ASTM E119, and are in conformance with IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[27] and IBC Section 705.5.

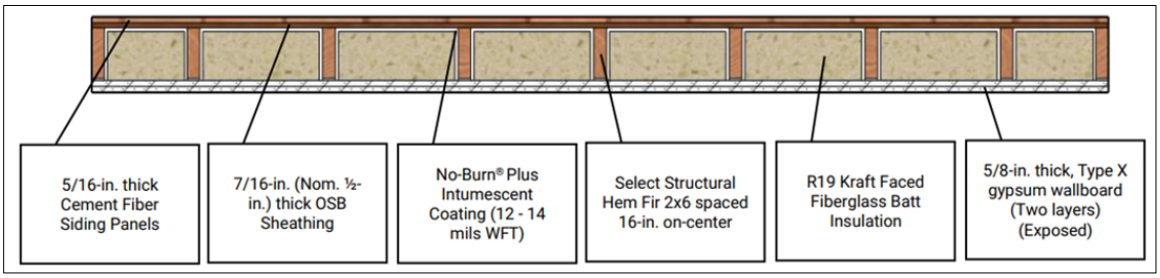

Figure 2. No-Burn Plus 120-minute Fire-Resistance Rated Wall Assembly

6.4.2.1.2 Prior to installation of the insulation, No-Burn Plus and No-Burn Plus Spray Seal are applied at a wet film thickness of 12 – 14 mils, to the three exposed sides of the studs and blocking, in addition to the sheathing.

Table 3. No-Burn Plus and No-Burn Plus Spray Seal 120-Minute Fire-Resistance-Rated Wall Assembly Detail[1,2,3,4]

Wall Component		Fastening Schedule
Interior Sheathing	5/8" Thick Type X Gypsum Wallboard, Two Layers	#6 x 1 5/8", Coarse Thread, Bugle Head Drywall Screw, 8:12 Spacing
Insulation	R19 Kraft Faced Fiberglass Batt	T50 x 1/2" Crown Staples, 8" o.c. Spacing
No-Burn Plus	12 – 14 mil Wet Film Thickness	N/A
Framing	2 x 6 HF/DF/SYP 16" o.c., Double Top plate, Single Bottom Plate, Blocking Installed 24" Edge-to-Center from the Bottom Plate and Double Top Plate	3" x 0.131" Smooth Shank Framing Nails
Exterior Sheathing	7/16" OSB or MgO Cement Board	2 3/8" x 0.113" Ring Shank Exterior Nail, 6:12 Spacing
Exterior Cladding	5/16" Thick Fiber Cement Siding Panels	2 3/8" x 0.113" Ring Shank Exterior Nail, 8:12 spacing

SI: 1 in = 25.4 mm

1. Wall assembly tested in accordance with ASTM E119.
2. No-Burn Plus may be overcoated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.
4. 2-hour rated from interior only.

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6.4.2.2 *1-Hour Fire Resistance:*

6.4.2.2.1 The No-Burn Plus and No-Burn Plus Spray Seal coated load bearing wall assembly described in **Figure 3**, **Table 4**, **Table 5**, and **Table 6** met the requirements for a 60-minute fire-resistance rating when tested in accordance with ASTM E119, and in accordance with IRC Section R302.1, IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[28] and IBC Section 705.5.

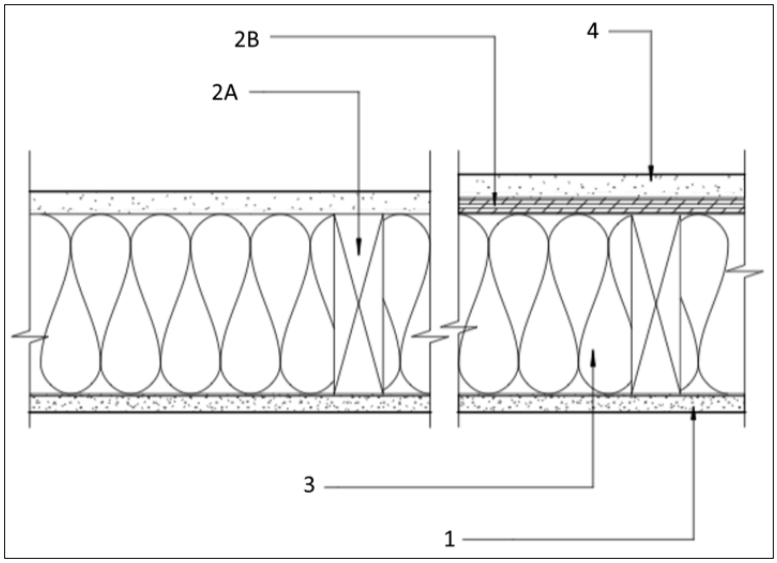

Figure 3. No-Burn Plus 60-minute Fire-Resistance-Rated Wall Assembly

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Table 4. No-Burn Plus and No-Burn Plus Spray Seal Seal 60-Minute Fire-Resistance-Rated Wall Assembly Detail[1,2,3,4]

