OSFM
NC DEPT OF INSURANCE
STATE FIRE MARSHAL

BRIAN TAYLOR
STATE FIRE MARSHAL

January 5, 2026

Mr. Matthew Byington
Mattamy Homes
11000 Regency Parkway Suite 110
Cary, NC 27518

RE: Huntsman Building Solutions "W-Wall" 2-Hour Townhouse Separation Wall Assembly (DrJ TER 2011-01) and Compliance with 2018 North Carolina Residential Code Section R302.2

Dear Mr. Byington,

This letter responds to your request for a formal interpretation from the Office of State Fire Marshal (OSFM) dated September 18, 2025, and received by OSFM the same day. Your request is addressed below.

Stated in relevant parts of the documentation received in the request:

"We are seeking Formal Interpretation on Huntsman's W Wall 2-hour townhome core wall assembly for Section 302.2 compliance. The system utilizes double layers of Type X drywall on each side, 3.5 inches of spray foam, and a >1 in gap between framings. The system is ASTM E119 certified as a 2-hour fire rated townhome core wall assembly. Supporting documentation has more information on the specific architectural details. The intention is for us to implement across North Carolina."

Remarks:

Code sections cited in this letter refer to the 2018 edition of the North Carolina Residential Code (NCRC) and the North Carolina Administrative Code and Policies (NCACP) unless otherwise noted.

Attachment A, a copy of your request for formal interpretation dated September 18, 2025, is attached to this letter for reference.

Attachment B, supporting documents, includes W-Wall System Contractor and Builder Training documents, Listing and Technical Evaluation Report (Report No: 2011-01) from DrJ Engineering, LLC, and a construction detail from HBS (W-WALL system intersected with exterior wall transition) Attachment B is attached for reference.

Scope and Limitations:

1. This interpretation is strictly limited to whether the documentation in DrJ TER 2011-01 satisfies the performance requirements and intent of 2018 NCRC Section R302.2 (Townhouses).

2. This letter confirms the assembly's technical compliance pathway and is not an endorsement, blanket approval, or general acceptance of a proprietary product or manufacturer's entire product line.
3. This determination does not constitute project-specific approval by the Office of State Fire Marshal (OSFM) as a specific project is not referenced in this request for a formal interpretation. The OSFM cannot issue statewide blanket approvals for alternative materials or methods of construction, as such findings are inherently project specific under 2018 NCACP Section 105 Alternate Material, Design or Methods.
4. Final verification of compliance for any particular project, including strict adherence to all architectural, structural, and field installation details documented in the TER, remains the sole responsibility of the local Authority Having Jurisdiction (AHJ) under Article 11 of North Carolina General Statutes (N.C.G.S.) 160D.

Code Analysis:

2018 NCRC Section R302.2 – Townhouses states**:**

> **R302.2 Townhouses.** Each *townhouse* shall be considered a separate building and shall be separated by fire-resistance rated wall assemblies meeting the requirements of Section R302.2.1 or R302.2.2.

Comment: This section establishes the fundamental requirement that the common wall must provide a fire separation, triggering the specific performance standards defined in the subsequent subsections.

2018 NCRC Section R302.2.2 – Common Walls states**:**

> **R302.2.2 Common Walls.** Common walls separating *townhouses* shall be assigned a fire-resistance rating in accordance with Item #1 or 2. The common wall shared by two *townhouses* shall be constructed without plumbing or mechanical equipment, *ducts* or *vents* in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.
>
> 1. Where a fire sprinkler system in accordance with Section P2904 is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2018 *North Carolina Building Code*.
> 2. Where a fire sprinkler system in accordance with Section P2904 is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119, UL 263 or Section 703.3 of the 2018 *North Carolina Building Code*.

Comment: This section defines the mandatory performance requirement for the assembly, stipulating a 2-hour fire-resistance rating (for non-sprinklered buildings) and requiring that the compliance be proven by

ASTM E119 testing. The section also imposes prescriptive conditions regarding continuity, penetration limitations, and equipment exclusion within the wall cavity.

2018 NC Administrative Code and Policies (NCACP) Section 105.1 - Approval states:

> **105.1 Approval.** The provisions of this code are intended to allow the use of any alternate material, design or method of construction, provided that the alternate has been approved by the code enforcement official. An alternative material, design or method of construction shall be approved where the code enforcement official finds that the proposed alternative material, design or method of construction complies with the intent and provisions of the technical codes.

Comment: This provision authorizes the local AHJ to accept an assembly that is not explicitly detailed in the code, provided the AHJ can find that the assembly complies with the required performance standard.

2018 NC Administrative Code and Policies (NCACP) Section 105.2 - Tests or Analysis states:

> **105.2 Tests or analysis.** Whenever there is insufficient evidence of compliance with the provisions of the technical codes, or evidence that a material, design or method does not conform to the requirements of the technical codes, or in order to substantiate claims for an alternative material, design or method, the code enforcement official shall have the authority to require tests as evidence of compliance to be made at no expense to the authority having jurisdiction. Test methods shall be as specified in the technical codes or by other recognized test standards. In the absence of recognized and accepted test methods, the code enforcement official shall approve the testing procedures.

Comment: This section identifies that duly authenticated reports (tests or analysis) are the official means of providing evidence of compliance to substantiate the claims made for an alternative material, such as a proprietary fire-rated assembly.

Discussion:

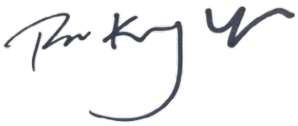
DrJ Technical Evaluation Report (TER) 2011-01, Revision dated September 18, 2025, is an ANAB ISO/IEC 17065-accredited duly authenticated report. Section 6.3 of the TER fully describes and certifies a complete 2-hour load-bearing wall partition assembly — marketed by Huntsman Building Solutions as the "W-Wall" — consisting of double 2×4 studs on separate plates with a minimum 1-inch gap, two layers of 5/8-inch Type X gypsum on each side, and a minimum 3½ inches of approved Huntsman spray polyurethane foam, tested to ASTM E119 from both sides while under load-bearing. The TER separately addresses non-load-bearing area separation walls (ASW) in Section 6.2; the W-Wall is certified only as the load-bearing WP assembly in Section 6.3. No separate UL listing is required or applicable for this configuration. Builders and inspectors shall reference DrJ TER 2011-01, Section 6.3, as the primary compliance document.

Conclusions:

The assembly documented in DrJ TER 2011-01 provides the technical evidence required by NCACP Section 105.2. This evidence—ASTM E119 testing performed by an approved agency—substantiates the claim of compliance.

1. The Huntsman Building Solutions assembly described in DrJ TER 2011-01 meets the performance intent of 2018 NCRC Section R302.2 for use as a townhouse common wall.
2. Local code enforcement officials are presented with sufficient duly authenticated evidence (TER 2011-01) to approve the assembly under the alternative materials and methods provisions of NCACP Section 105.1, not due to proprietary preference, but because the TER provides the required technical evidence under Section 105.2.
3. Approval by the local AHJ remains contingent upon full compliance with the installation requirements in TER Sections 6.3 and 9, continuity from foundation to roof sheathing, absence of prohibited penetrations, and all other applicable provisions of the 2018 NCRC. Please contact our office if you have further questions or comments.

Sincerely,



Pak Keung Yip, PE
Chief Code Consultant
North Carolina Office of State Fire Marshal

cc: File
Nathan Childs, NCDOJ, counsel for NC Building Code Council, nchilds@ncdoj.gov
Nicki Shaffer, NCDOJ, counsel for NC Residential Code Council, wshaffer@ncdoj.gov
David Rittlinger, NCOSFM, Division Chief - Code and Interpretations, david.rittlinger@ncdoi.gov

ATTACHMENT A

(see attached pdf)

APPENDIX E
APPEALS
NORTH CAROLINA
BUILDING CODE COUNCIL

1429 Rock Quarry Road, Suite 105
Raleigh, North Carolina 27610
(919) 647-0008
david.rittlinger@ncdoi.gov

APPEAL TO NCDOI/NCBCC **Hearing Date** _____ / _____ / _____

GS 153A-374, GS 160A-434
Formal Interpretation by NCDOI_____
Appeal of Local Decision to NCDOI_____

GS 143-140, GS 143-141
Appeal of Local Decision to NCBCC_____
Appeal of NCDOI Decision to NCBCC_____

APPELLANT Matthew Byington **PHONE (** 919 **)** 995 **-** 0390 **x** _____
REPRESENTING Mattamy Homes
ADDRESS 11000 Regency Parkway Suite 110
CITY Cary **STATE** NC **ZIP** 27518
E-MAIL Matthew.Byington@MattamyCorp.Com **FAX (** _____ **)** _____ **-** _____

North Carolina State Building Code, Volume _____ **- Section** 302.2

REQUEST ONE:
[Y **] Formal Interpretation by NCDOI**
[ ] Appeal of Local Decision to NCDOI
[ ] Appeal of Local Decision to NCBCC
[ ] Appeal of NCDOI Decision to NCBCC

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

We are seeking Formal Interpretation on Huntsman's W Wall 2-hour townhome core wall assembly for Section 302.2 compliance. The system utilizes double layers of Type X drywall on each side, 3.5 inches of spray foam, and a >1in gap between framing. The system is ASTM E119 certified as a 2-hour fire rated townhome core wall assembly. Supporting documentation has more information on the specific architectural details. The intention is for us to implement across North Carolina.

REASON:

We believe the system offers greater airsealing potential, is a simpler assembly to build and enforce, and potentially offers cost saving.

Signature Matthew Byington **DATE:** 9/18/2025 **FORM 3/14/17**

Yip, Pak

From: Matthew Byington <Matthew.Byington@mattamycorp.com>
Sent: Thursday, September 18, 2025 2:58 PM
To: Rittlinger, David B; Yip, Pak
Cc: Key, Robert L; Johnson, Charlie E
Subject: RE: [External] W Wall TH Core Wall Assembly
Attachments: W Wall NC DOI Submission.pdf; Technical Evaluation Report.pdf; HBS - Construction Details - W-Wall - Extended Exterior Wall - Jan. 2025.pdf; HBS W-Wall Training Module_2404.pdf

David,

I appreciate the quick helpful responses! I filled out the form and re-attached the supporting documents so you would have everything in one spot.