Wall Component		Fastening Schedule
Interior Sheathing (Item 1 in **Figure 3**)	5/8" thick Type X gypsum Wallboard, one layer applied vertically. Joints covered with paper tape and joint compound	#6 x 1 5/8" Type S or W screws, 6 o.c. spacing and covered with joint compound
Framing (Item 2A in **Figure 3**)	No-Burn Plus Spray Seal at 10 WFT[29] over lumber is a minimum 2 x 4" nominal wood studs, spaced maximum 16" (406 mm) o.c. or 2 x 6" nominal wood studs spaced 24" (610 mm) o.c.	Double top plates and single bottom plate fastened together with 16d common nails (3 1/2" x 0.135" [89 mm x 3.4 mm]), 16d box nails (3 1/2" x 0.135" [89 mm x 3.4 mm]), or 12d ring nails (3 1/4" x 0.135" [83 mm x 3.4 mm])
Exterior Sheathing (Item 2B in **Figure 3**)	5/8" (minimum) OSB or 1/2" (minimum) MAXTERRA[5] or US MGO INNOVATION MgO Cement Board[6] applied vertically over framing. Horizontal joints must be blocked. Exterior face shall have No-Burn Plus Spray Seal applied at 16 WFT. Optionally, the interior face may have No-Burn Plus or Plus Spray Seal applied at 10 WFT	2 3/8" x 0.113" ring shank exterior nail, 8:12 spacing for 5/8" or greater MgO cement boards. For 1/2" MAXTERRA® or US MGO INNOVATION MgO Cement Boards #8 x 1 5/8" coarse thread, flat wafer head cement board screws shall be used with 8" o.c. spacing
Insulation (Item 3 in **Figure 3**)	3 1/2" (minimum) R13 fiberglass batt insulation weighing not less than 2 pounds per cubic foot	Friction fit between studs
	Stud space completely filled with glass fiber mineral wool batts weighing not less than 2 pounds per cubic foot (0.6 pound per square foot of wall surface)	
	Stud space completely filled with Rockwool or slag material wool batts weighing not less than 3.3 pounds per cubic foot (1 pound per square foot of wall surface)	
	Stud space completely filled with cellulose insulation having a nominal density not less than 2.6 pounds per cubic foot	
Insulation (2 x 6 wood studs) (Item 3 in **Figure 3**)	5 1/2" (minimum) R19 Class A fiberglass batt	Friction fit between studs
Exterior Facings (Item 4 in **Figure 3**)	3/4" cement plaster on each side. Plaster mix 1:4 for scratch coat and 1:5 for brown coat, by volume, cement to sand	Lath attached with 6d common nails 7" on center driven to 1" minimum penetration and bent over
	Nominal 2.7" (69 mm) thick solid brick	minimum 22-gauge ties
	Nominal 2.3" (58 mm) thick hollow brick	minimum 22-gauge wall ties
	Nominal 3.0" (76 mm) thick hollow brick or tile of clay or shale	Grouted or filled with materials specified

SI: 1 in = 25.4 mm

1. Wall assembly tested in accordance with ASTM E119.
2. No-Burn Plus may be overcoated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.
4. 1-hour rated from both interior and exterior.
5. 12 mm MAXTERRA MgO cement boards are allowable
6. Other MgO board manufacturers may be used with other approved MgO 1-hr rated assemblies or with MgO boards of minimum 5/8" thickness

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Table 5. No-Burn Plus and No-Burn Plus Spray Seal 60-Minute Fire-Resistance Rated Wall Assembly Detail with Minimum 2 x 6 Framing spaced 16" o.c.[1,2,3,4]

Wall Component		Fastening Schedule
Interior Sheathing (Item 1 in **Figure 3**)	5/8" thick Type X gypsum Wallboard, one layer applied vertically. Joints covered with paper tape and joint compound	#6 x 1 5/8" Type S or W screws, 6 o.c. spacing and covered with joint compound
Framing (Item 2A in **Figure 3**)	No-Burn Plus Spray Seal at 10 WFT over lumber of a minimum 2 x 6" nominal wood studs spaced 16" (406 mm) o.c.	Double top plates and single bottom plate fastened together with 16d common nails (3 1/2" x 0.135" [89 mm x 3.4 mm]), 16 d box nails (3 1/2" x 0.135" [89 mm x 3.4 mm]), or 12d ring nails (3 1/4" x 0.135" [83 mm x 3.4 mm])
Exterior Sheathing (Item 2B in **Figure 3**)	5/8" (minimum) OSB or 1/2" (minimum) Maxterra[5] or US MGO INNOVATION MgO Cement Board[6] applied vertically over framing. Horizontal joints must be blocked. Exterior face shall have No-Burn Plus Spray Seal applied at 16 WFT. Additionally, the interior face shall have No-Burn Plus Spray Seal applied at 10 WFT.	2 3/8" x 0.113" ring shank exterior nail, 8:12 spacing for OSB or for 5/8" or greater MgO cement boards. For 1/2" MAXTERRA or US MGO INNOVATION MgO Cement Boards #8 x 1 5/8" coarse thread, flat wafer head cement board screws shall be used with 8" o.c. spacing
Insulation (Item 3 in **Figure 3**)	Stud space completely filled with minimum R-13 Rockwool or slag material wool batts weighing not less than 3.3 pounds per cubic foot (1 pound per square foot of wall surface)	Friction fit between studs
Exterior Facing (Item 4 in **Figure 3**)	1/4" (minimum) Hardie® Fiber Cement Board	Installed per manufacturer instructions

SI: 1 in = 25.4 mm

1. Wall assembly tested in accordance with ASTM E119.
2. No-Burn Plus may be over coated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.
4. 1-hour rated from both interior and exterior.
5. 12 mm MAXTERRA MgO cement boards are allowable
6. Other MgO board manufacturers may be used with other approved MgO 1-hr rated assemblies or with MgO boards of minimum 5/8" thickness

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Table 6. No-Burn Plus and No-Burn Plus Spray Seal 60-Minute Fire-Resistance Rated Wall Assembly Detail with Minimum 2 x 4 Framing spaced Maximum 24" o.c.[1,2,3,4]

Wall Component		Fastening Schedule
Interior Sheathing (Item 1 in **Figure 3**)	5/8" thick Type X gypsum Wallboard, one layer applied vertically. Joints covered with paper tape and joint compound	#6 x 1 5/8" Type S or W screws, 6" o.c. spacing and covered with joint compound
Framing (Item 2A in **Figure 3**)	Minimum 2 x 4" nominal wood studs spaced maximum 24" (406 mm) o.c.	Double top plates and single bottom plate fastened together with 16d common nails(3 1/2" x 0.135" [89 mm x 3.4 mm]),16 d box nails (3 1/2" x 0.135" [89 mm x 3.4 mm]), or 12d ring nails (3 1/4" x 0.135" [83 mm x 3.4 mm]) 16" o.c. spacing
Exterior Sheathing (Item 2B in **Figure 3**)	1/2" (minimum) MAXTERRA[5] or US MGO INNOVATION MgO Cement Board[6] applied vertically over framing. Horizontal joints must be blocked. Exterior face shall have No-Burn Plus Spray Seal applied at 16 WFT.	#8 x 1 5/8" coarse thread, flat wafer head cement board screws. 8" o.c. spacing
Cavity Insulation (Item 3 in **Figure 3**)	Stud space completely filled with min. R-13 Fiberglass, Batt, or minimum R-13 Rockwool insulation. Rockwool shall have a minimum density of 2.0 pounds per cubic foot. Insulation shall be marked for surface burning and/or fire resistance	Friction fit between studs
Exterior Facing (Item 4 in **Figure 3**)	Any exterior cladding, as authorized by the authority having jurisdiction.	Installed per manufacturer instructions

SI: 1 in = 25.4 mm

1. Wall assembly tested in accordance with ASTM E119.
2. No-Burn Plus may be over coated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.
4. 1-hour rated from both interior and exterior.
5. 12 mm MAXTERRA MgO cement boards are allowable
6. Other MgO board manufacturers may be used with other approved MgO 1-hr rated assemblies or with MgO boards of minimum 5/8" thickness

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6.4.3 *Equivalent Fire Resistance for Engineered Wood Framing:*

6.4.3.1 I-Joist floor assemblies utilizing No-Burn Plus and No-Burn Plus Spray Seal applied on both sides of the I-joist and the underside of the $^{23}/_{32}$" thick tongue-and-groove OSB subfloor after floor assembly installation have been tested for equivalence to nominal 2 x 10 dimension lumber as permitted by IRC Section R302.13, Exception 4. Construction must be in accordance with **Table 7** and IRC Table R602.3(1).