Thanks!

Matthew Byington

Manager of Sustainability - Carolinas

mattamyHOMES

Cell 919-930-7610
Matthew.Byington@mattamycorp.com
Office: 11000 Regency Parkway Suite 110, Cary, NC 27518

Connect with us:

From: Rittlinger, David B <david.rittlinger@ncdoi.gov>
Sent: Thursday, September 18, 2025 2:37 PM
To: Matthew Byington <Matthew.Byington@mattamycorp.com>; Yip, Pak <pak.yip@ncdoi.gov>
Cc: Key, Robert L <robert.key@ncdoi.gov>; Johnson, Charlie E <charlie.johnson@ncdoi.gov>
Subject: RE: [External] W Wall TH Core Wall Assembly

Matthew,
To add further, please check the box for a formal interpretation from NCDOI.
This is a request for a formal interpretation of a product to see if it is compliance with the code.
This is not an appeal since a dispute between the designer and a local authority has not occurred.

Let me know if you have any questions.

David Bruce Rittlinger, PE, LEED AP
Division Chief – Codes and Interpretations

North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008
david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes
https://codes.iccsafe.org/codes/north-carolina

From: Rittlinger, David B
Sent: Thursday, September 18, 2025 2:33 PM
To: Matthew Byington <Matthew.Byington@mattamycorp.com>; Yip, Pak <pak.yip@ncdoi.gov>
Cc: Key, Robert L <robert.key@ncdoi.gov>; Johnson, Charlie E <charlie.johnson@ncdoi.gov>
Subject: RE: [External] W Wall TH Core Wall Assembly

Matthew,
Good afternoon.
Your request is an appeal in accordance with NCGS 143-140.1 and notes as follows:

§ 143-140.1. Alternative design construction and methods; appeals.

The Building Code Council shall, by January 1, 2023, promulgate rules, procedures, and policies for the approval of alternative designs and construction that follow the North Carolina State Building Code. The Residential Code Council shall, by January 1, 2026, promulgate rules, procedures, and policies for the approval of alternative designs and construction that follow the North Carolina State Building Code. In the event of a dispute between a local authority having jurisdiction and the designer or owner-representative regarding alternative designs and construction, and notwithstanding any other section within this Article, appeals by the designer or owner-representative on matters pertaining to alternative design construction or methods shall be heard by the Engineering and Building Codes Division of the Department of Insurance. The Engineering and Building Codes Division shall issue its decision regarding an appeal filed under this section within 10 business days. The State Fire Marshal shall adopt rules in furtherance of this section. (2007-507, s. 18; 2022-11, s. 8(a); 2023-108, s. 1(a); 2023-151, s. 11.60(a); 2024-1, s. 6.4(k).)

Please complete the form at the link below and return it to me.
https://www.ncosfm.gov/appeals-and-formal-interpretations

Let me know if you have any questions.
Thank you.

David Bruce Rittlinger, PE, LEED AP
Division Chief – Codes and Interpretations

North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0008
david.rittlinger@ncdoi.gov

Link to free view of 2018 NC Codes
https://codes.iccsafe.org/codes/north-carolina

From: Matthew Byington <Matthew.Byington@mattamycorp.com>
Sent: Thursday, September 18, 2025 2:11 PM
To: Yip, Pak <pak.yip@ncdoi.gov>
Cc: Key, Robert L <robert.key@ncdoi.gov>; Johnson, Charlie E <charlie.johnson@ncdoi.gov>; Rittlinger, David B <david.rittlinger@ncdoi.gov>
Subject: [External] W Wall TH Core Wall Assembly

Hi Pak,

We are exploring Huntsman's W Wall townhome core wall assembly for use in our Raleigh and Charlotte divisions. The assembly consists of two layers of Type X drywall, 2x framing, 3.5 inches of spray foam, >1" air gap, 2x framing, and two more layers of Type X drywall. I'm seeking a formal interpretation of Section 302.2 compliance in the NC Building Code that would ensure acceptance before we go through the work of switching to this system. I understand that NC Admin Code Section 105 places the responsibility on the building officials, but I was hoping to receive an interpretation I could take to the 15+ municipalities we operate in.

I've attached supporting documents about the W Wall assembly including a Technical Evaluation Report (would get updated report before installing), a summary brochure, and construction details. Please let me know if there is anything else I can provide to assist.

Thanks!

Matthew Byington

Manager of Sustainability - Carolinas

mattamyHOMES

Cell 919-930-7610
Matthew.Byington@mattamycorp.com
Office: 11000 Regency Parkway Suite 110, Cary, NC 27518

Connect with us:

ATTACHMENT B

(see attached pdf)

Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 2011-01

Issue Date: January 12, 2021

Revision Date: September 18, 2025

Subject to Renewal: October 1, 2026

Use of Huntsman Building Solutions Spray Polyurethane Foam (SPF) in Two-Hour Fire-Rated Wall Assemblies

Trade Secret Report Holder:

Huntsman Building Solutions

Phone: 855-742-7227 Website: huntsmanbuildingsolutions.com Email: kgrzybowski@huntsmanbuilds.com

CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION Section: 07 21 29 - Sprayed Insulation

1 Innovative Products Evaluated[1]

1.1 The Huntsman Building Solutions (HBS) products evaluated in this report for use in a two-hour fire-rated non-load-bearing Area Separation Wall (ASW) assembly are listed below:

- 1.1.1 Classic Ultra™
- 1.1.2 Classic Ultra Select™
- 1.1.3 Classic Plus™
- 1.1.4 Icynene Classic 45
- 1.1.5 Icynene Classic 75

1.2 The products listed in **Section 1.1** of this report shall hereinafter be referred to as, *"HBS Approved ASW Spray Foams"*.

1.3 The Huntsman Building Solutions products evaluated in this report for use in a two-hour fire-rated load-bearing Wall Partition (WP) assembly are listed below:

- 1.3.1 Sealection® 500
- 1.3.2 Sealection® NM Open-Cell Spray Foam
- 1.3.3 Foam-Lok™ 500
- 1.3.4 Foam-Lok™ 450
- 1.3.5 OC No-Mix™
- 1.3.6 Classic Ultra™
- 1.3.7 Classic Ultra Select™
- 1.3.8 Icynene Ultra 50

1.3.9 Icynene OC No-Mix

1.3.10 Icynene Classic 45

1.4 The products listed in **Section 1.3** of this report shall hereinafter be referred to as *"HBS Approved WP Spray Foams"*.

2 Product Description and Materials

2.1 The innovative products evaluated in this report are shown in **Figure 1** and **Figure 2**.

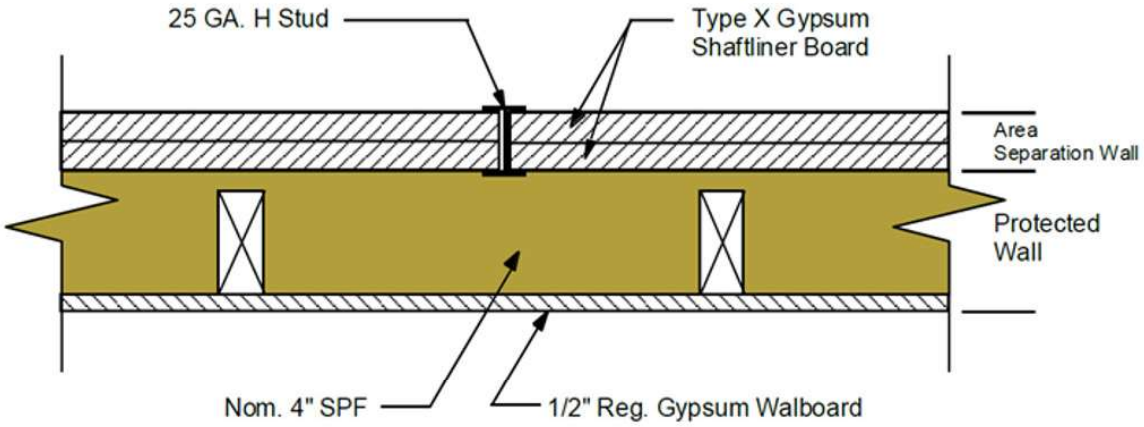


Figure 1. HBS Approved ASW Spray Foams in a Two-Hour Fire-Rated Non-Load-Bearing ASW Assembly

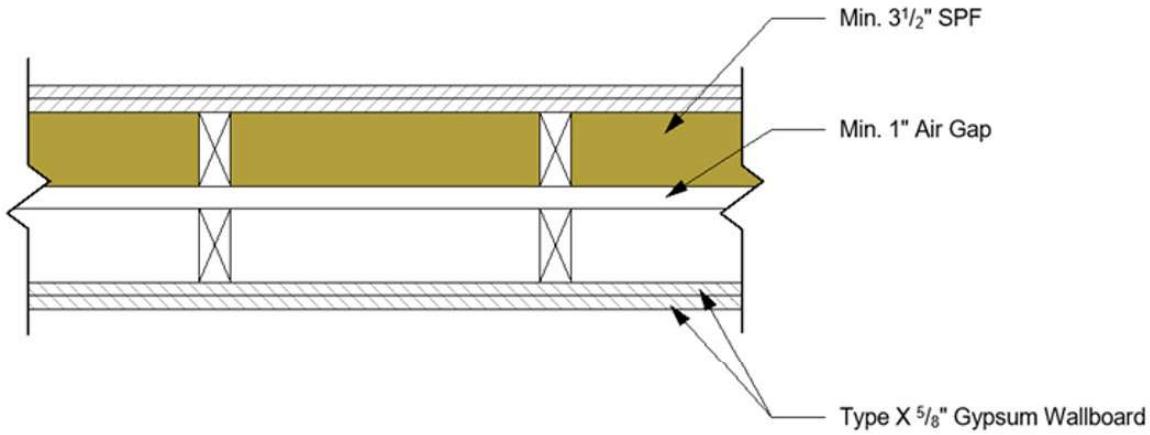


Figure 2. HBS Approved WP Spray Foams in a Two-Hour Fire-Rated Load-Bearing WP Assembly

2.2 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams are proprietary, open (low density) and closed (medium density) cell Spray Polyurethane Foam (SPF) with a nominal density between 0.5 and 2.4 pcf.

2.3 The two components of HBS Approved ASW Spray Foams HBS Approved WP Spray Foams are:

2.3.1 *Component A:* MDI/pMDI isocyanate

2.3.2 *Component B:* proprietary resin

2.4 These two components are combined at the point of spray application.

2.5 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 These reports utilize 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 secretes 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]

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, 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 *Standards*

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

4.2.2 *ASTM E2032: Standard Guide for Extension of Data from Fire Resistance Test Conducted in Accordance with ASTM E119*

4.2.3 *GA 600 Fire-resistance and Sound Control Design Manual, 22nd Edition*

4.3 *Regulations*

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

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

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

5 Listed[25]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or and approved source (i.e., DrJ), or other organization(s) 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 HBS Approved ASW Spray Foams are used in the following applications:

6.1.1.1 Two-hour fire-rated non-load-bearing ASW assemblies where required in buildings constructed in accordance with the IBC or IRC.

6.1.1.2 Two-hour fire-rated non-load-bearing ASW assemblies without a protected wall when the ASW forms the fire barrier between inaccessible attic spaces. Ignition or thermal barriers shall be installed in accordance with the applicable code.

6.1.2 HBS Approved WP Spray Foams are used in the following applications:

6.1.2.1 Two-hour fire-rated load-bearing wall partition assemblies where required in buildings constructed in accordance with the IBC or IRC.

6.2 *Two-Hour Fire-Rated Non-Load-Bearing ASW Assemblies*

6.2.1 HBS Approved ASW Spray Foams are approved for use in two-hour fire-rated non-load-bearing ASW assemblies as described in this document and in accordance with IBC Table 601, IBC Table 705.5,[26] and IRC Section R302.2.

6.2.1.1 HBS Approved ASW Spray Foams shall be applied directly to the inside face of the gypsum board shaft liner, its accompanying H-Studs, and the adjacent framing without the need for an airspace between the shaft liner and the insulation.

6.2.1.1.1 HBS Approved ASW Spray Foams may be applied to one or both sides of the shaft liner wall assembly creating either symmetrical or asymmetrical layouts.

6.2.1.2 Up to 4" of HBS Approved ASW Spray Foams are allowed to be applied as described in **Section 6.2.1**, directly to the ASW assemblies listed in **Section 6.2.2**.

6.2.1.3 The thickness of HBS Approved ASW Spray Foams when applied to ASW assemblies in attic spaces per **Section 6.1.1.2** shall be governed by testing of spray foam exposed in attic applications as detailed in Report Number 1406-03.

6.2.2 HBS Approved ASW Spray Foams are approved for use in the following two-hour fire-rated non-load-bearing ASW assemblies when applied according to **Section 6.2.1**:

6.2.2.1 UL U336

6.2.2.2 UL U347

6.2.2.3 UL U366

6.2.2.4 UL U373

6.2.2.5 UL U375

6.2.2.6 UL U388

6.2.2.7 GA ASW 0800

6.2.2.8 GA ASW 0810

6.2.2.9 GA ASW 0980

6.2.2.10 GA ASW 0985

6.2.2.11 GA ASW 0997

6.2.2.12 GA ASW 0999

6.2.2.13 GA ASW 1004

6.3 *Two-Hour Fire-Rated Load-Bearing Wall Partition Assemblies*

6.3.1 HBS Approved WP Spray Foams are approved for use in two-hour fire-rated load-bearing wall partition assemblies in accordance with IBC Table 601, IBC Table 705.5, and IRC Section R302, and are as described below:

6.3.1.1 A double row of minimum 2 x 4 studs aligned front to back, 16" o.c. on separate plates a minimum of 1" apart.

6.3.1.2 Two (2) layers of $^{5}/_{8}$" thick Type X Gypsum Wall Board (GWB) conforming to ASTM C1396 applied vertically (parallel to studs) with staggered joints covered with tape and joint compound (face layer only).

6.3.1.2.1 Base layer of GWB fastened to wood studs and bearing plates 8":8" o.c. (edge:field) with $1^{5}/_{8}$" Type W screws.

6.3.1.2.2 Face layer of GWB fastened to wood studs and bearing plates over base layer 8":8" o.c. (edge:field) with $2^{1}/_{2}$" Type W screws.

6.3.1.3 Minimum of $3^{1}/_{2}$" of HBS Approved WP Spray Foam installed in stud cavities of either wall section.

6.3.2 HBS Approved WP Spray Foams are approved for use in the following two-hour fire-rated load-bearing assemblies when applied according to **Section 6.3.1**:

6.3.2.1 GA WP 3820

6.3.2.2 ICC ESL 1373, Design No SPFI-1373-01

6.4 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 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams were evaluated in accordance with ASTM E119 for the following applications:

8.1.1.1 Performance of two-hour fire-rated non-load-bearing area separation wall (ASW) assemblies listed in **Section 6.2**.

8.1.1.2 Performance in two-hour fire-rated non-load-bearing ASW assemblies without a protected wall when the ASW forms the fire barrier between attic spaces (with a thermal or ignition barrier in accordance with the applicable code).

8.1.1.3 Performance in two-hour fire-rated load-bearing wall assemblies listed in **Section 6.3**.

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, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[30] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[31] respectively.

8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is 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, contact the manufacturer for counsel on the proper installation method.

9.3 *General*

9.3.1 SPF insulation shall be applied by licensed dealers and installers certified by Huntsman Building Solutions.

9.3.2 A copy of the manufacturer published installation instructions shall be available at all times on the jobsite during installation.

9.3.3 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams shall be installed in accordance with the manufacturer installation instructions and this report.

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

9.3.5 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams shall be applied to the framing using two-component spray equipment and shall be applied using a 1:1 ratio of Component A and Component B.

9.3.6 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.

9.3.7 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams are intended for interior use only and are not to be used where they could encounter water. Provide protection from weather during and after installation.

9.3.8 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams shall be installed to the required thickness in accordance with the manufacturer installation instructions.

9.3.9 Do not use HBS Approved ASW Spray Foams nor HBS Approved WP Spray Foams inside of electrical or junction boxes.

9.3.10 HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams shall be installed only when the temperature is at or above 14° F (-10° C).

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

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

9.4 *Two-Hour Fire-Rated Non-Load-Bearing ASW Assemblies*

9.4.1 Any two-hour fire-rated non-load-bearing ASW assemblies shall be installed in accordance with the wall assembly designs listed in **Section 6.2**.

9.4.2 Fire blocking shall be installed at the floor-to-wall intersections in accordance with the applicable code.

9.4.3 Other fire resistant wall assemblies are outside the scope of this report.

9.5 *Two-Hour Fire-Rated Load-Bearing WP Assemblies*

9.5.1 Any two-hour fire-rated load-bearing WP assemblies shall be installed in accordance with the wall assembly designs listed in **Section 6.3**.

9.5.2 Fire blocking shall be installed at the floor-to-wall intersections in accordance with the applicable code.

9.5.3 Other fire resistant wall assemblies are outside the scope of this report.

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 Fire testing of wall assemblies in accordance with ASTM E119

10.2 Engineering evaluation performed by Priest & Associates Consulting, LLC.

10.3 UL Fire Resistance Directory, Volume 1.

10.4 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.

10.5 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.

10.6 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.

10.7 *Testing and Engineering Analysis*

10.7.1 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.[32]

10.8 Where additional condition of use and/or regulatory compliance information is required, please search for HBS Approved ASW Spray Foams on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams 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, HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams shall be approved for the following applications:

11.2.1 As a component of the two-hour fire-rated non-load-bearing ASW assemblies listed in **Section 6.2** (HBS Approved ASW Spray Foams only).

11.2.2 As a component of two-hour fire-rated non-load-bearing ASW assemblies without a protected wall when the ASW forms the fire barrier between attic spaces (HBS Approved ASW Spray Foams only).

11.2.3 As a component of the two-hour fire-rated load-bearing WP assemblies listed in **Section 6.3** (HBS Approved WP Spray Foams only).

11.3 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Huntsman Building Solutions.

11.4 IBC Section 104.2.3[33] (IRC Section R104.2.2[34] and IFC Section 104.2.3[35] 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:**[36] Building regulations require that the building official shall accept duly authenticated reports.[37]

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.[38]

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 Use of HBS Approved ASW Spray Foams and HBS Approved WP Spray Foams in wall assemblies other than those listed in **Section 6** are outside the scope of this report.

12.4 HBS Approved ASW Spray Foams may be used without an ignition barrier where permitted by ESR-3500 or Report Number 1406-03.

12.5 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:

12.5.1 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.

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

12.5.3 These innovative products have an internal quality control program and a third-party quality assurance program.

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

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

12.5.6 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.

12.5.7 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.

12.6 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.

12.7 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).

12.8 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 products listed in **Section 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 huntsmanbuildingsolutions.com.

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.

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 2018 IBC Table 602

27 https://up.codes/viewer/mississippi/ibc-2024/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] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[32] 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

[33] 2021 IBC Section 104.11

[34] 2021 IRC Section R104.11

[35] 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

[36] 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.