Table 7. I-Joist and Underfloor Coated Fire Resistance[1,2,3]

I-Joist Type	Minimum Design Values							No-Burn Plus Application
	Maximum Moisture Content	Minimum Depth (in)	Flange Depth and Width (in)	Web Thickness (in)	Vertical Shear (lb)	Moment (lb·ft)	EI x 10^6 (lb·in^2)	
Solid Sawn Flange	16%	$9^1/_2$	$1^1/_2$ x 2	$^3/_8$	1,475	2,725	170	15 mils wet (9 mils dry) 107 square ft per gallon
SCL Flange		$9^1/_2$	$1^1/_8$ x 2		1,475	2,725	170	
		$11^7/_8$	$1^1/_8$ x $1^1/_4$		1,625	3,025	260	

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1lb•ft = 1.36 N•m, 1 lb•in^2 = 2,870 N•mm^2, 1 mil = 0.0254 mm, 1 sq. ft per gallon = 0.0245 sq. meter per liter

1. Tested in accordance with ASTM D8391, ASTM E119, and IAPMO EC 017.
2. No-Burn Plus may be overcoated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.

6.4.3.2 I-Joist floor assemblies utilizing No-Burn Plus and No-Burn Plus Spray Seal applied on both sides of the I-joist only after floor assembly installation have been tested for equivalence to nominal 2 x 10 dimension lumber as permitted by IRC Section R302.13, Exception 4. Construction must be in accordance with **Table 8** and IRC Table R602.3(1).

Table 8. I-Joist Coated Fire Resistance[1,2,3]

I-Joist Type	Minimum Design Values							No-Burn Plus Application
	Maximum Moisture Content	Minimum Depth (in)	Flange Depth and Width (in)	Web Thickness (in)	Vertical Shear (lb)	Moment (lb·ft)	EI x 10^6 (lb·in^2)	
Solid Sawn Flange	16%	$9^1/_2$	$1^1/_2$ x $2^1/_2$	$^3/_8$	1,185	2,800	198	23 mils wet (14 mils dry) 70 square ft per gallon
SCL Flange		$11^7/_8$	$1^1/_8$ x $1^3/_4$		1,625	3,025	260	

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1lb•ft = 1.36 N•m, 1 lb•in^2 = 2,870 N•mm^2, 1 mil = 0.0254 mm, 1 sq. ft per gallon = 0.0245 sq. meter per liter

1. Tested in accordance with ASTM D8391, ASTM E119, and IAPMO EC 017.
2. No-Burn Plus may be overcoated with paint.
3. No-Burn Plus Spray Seal is as listed in **Table 9**.

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6.4.4 *NFPA 13 Sprinkler Omission Assembly:*

6.4.4.1 The No-Burn Plus and No-Burn Plus ThB (see Report Number 1905-03 for additional details on No-Burn Plus ThB) coated assembly as shown in **Figure 4**, meets the requirements of NFPA 13, Section 9.2.1.12, for sprinkler omission.

6.4.4.1.1 Only closed-cell spray foams shown in Table 1 of Report Number 1905-03 shall be used as the spray foam in this assembly to meet the rigid materials requirement of NFPA 13, Section 9.2.1.12. Additionally, any spray foams used in this assembly shall have a FSI of < 25 when tested via ASTM E84.