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

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

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BUILDING SOLUTIONS

W-Wall™ System

Contractor and Builder Training

US Attached Housing Market

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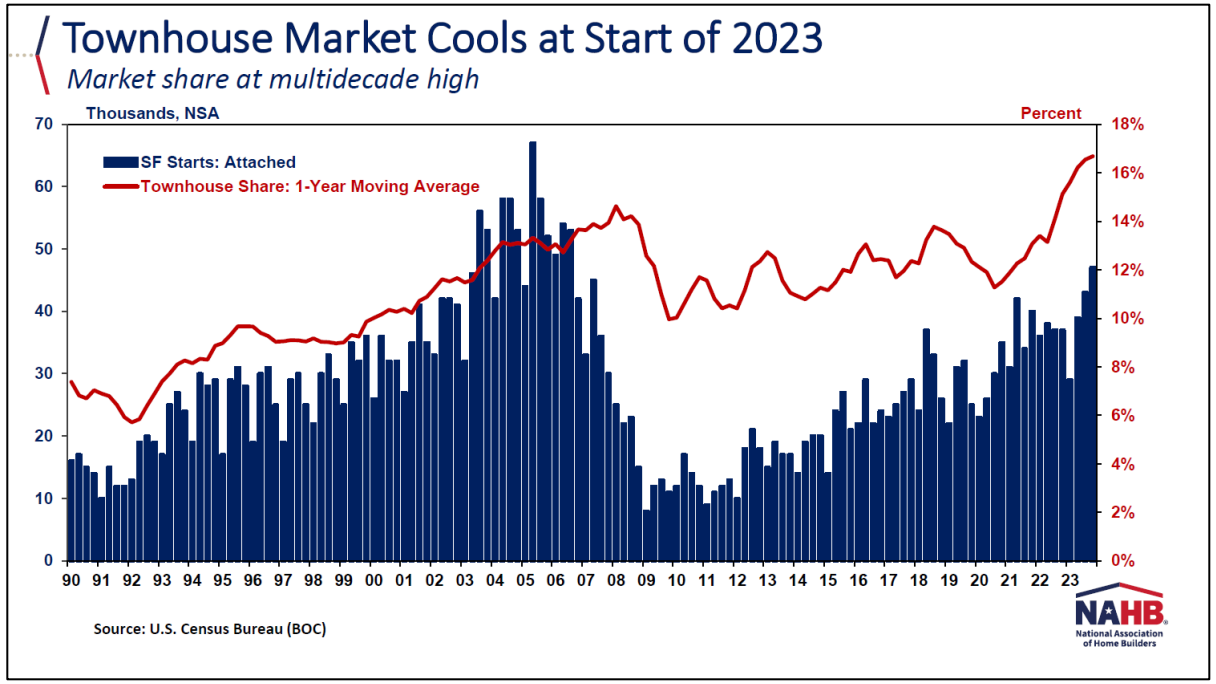

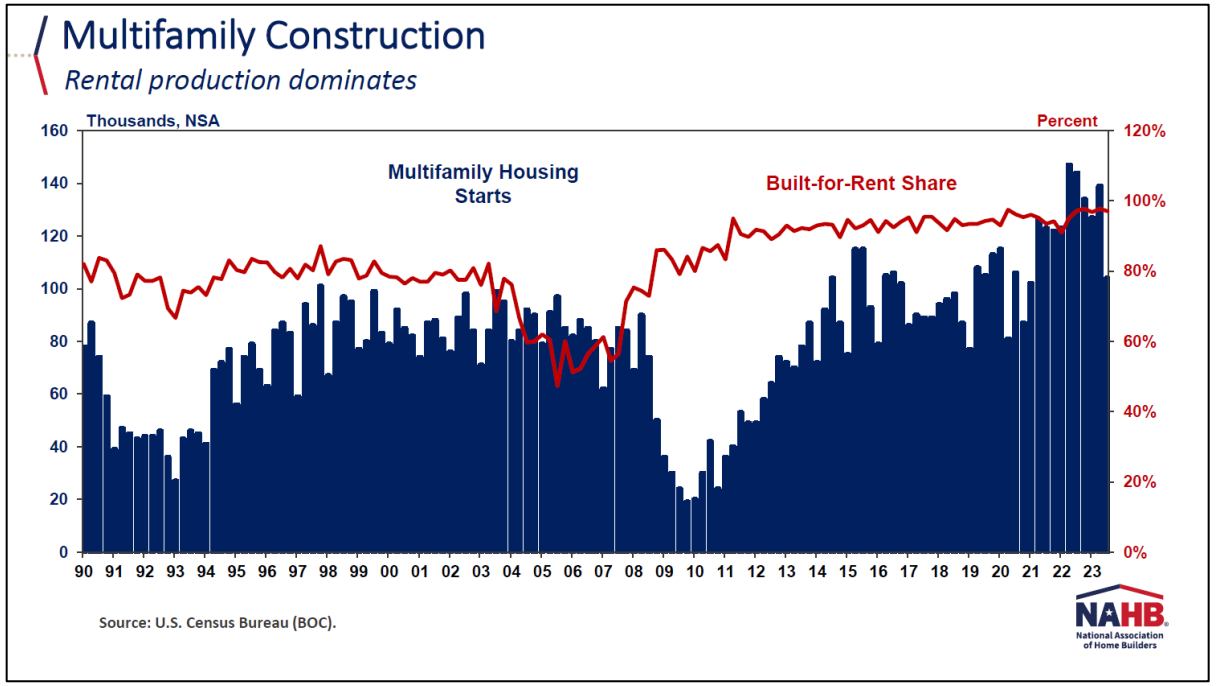

- *Townhome construction at multidecade high while rental production dominates* *source: NAHB Economics PLUS*

US Attached Housing Market

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BUILDING SOLUTIONS

- Top 10 Markets = 187,541 permits in 2023
- YoY declines attributed to financing concerns
- 40% of MF construction in large metro areas
- All adjoining units must include a Party Wall
- *Source: NAHB Economics PLUS*

TOP 10 MULTIFAMILY MARKETS	DEC-23	YOY %CHANGE
New York – Newark – Jersey City	29,180	-38%
Dallas – Ft Worth – Arlington	24,066	-29%
Austin – Round Rock	21,861	-4%
Phoenix – Mesa – Scottsdale	20,827	1%
Los Angeles – Long Beach – Anaheim	18,881	-13%
Houston – The Woodlands – Sugarland	18,322	-35%
Miami – Ft Lauderdale – West Palm Beach	15,947	-13%
Atlanta – Sandy Springs – Roswell	14,617	-30%
DC – Arlington – Alexandria	12,189	-41%
Denver – Aurora – Lakewood	11,651	-13%

What is a Party Wall?

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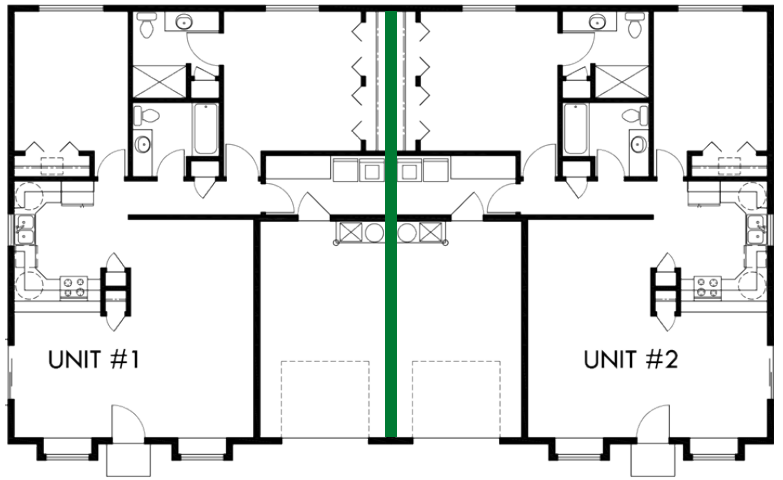
- **IBC Section 706.1.1 Party walls** - Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings shall be constructed as a fire wall...

- **IRC Section R302.2 Townhouses** - Common walls separating townhouses shall be assigned a fire-resistance rating in accordance with Section R302.2, Item 1 or 2....shall be constructed without plumbing or mechanical equipment, ducts or vents in the cavity of the common wall...Electrical installations shall be in accordance with Chapters 34 through 43...electrical outlet boxes designed to Section R302.4.



What is the W-Wall™ System?

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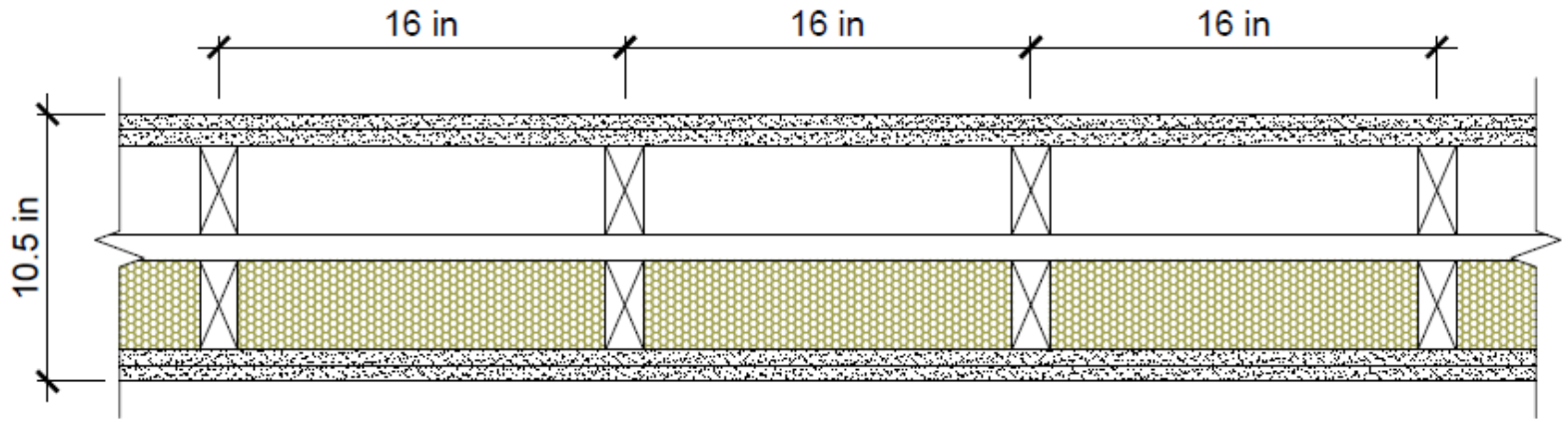
- All-in-one solution that provides air sealing, acoustical performance, and a 2-hour fire rating within a load bearing party-wall…the first of its kind from a spray foam manufacturer