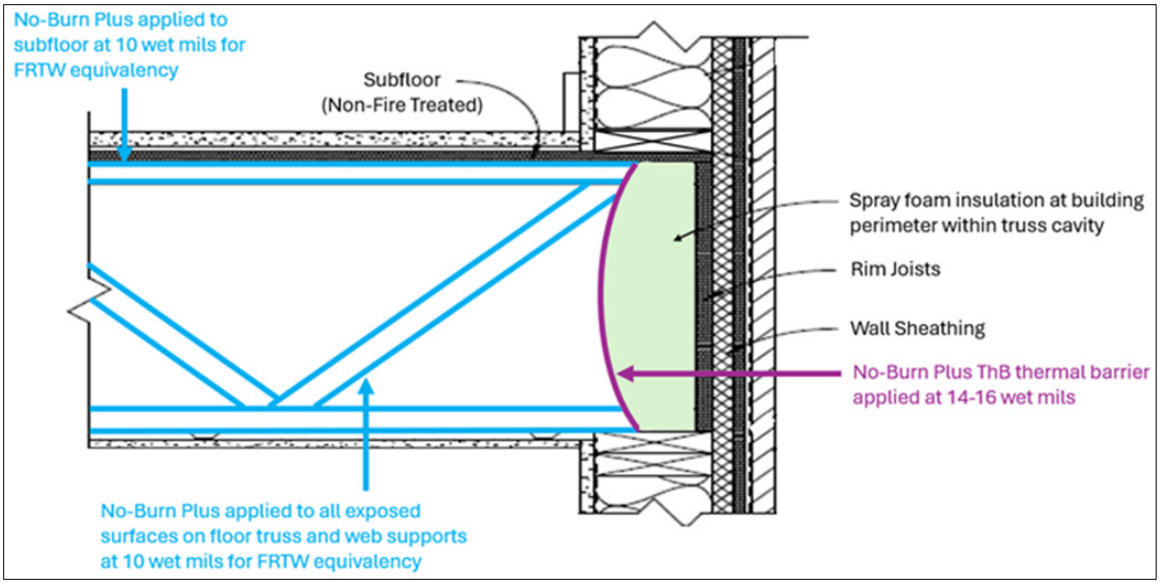

Figure 4. No-Burn NFPA 13 Assembly for Sprinkler Omission

6.5 *Air Barrier Performance*

6.5.1 Solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board protected by No-Burn Plus Spray Seal meet the requirements as an air and water-resistive barrier in accordance with IBC Section 1301 and IECC Section C402.6.2.3.1. No-Burn Plus Spray Seal meets the requirements for air barrier performance in accordance with **Section 6.5** and **Table 9**.

6.5.2 No-Burn Plus Spray Seal air permeance is less than 0.02 L/s•m^2 at a differential pressure of 75 Pa in accordance with ASTM E2178.

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Table 9. No-Burn Plus Spray Seal Used as an Intumescent Coating, Air, and Water-Resistive Barrier Material[1]

Substrate	No-Burn Product Name	Application of No-Burn Coating		
		Minimum Installed Thickness (mils)		Theoretic Application Rate
		Wet Film	Dry Film	Square Ft Per Gallon
Fire protective coating used as an alternative to FRTW to substrates listed in **Table 1**	No-Burn Plus Spray Seal	15	9	107
Component in a 2-hour fire-rated load bearing wall assembly as listed in **Table 2**		15	9	107
Component in a 1-hour fire-rated load bearing wall assembly as listed in **Table 4** and **Table 5**		16	10	100
Component in an I-joist floor assembly as listed in **Table 7**		15	9	107
Component in an I-joist floor assembly as listed in **Table 8**		23	9	70

SI: 1 mil = 0.0254 mm, 1 sq. ft per gallon = 0.0245 sq. meter per liter

1. No-Burn Plus Spray Seal may be overcoated with latex paint with a pH of 7 to 8.

6.6 *Water-Resistance and Durability*

6.6.1 No-Burn Plus and No-Burn Plus Spray Seal may be used as a Water-Resistive Barrier (WRB), as prescribed in IBC Section 1403.2 and IRC Section R703.2, when installed on exterior walls as described in this section and the manufacturer installation instructions.

6.6.1.1 Fifteen (15) WFT[30] of No-Burn Plus Spray Seal shall be applied to joints and $^{7}/_{16}$" thick Exposure 1 APA rated sheathing or equivalent. The sheathing shall be placed over vertical framing spaced a maximum of 16" o.c.

6.6.2 No-Burn Plus Spray Seal passed ASTM E331 testing requirements for a WRB as per IBC Section 1402.2.

6.6.3 No-Burn Plus does not chip, peel, crack, blister, or delaminate when exposed to high temperature and humidity conditions in accordance with ASTM D4585.

6.6.4 No-Burn Plus Spray Seal showed no deleterious effects such as discoloration, cracking, crazing, or delamination when exposed to UV, irradiance, and condensation accelerated weathering and durability, and may be exposed to exterior in accordance with ASTM G154.

6.6.5 No-Burn Plus and No-Burn Plus Spray Seal are approved for use in roofs/attics of structures for elevated temperature and humidity in accordance with IBC Section 2303.2.6.1[31] and 2021 IRC Section R802.1.5.6 for OSB, and IBC Section 2303.2.6.2[32] and 2021 IRC Section R802.1.5.7 for lumber.

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6.7 *Fastener Corrosion*

6.7.1 Fasteners used with No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board shall be in accordance with IBC Section 2304.10.6[33] and IRC Section R304.3.[34]

6.7.2 Common steel, red brass, and aluminum fasteners are approved for use in substrates that are protected by No-Burn Plus and No-Burn Plus Spray Seal in accordance with ASTM D610, ASTM G1, ASTM G85, and AWPA E12.

6.8 *Chlorinated Polyvinyl Chloride (CPVC) Compatibility*

6.8.1 No-Burn Plus and No-Burn Plus Spray Seal have been tested and found to be compatible with CPVC, causing no detrimental effects. Therefore, No-Burn Plus and No-Burn Plus Spray Seal are approved for use in long-term contact with CPVC.

6.9 Alternative techniques shall be permitted in accordance with accepted engineering practice and experience. These provisions for the use of alternative materials, designs, and methods of construction are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed herein. This includes, but is not limited to, the following areas of engineering: mechanics of materials, structures, building science, and fire science.

7 Certified Performance[35]

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.[36]

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.[37]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 No-Burn Plus and No-Burn Plus Spray Seal comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Use as part of a 2-hour fire-rated wall assembly tested in accordance with ASTM E119, and in accordance with IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[38] and IBC Section 705.5.