- The W-Wall™ System saves time, money, and materials while providing a much-needed alternative to traditional cumbersome methods

- The advantages reside in the unique air sealing properties of HBS open cell spray foam, which provide a quiet comfort solution for the life of the building

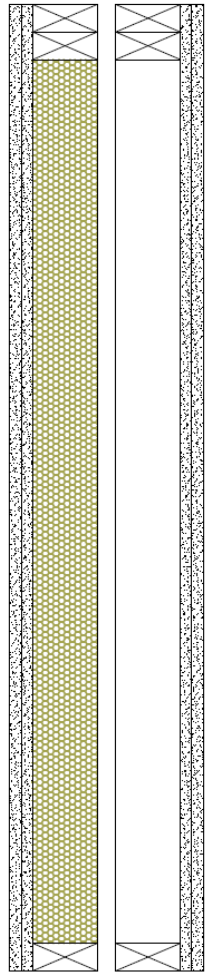
- The W-Wall™ System is the HBS catalyst for capturing more of the new construction attached housing market.

W-Wall™ System | Overview



ASSEMBLY:

-TWO LAYERS OF 5/8 IN. THICK GYPSUM BOARD APPLIED VERTICALLY
-MIN. 2 IN. X 4 IN. WOOD STUDS SPACED MAX. 16 IN. O.C.
-MIN. 1 IN. THICK AIR SPACE
-MIN. 2 IN. X 4 IN. WOOD STUDS SPACED MAX. 16 IN. O.C.
-3-1/2 IN. THICK HBS SPRAY FOAM INSULATION
-TWO LAYERS OF 5/8 IN. THICK GYPSUM BOARD APPLIED VERTICALLY



Shaft Liner Assembly

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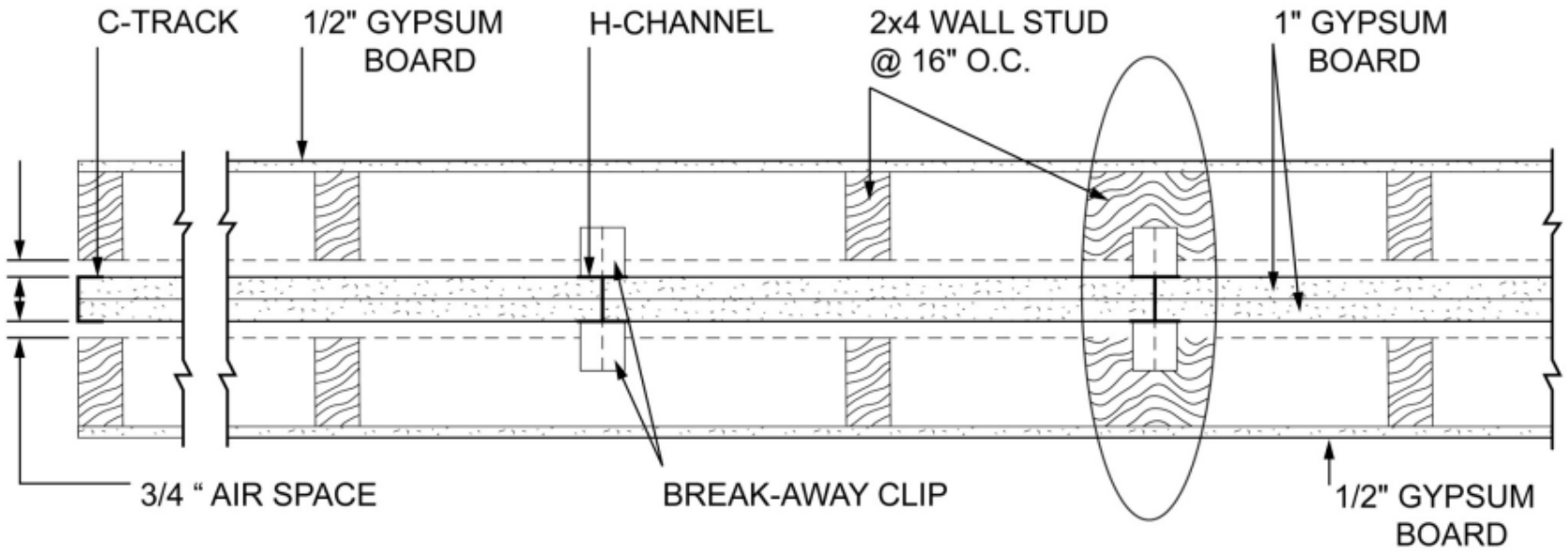

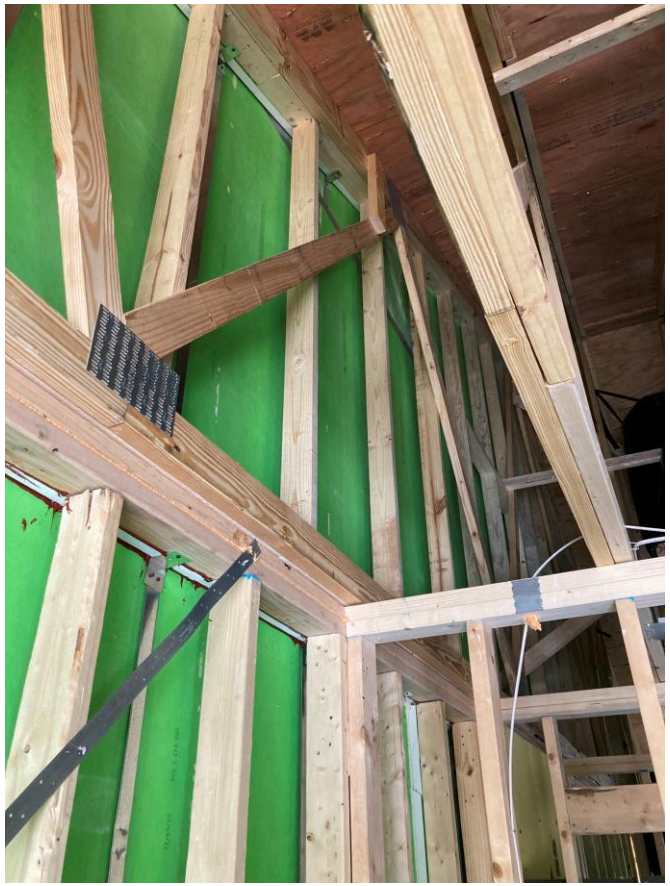

W-Wall™ System | Certifications

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The W-Wall™ System has successfully passed ASTM E119 and ASTM E90 in accordance with IRC and IBC requirements. HBS open-cell spray foam insulation products are also GREENGUARD Gold Certified, which means it is low VOC emission to ensure better indoor air quality.

- ASTM E119 2-Hour Load Bearing Assembly
- ASTM E90 STC 57
- ASTM E2178 Air Permeance
- ESL 1373 ICC Evaluation Service Listing
- TER 2011-01 Technical Evaluation Report

W-Wall™ System | Advantages

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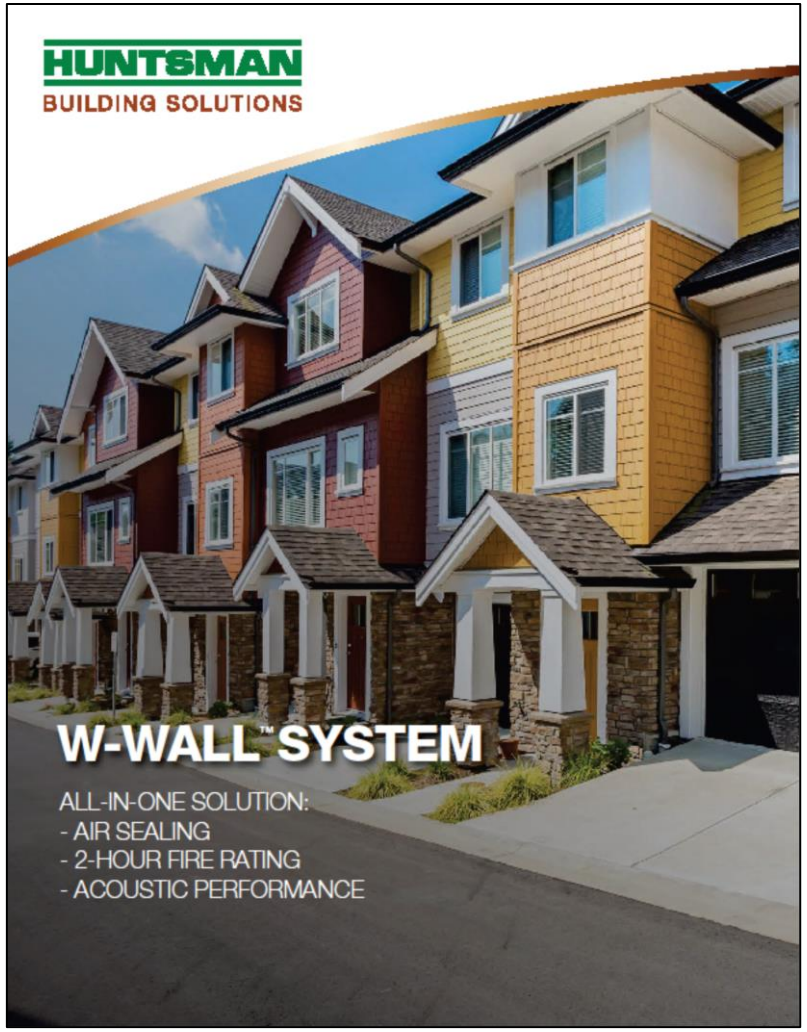
- **Time, material and labor cost savings**
  - Elimination of specialty products
  - Only the face layer gypsum needs to be plastered
  - Saves on cycle time
- **Technical Support**
  - Technical Evaluation Report available for every state
  - Complete set of drawings available
- **Superior Acoustical Performance for the Life of the Building**
  - STC Rating of 57 (min code requirement = 50)
- **Quality of Installation**
  - Increased interior square footage due to thinner wall
- **Lower Environmental Impact**
  - Reduced embodied carbon
- **Peace of Mind**
  - HBS is the first SPF manufacturer to pass the 2-hour load bearing fire resistance test



W-Wall™ System | Cost Analysis

HUNTSMAN
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Application Type:	Whole Home	Attic Only	Specify:	W-Wall System	
Material Cost to Install the HBS W-Wall™ System					
Labor & Materials	Walls:	HBS – Open Cell		$	1,350.00
Labor & Materials	Gypsum:	2 x 5/8” Type X Gyp		$	2,750.00
Labor & Materials	Fire Stopping:	Mineral Wool, Sealants		$	200.00
Material	Other:	Electrical Adder		$	200.00
Material	Other:			$	-
			Total Material System Cost	$	4,500.00
Shaft Liner General Cost Savings Summary					
subtract:	Eliminate UL Rated Shaft Liner and Track			$	(6,350.00)
subtract:	Eliminate 2x R-13 Fiberglass Batts			$	(825.00)
subtract:	Eliminate Energy Code Air Seal Package			$	(425.00)
subtract:				$	-
subtract:				$	-
			Total General Cost Savings	$	(7,600.00)
Incremental Material Net Cost Difference Per Wall to Install the W-Wall™ System				$	(3,100.00)

1,500 SFT Wall

Two-Story Townhome

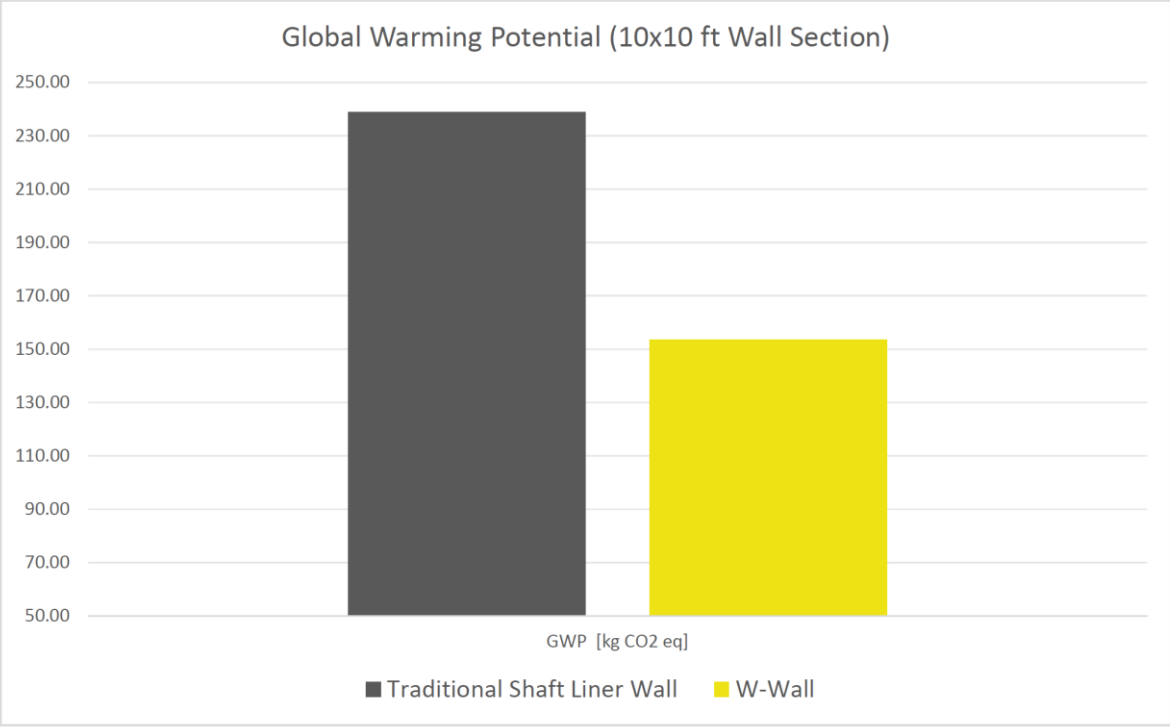
3.5” ocSPF @ 18,000 BFT

IECC 2021 Air Sealing

$3,100.00 Savings/Wall

- *Estimated savings = $1,200 per 60’ run per floor*

Lower Embodied Carbon



Shaft Liner → W-Wall = 36% GWP

- *HBS Innovation: new W-Wall System with significantly reduced embodied carbon compared to traditional shaft liner assemblies.*

The Solution Results

- By eliminating and replacing several carbon-heavy materials found in traditional shaft liner assemblies, the HBS W-Wall System saves **85kg** of embodied carbon per 100 ft² of wall assembly.
- This is equivalent to a **36% reduction** in embodied carbon for the W-Wall System.
- Embodied carbon reductions achieved by eliminating the high-embodied-carbon shaft liner & steel H-studs, and by replacing fiberglass by a lesser amount of HBS open-cell spray foam.

W-Wall™ System | Sequencing

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1. Townhome building must be framed and dried-in with electrical rough-in complete.
2. Installation of 5/8” type x gypsum on one side of the partition wall. No need to mud or tape the 1st layer.
3. Install and fireblock all floor and ceiling transitions, and horizontally with approved materials as needed.
4. Installation of nominal 3.5” of open cell spray foam to gypsum. No need to insulate both wall cavities
5. Finish all appropriate fireblocking prior to inspection in accordance with IBC/IRC Section 718.2.2 or R302.11
6. Installation of the final layers over the gypsum wallboard already installed and on the open side of the wall.
7. Installation of plaster over the joints of the final gypsum wallboard layer.

- *Some of these steps might be in different order depending on the most productive sequencing for each site*

W-Wall™ System | FAQs

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Q **These assemblies already exist with fiberglass and cellulose. Why should I use spray foam?**

A *Since ocSPF is an air seal, you eliminate the mud, tape, and inspection of the first layer, thus saving time and money.*

Q **Can I run electrical, plumbing, or mechanical in the W-Wall™?**

A *In accordance with IRC section R302.2, only electrical is allowed in the W-Wall™. However, the 10.5" depth provides extra space for plumbing to be installed inside the envelope.*

Q **I don't want to change the footprint of the building. Do I have to reduce the party wall from 12" to 10.5"?**

A *It is not necessary to reduce the size of the party wall. The minimum 1" air gap between the walls would simply increase.*

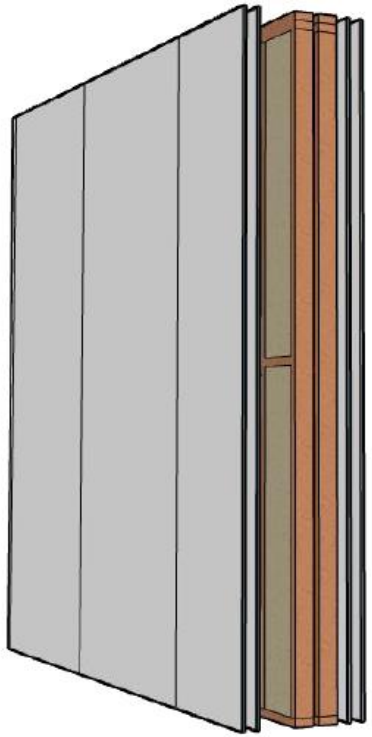
Q **Will building code officials push back on this assembly?**

A *The W-Wall™ passed ASTM E119 for a 2-hour load bearing assembly and has the appropriate documentation to support approval. More scrutiny was placed on the framing performance vs a non-load bearing wall.*

Q **The municipality requires insulation in both walls. Can this be done, and how?**

A *Though not required by building code, a fiberglass batt can be placed in the non-insulated stud cavity to appease a municipality.*