8.1.2 Use as part of a 1-hour fire-rated wall assembly tested in accordance with ASTM E119, and in accordance with IRC Section R302.1, IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[39] and IBC Section 705.5.

8.1.3 Use where treated materials are left exposed in new or existing construction to achieve the reduced flame spread and smoke developed indices required by the code.

8.1.4 Alternative to FRTW as required by IBC Section 2303.2, IRC Section R304.3,[40] and IRC Section R304.4.[41]

8.1.5 Alternative to FRTW as required by NFPA 13, Section 9.2.1.12 and NFPA 13, Section 9.2.1.13, and as such, does not require sprinkler protection.

8.1.6 Flame spread index and smoke developed index properties as required by IBC Section 2303.2, IBC Section 1402.6,[42] 2021 IRC Section R802.1.5, and IMC Section 602.2.

8.1.7 Performance of No-Burn Plus over coated with paint.

8.1.8 Performance for use in floor assemblies providing equivalent fire performance to 2 x 10 untreated floor assemblies in accordance with IRC Section R302.13, Exception 4.

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8.1.9 Use as an air barrier material in accordance with ASTM E2178, and in accordance with IBC Section 1301 and IECC Section C402.6.2.3.1.[43]

8.1.10 Use as a Water Resistive Barrier (WRB) in accordance with ASTM E331, IBC Section 1403.2 and IRC Section R703.2, when installed properly.

8.1.11 Use in roofs/attics of structures for elevated temperature and humidity in accordance with IBC Section 2303.2.6.1[44] and 2021 IRC Section R802.1.5.6 for OSB, and IBC Section 2303.2.6.2[45] and 2021 IRC Section R802.1.5.7 for lumber.

8.1.12 Corrosion resistance of fasteners in contact with treated wood in accordance with IBC Section 2304.10.6[46] and IRC Section R304.3.[47]

8.1.13 Adhesion to the substrate in accordance with ASTM D3359.

8.1.14 Durability in accordance with ASTM G154 for resistance to ultraviolet radiation and ASTM D4585 for water resistance due to condensation.

8.2 Use as a treatment for solid sawn lumber species and SCL products other than those listed in **Section 2.7** is outside the scope of this report.

8.3 Renewal or maintenance requirements for the treated products must follow manufacturer recommendations.

8.4 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, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[48] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[49] respectively.

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

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, contact the manufacturer for counsel on the proper installation method.

9.3 No-Burn Plus and No-Burn Plus Spray Seal shall be applied to the substrates in accordance with this report, and the No-Burn, Inc. instructions by No-Burn, Inc. certified applicators.

9.4 *Installation Procedure*

9.4.1 The substrates that No-Burn Plus and No-Burn Plus Spray Seal are applied to shall be clean, dry, and free from loose dirt, debris, grease, oil, or any other materials that would inhibit the proper adhesion of the No-Burn Plus and No-Burn Plus Spray Seal, including but not limited to, paints, stains, or sealants.

9.4.2 No-Burn Plus and No-Burn Plus Spray Seal are white in color.

9.4.3 Thickness measurements using a wet film thickness gauge shall be taken, at a minimum, once every 100 ft^2 (9.29 m^2) of surface area during the application of each coat.

9.4.4 The dry mil thickness will be 0.6 to 0.7 times the wet mil thickness.

9.4.5 Apply No-Burn Plus and No-Burn Plus Spray Seal only to the substrates listed in **Section 2.7**.

9.4.5.1 No-Burn Plus and No-Burn Plus Spray Seal are also permitted to be used with Hem-Fir studs as permitted in **Table 3** for use in a 2-hour fire rated assembly.

9.4.6 No significant lag shall exist between application of No-Burn Plus and installation of weather protection.

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9.4.7 Both the substrate surface and the ambient temperature shall be maintained between 40° F (4.4° C) and 100° F (37.7° C) immediately before and during application. Minimum cure time is 24 hours.

9.4.8 Apply the coating at the rate specified in **Table 1**, **Table 3**, **Table 4**, **Table 5**, **Table 7**, **Table 8**, or **Table 9**, as determined by the application.

9.4.9 Coating may be applied via roller, brush, or spraying equipment.

9.4.10 After curing, the coating may be overcoated with latex paint per the paint manufacturer instructions.

9.4.11 The installation certificate provided in **Appendix A** shall be completed by the certified applicator and submitted to No-Burn, Inc. and other interested parties.