Details | Sheathing Description

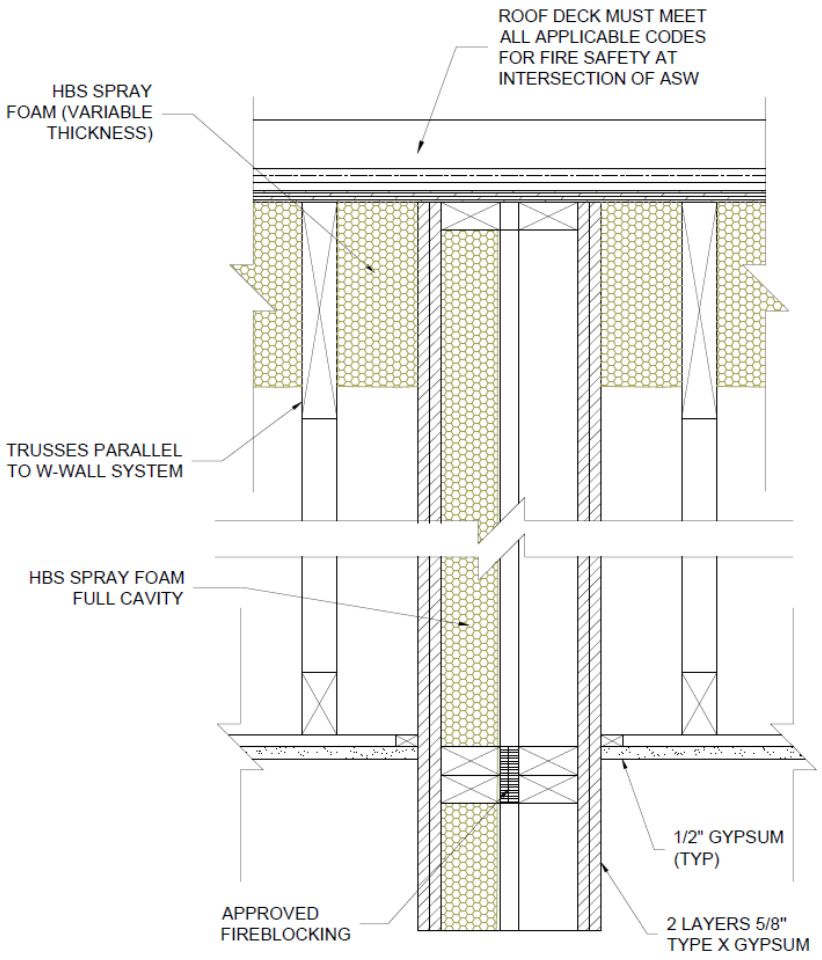


Drawing No. 1
Exploded View of Wall Assembly Components

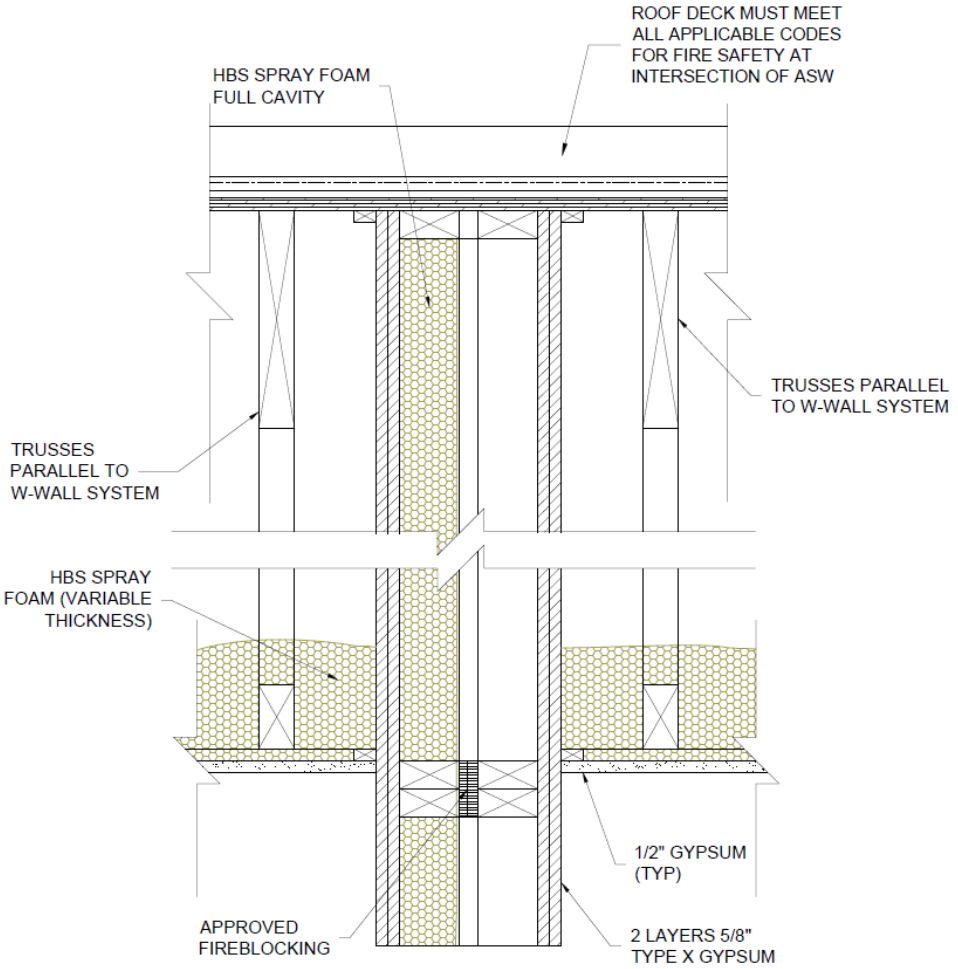
Drawing No. 2
Side Profile of Double Wall with 1-in. Air Gap

- Two layers of 5/8 in. thick, Type X Gypsum
- Gypsum base layer secured to 2x4 studs using #6 – 1-5/8 in. long
  - Type W drywall screws spaced 8 in. on-center in the field and along the perimeter of each panel.
  - Fasteners along the panel edges were spaced 3/8 in. from the long edge of the panel
  - The last two fasteners located at the top and bottom of the panels were spaced 4 in. and ¾ in. from the edges respectfully
- Gypsum face layer secured through base layer using 2-1/2 in. long
  - Type W drywall screws spaced 8 in. in the field and the along the perimeter of the panel
- Vertical seams were staggered one stud between layers of GWB to prevent overlapping
- All face layer joints were covered using paper joint tape and joint compound
- All fastener heads were covered using joint compound

Details | Typical Attic Designs

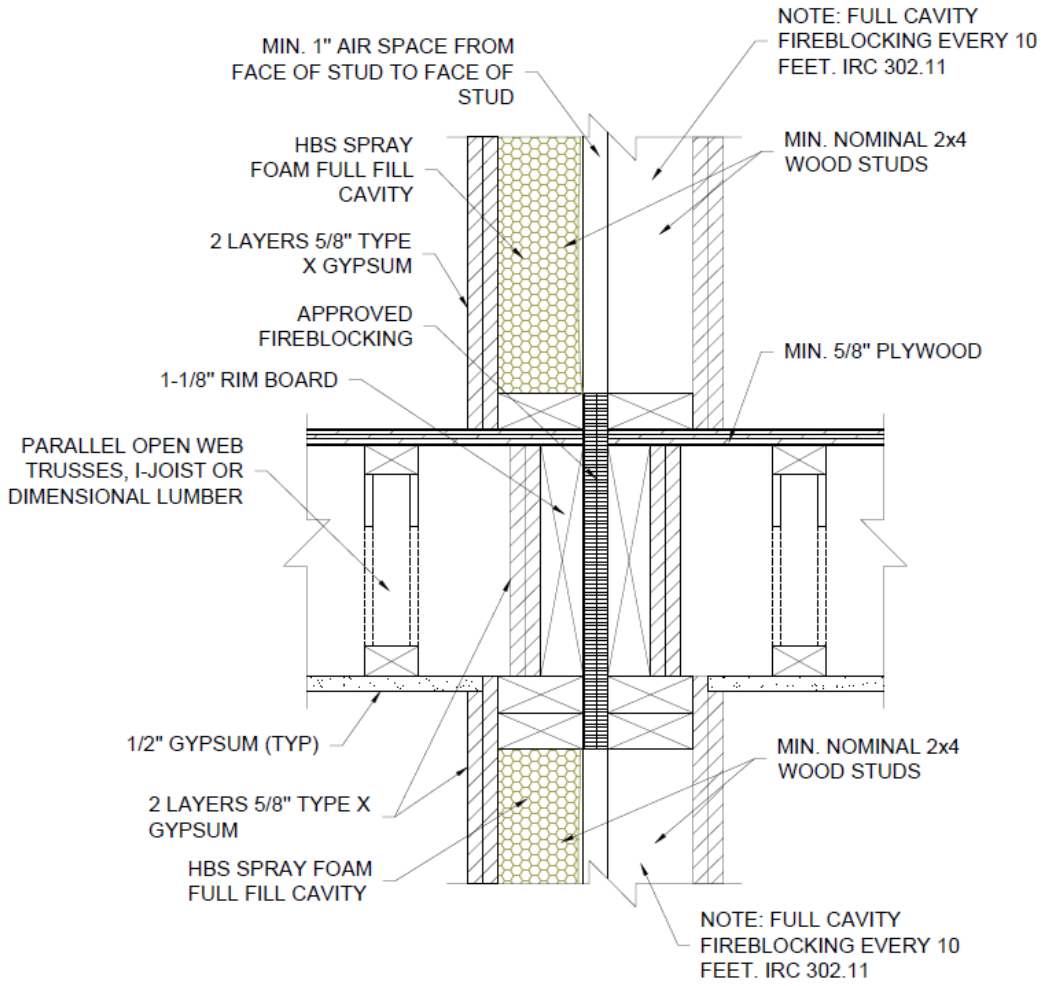


Unvented Attic with Parallel Trusses

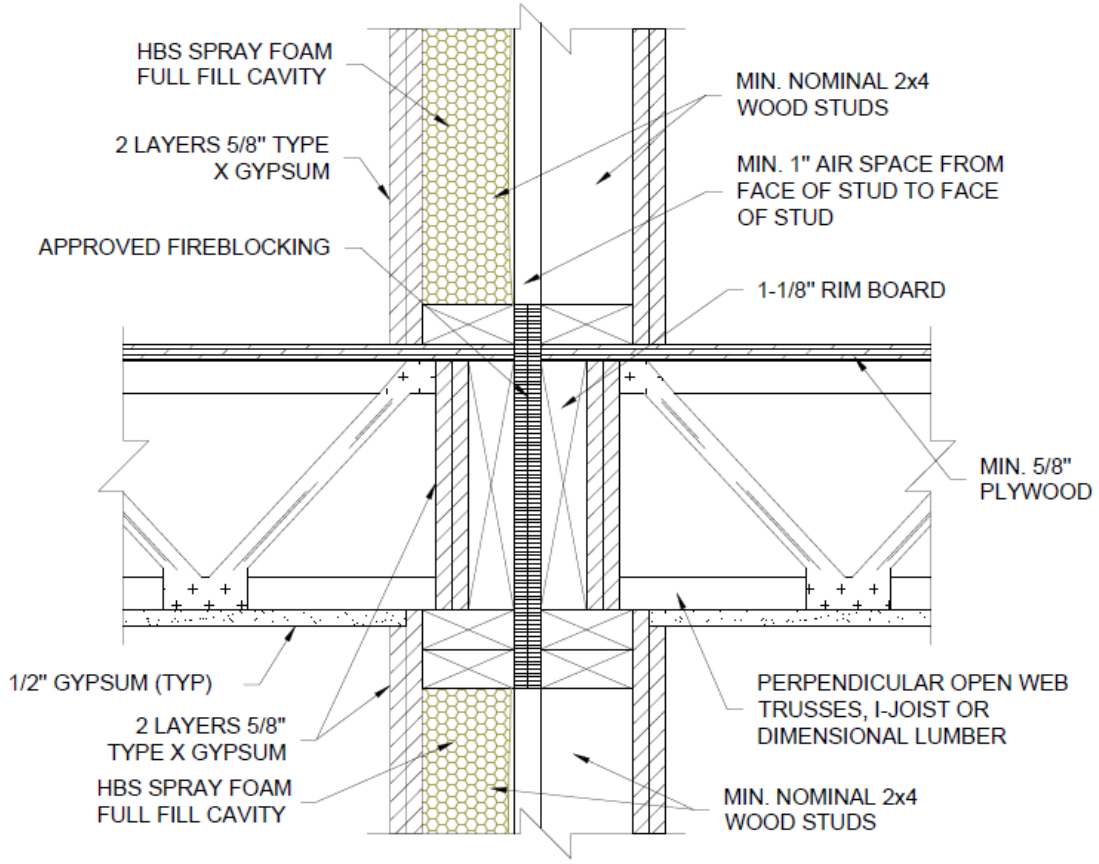


Vented Attic with Parallel Trusses

Details | Floor/Ceiling Transitions



Floor/Ceiling Transition with Parallel Trusses



Floor/Ceiling Transition with Perpendicular Trusses

Details | Multiple Drawings Available

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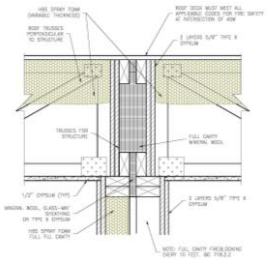
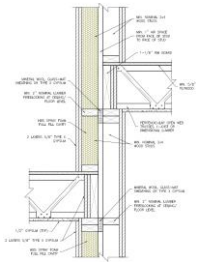
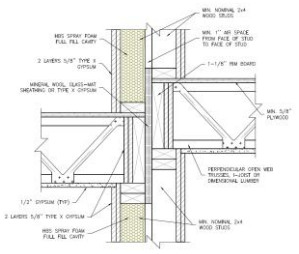
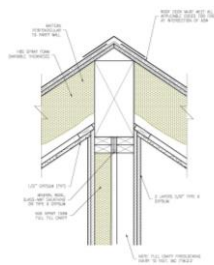
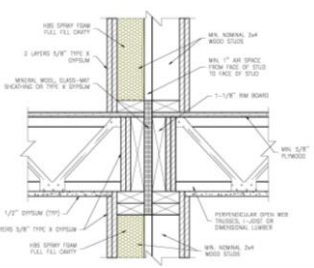
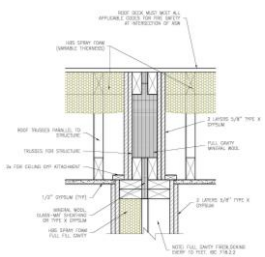
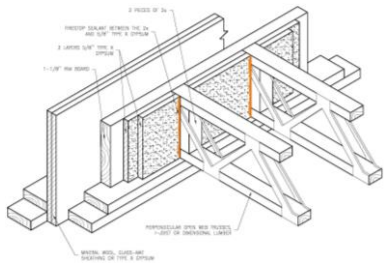
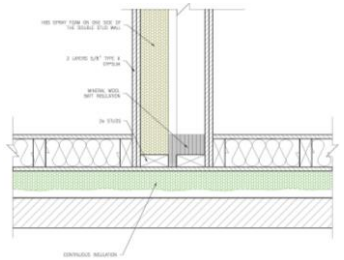
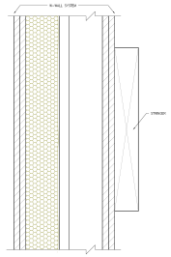
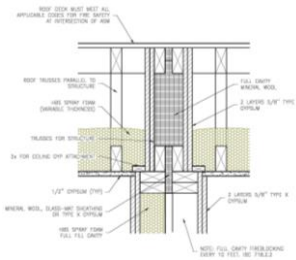
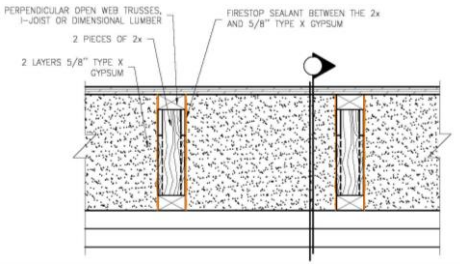

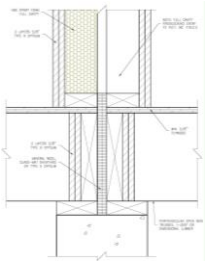
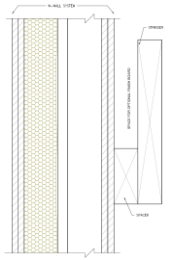
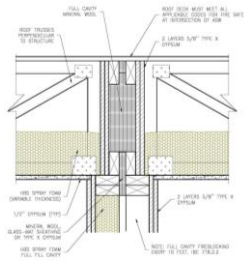
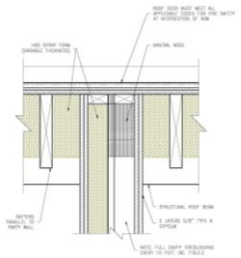
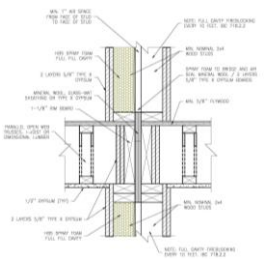
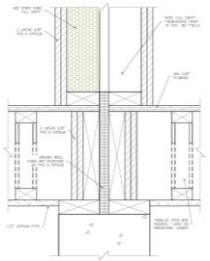

Helpful Links

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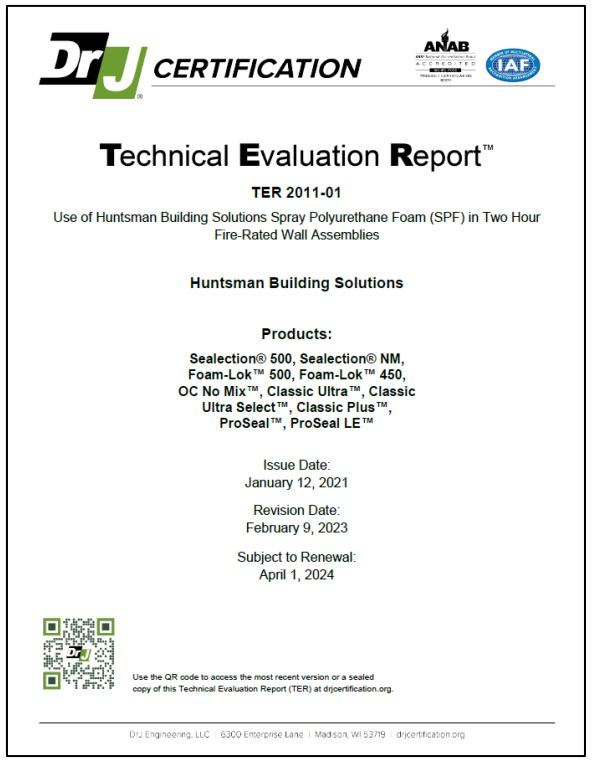

DrJ CERTIFICATION

ANAB ACCREDITED

Technical Evaluation Report™

TER 2011-01

Use of Huntsman Building Solutions Spray Polyurethane Foam (SPF) in Two Hour Fire-Rated Wall Assemblies

Huntsman Building Solutions

Products:

Sealection® 500, Sealection® NM, Foam-Lok™ 500, Foam-Lok™ 450, OC No Mix™, Classic Ultra™, Classic Ultra Select™, Classic Plus™, ProSeal™, ProSeal LE™

Issue Date:
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Revision Date:
February 9, 2023

Subject to Renewal:
April 1, 2024

Use the QR code to access the most recent version or a sealed copy of this Technical Evaluation Report (TER) at drjcertification.org.

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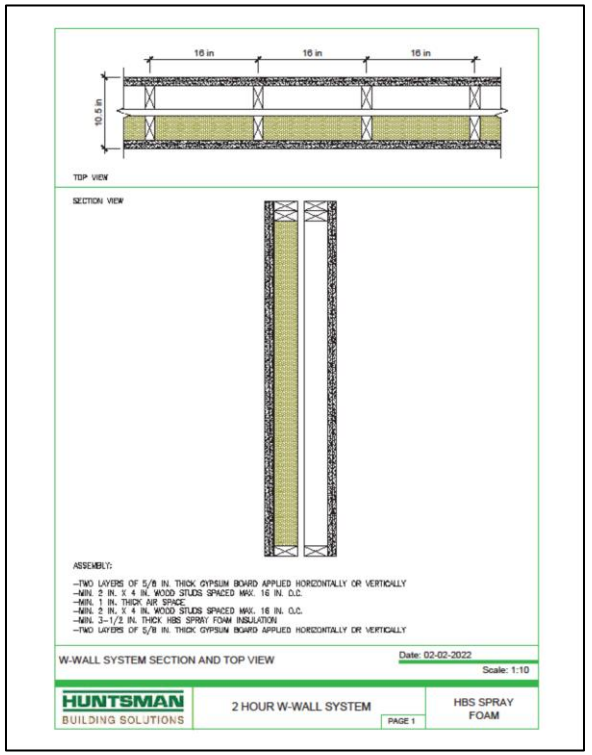

[Detail Drawings]

[W-Wall™ Brochure]

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Thank you

Questions?