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 Coating thickness measurements

10.1.2 Adhesion testing in accordance with ASTM D4541 and ASTM D3359

10.1.3 Flame spread index and smoke developed index in accordance with ASTM E84, ASTM E2768, and NFPA 255

10.1.4 Fire-resistance testing in accordance with ASTM E119

10.1.5 Vapor transmission testing in accordance with ASTM E96

10.1.6 Air barrier material testing in accordance with ASTM E2178

10.1.7 Water-resistance and durability testing in accordance with ASTM E331, ASTM D4585, and ASTM G154

10.1.8 Corrosion testing in accordance with ASTM D610, ASTM G1, ASTM G85, and AWPA E12

10.1.9 CPVC compatibility testing

10.1.10 Equivalent Fire Performance for Engineered Wood Framing in accordance with ASTM D8391, ASTM E119, and EC 017

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 an RDP. 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.

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10.5 *Testing and Engineering Analysis*

10.5.1 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.[50]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for No-Burn Plus and No-Burn Plus Spray Seal on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, No-Burn Plus and No-Burn Plus Spray Seal have performance characteristics that were tested and/or meet applicable regulations. In addition, they are 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, No-Burn Plus and No-Burn Plus Spray Seal shall be approved for the following applications:

11.2.1 No-Burn Plus and No-Burn Plus Spray Seal protection does not affect the allowable design stresses allowed for untreated solid sawn lumber, SCL, and MgO cement board.

11.2.2 The No-Burn Plus and No-Burn Plus Spray Seal coated load bearing wall assembly described in **Figure 2**, meets the requirements for a 120-minute fire-resistance rating when tested in accordance with ASTM E119, and in accordance with IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[51] and IBC Section 705.5.

11.2.3 No-Burn Plus and No-Burn Plus Spray Seal coated load bearing wall assembly, described in **Figure 3**, meet the requirements for a 60-minute fire-resistance rating when tested in accordance with ASTM E119, and in accordance with IRC Section R302.1, IBC Section 703.2, IBC Section 602.1, IBC Section 704.9,[52] and IBC Section 705.5.

11.2.4 No-Burn Plus and No-Burn Plus Spray Seal coated I-joist assemblies in **Section 6.4.3** meet the requirements for fire resistance when tested in accordance with ASTM D8391, ASTM E119, IAPMO EC-017, and in accordance with IRC Section R302.13, Exception 4.

11.2.5 Solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board protected with No-Burn Plus and No-Burn Plus Spray Seal meet the requirements where surface burning characteristics are required to be tested in accordance with ASTM E84 extended 20 minutes, ASTM E2768, and NFPA 255, and in accordance with IBC Section 2303.2, IBC Section 803.1.2, 2021 IRC Section R802.1.5, and IRC Section R302.9.

11.2.6 No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement boards meet the water resistance requirements of ASTM E331 and ASTM D4585.

11.2.7 No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board meet air barrier material requirements in accordance with ASTM E2178, and in conformance with IBC Section 1301 and IECC Section C402.6.2.3.1.[53]

11.2.8 No-Burn Plus Spray Seal protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board meet UV, irradiance, condensation, accelerated weathering, and durability in accordance with ASTM G154.

11.2.9 No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber and SCL meet the requirements for use in roofs/attics of structures for elevated temperature and humidity in accordance to IBC Section 2303.2.6.1[54] and 2021 IRC Section R802.1.5.6 for OSB, and IBC Section 2303.2.6.2[55] and 2021 IRC Section R802.1.5.7 for lumber.

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11.2.10 The corrosion rate of steel, red brass, and aluminum fasteners is not increased by the use of No-Burn Plus and No-Burn Plus Spray Seal treated solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board, and use of other fasteners is in accordance with IBC Section 2304.10.6[56] and IRC Section R304.3.[57]

11.2.11 The degradation rate of CPVC is not increased by long-term contact with No-Burn Plus and No-Burn Plus Spray Seal protected solid sawn lumber, SCL, and MgO cement board.

11.2.12 No-Burn Plus and No-Burn Plus Spray Seal protected floor systems built in accordance with **Section 6.4.3** provide equivalent Fire Performance for Engineered Wood Framing in accordance with ASTM D8391, ASTM E119, and EC 017.

11.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from No-Burn, Inc.

11.4 IBC Section 104.2.3[58] (IRC Section R104.2.2[59] and IFC Section 104.2.3[60] are similar) in pertinent part state:

> **104.2.3 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, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.5 **Approved:**[61] Building regulations require that the building official shall accept duly authenticated reports.[62]

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 Arrangement (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.[63]

12 Conditions of Use

12.1 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.

12.2 For field-applied applications, the certified applicator shall provide documentation that the application rate meets the requirements listed in **Table 1**, **Table 3**, **Table 4**, **Table 5**, **Table 7**, **Table 8**, or **Table 9**, as applicable.

12.3 An installation certificate provided in **Appendix A** shall be completed by the certified applicator and submitted to No-Burn, Inc. and other interested parties.

12.4 Application is limited to the substrates that are listed in **Table 1**, **Table 3**, **Table 4**, **Table 5**, **Table 7**, **Table 8**, or **Table 9**.

12.5 In accordance with NFPA 13, Section 9.2.1.12 and NFPA 13, Section 9.2.1.13, No-Burn Plus protected lumber shall be considered an equivalent alternative to FRTW and does not require sprinkler protection.

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12.6 Any generally accepted engineering calculations needed to show compliance with this report shall be submitted to the code official for review and approval.

12.7 Solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board treated with No-Burn Plus and No-Burn Plus Spray Seal shall be installed in accordance with the applicable code, the approved construction documents, this report, and the manufacturer installation instructions. If there is a conflict between this report and the manufacturer instructions, the more restrictive shall govern.

12.8 No-Burn Plus and No-Burn Plus Spray Seal comply with, or are a suitable alternative to, the treatment required for engineered wood as permitted by the codes listed in **Section 4**, subject to the following conditions:

12.8.1 No-Burn Plus protected solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board are suitable for above ground applications not subject to continuous contact with liquid water.

12.8.1.1 No-Burn Plus Spray Seal provides durability and UV protection for up to six months.

12.8.2 Fastener design values shall be determined using the specific gravity of the solid sawn lumber species and the published equivalent specific gravity of the SCL products used in the coated product.

12.9 Cutting and notching of No-Burn Plus and No-Burn Plus Spray Seal coated solid sawn lumber, SCL, DensGlass sheathing, and MgO cement board are permitted where allowed by the applicable building code, the manufacturer recommendations, this report, or where the effects of such alterations are specifically considered in the design of the member by an RDP.

12.10 When No-Burn Plus and No-Burn Plus Spray Seal are used on I-joists as shown in **Section 6.4.3**, it must be applied before the installation of other components such as electrical or plumbing equipment.

12.11 Duration of load increases shall be in accordance with the limitations of the applicable building code for sawn lumber, but not greater than 1.6.

12.12 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:

12.12.1 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.

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

12.12.3 At a minimum, these innovative products shall be installed per **Section 9**.

12.12.4 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.12.5 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.12.6 The application of these innovative products 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.

12.13 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or 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 Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

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12.14 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).

12.15 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 No-Burn Plus and No-Burn Plus Spray Seal, as listed in **Section 1.1**, are 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 noburn.com/intumescent-coatings.

14 Review Schedule

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

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

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Appendix A

NO-BURN® PRODUCT APPLICATION CERTIFICATE

LOCATION OF BUILDING:

Address **Lot #** **City** **State** **Zip**

DESCRIPTION AND USE OF BUILDING:

Certified Applicator Name **Company** **Certified Applicator Number**

Moisture Meter Reading (Max % Noted in Table 1 – Table 8)	Temp Reading (° F)	Describe Area Treated	Size of Area Treated (Surface Area, Sq. Ft.)	Product Applied	Substrate (Noted-Table 1-8)	Qty. (Wet film thickness)	Date Applied

Certified Applicator Signature **Date of Service**

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Notes

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

2 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

3 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

4 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/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

5 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

6 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/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%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%20104.2.3.

8 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency

10 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source

11 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.

12 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/

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

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

15 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

16 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

17 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%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

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

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

20 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

21 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

22 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

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

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

25 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

26 NFPA 13-16 Section 8.15.1.2.10 and Section 8.15.1.2.11

27 2021 IBC Section 704.10

28 2021 IBC Section 704.10

29 Wet Film Thickness

30 Wet Film Thickness

31 2021 IBC Section 2303.2.5.1

32 2021 IBC Section 2303.2.5.2

33 2018 IBC Section 2304.10.5

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34 2021 IRC Section R317.3

35 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

36 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

37 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

38 2021 IBC Section 704.10

39 2021 IBC Section 704.10

40 2021 IRC Section R317.3

41 2021 IRC Section R317.4

42 2021 IBC Section 1402.5

43 2021 IECC Section C402.5.1.3

44 2021 IBC Section 2303.2.5.1

45 2021 IBC Section 2303.2.5.2

46 2018 IBC Section 2304.10.5

47 2021 IRC Section R317.3

48 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.

49 https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

50 See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

51 2021 IBC Section 704.10

52 2021 IBC Section 704.10

53 2021 IECC Section C402.5.1.3

54 2021 IBC Section 2303.2.5.1

55 2021 IBC Section 2303.2.5.2

56 2018 IBC Section 2304.10.5

57 2021 IRC Section R317.3

58 2021 IBC Section 104.11

59 2021 IRC Section R104.11

60 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

61 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 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

62 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

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

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