Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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WeatherTek® Building Wraps

Trade Secret Report Holder:

WeatherTek® Building Products, LLC

Phone: 904-877-9835 Website: www.weathertekbp.com Email: info@weathertekbp.com

CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 24 19 - Water-Drainage Exterior Insulation and Finish System

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

1 Innovative Product Evaluated[1]

1.1 WeatherTek Building Wraps:

1.1.1 WeatherTek BW

1.1.2 WeatherTek DW

1.1.3 WeatherTek Plus

2 Product Description and Materials

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

Figure 1. WeatherTek Building Wraps

Table 1. WeatherTek Building Wraps Product Information

Product	Description	Nominal Thickness (in)	Standard Product Roll Dimensions	
			Height	Length
WeatherTek BW	A 2-Layer, Polypropylene (PP) Woven, Pin-Perforated Building Wrap	0.004	3', 4.5', 5', 9', 10'	100', 150', 195'
WeatherTek DW	A 2-Layer, PP Non-Woven Reinforcement Adhesively Laminated to a Microporous Breathable Film (Non-Perforated)	0.008	3', 4.5', 5', 9', 10'	100', 125', 150'
WeatherTek Plus	A 2-Layer, PP Woven Reinforcement Adhesively Laminated to a Microporous Breathable Film (Non-Perforated)	0.004	3', 4.5', 5', 9', 10'	100', 125', 150'
SI: 1 in = 25.4 mm				

2.2 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 D779: Standard Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method*

4.2.2 *ASTM D5034: Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)*

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

4.2.4 *ASTM E96/E96M: Standard Test Methods for Water Vapor Transmission of Materials*

4.2.5 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*

4.2.6 *ASTM E2273: Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies*

4.2.7 *ASTM E2556/E2556M: Standard Specification for Vapor Permeable Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment*

4.2.8 *AATCC 127: Water Resistance: Hydrostatic Pressure Test*

4.2.9 *NFPA 285: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*

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 *Water-Resistive Barrier (WRB)*

6.1.1 WeatherTek Building Wraps are an approved WRB in accordance with IBC Section 1402.2[26] and IRC Section R703.1[27] when installed with flashing in accordance with IBC Section 1403.2[28] and IRC Section R703.2.[29]

6.1.2 The average breaking force of the WeatherTek Building Wraps was tested in accordance with ASTM D5034 per ASTM E2556 (see **Table 2**).

Table 2. Average Breaking Force of WeatherTek Building Wraps[1,2]

Product	Orientation	Average Breaking Force (lbf)
WeatherTek BW	Machine Direction (MD)	78.5
	Cross Direction (CD)	81.1
WeatherTek DW	Machine Direction (MD)	40.3
	Cross Direction (CD)	67.7
WeatherTek Plus	Machine Direction (MD)	72.5
	Cross Direction (CD)	94.1

1. Tested in accordance with ASTM D5034
2. Values given are after exposure to weathering procedures found in Annex A1.2 of ASTM E2556

6.1.3 The water resistance of the WeatherTek Building Wraps was tested in accordance with ASTM D779 or AATCC Test Method 127 per ASTM E2556 (see **Table 3**).

Table 3. Water-Resistance Properties of WeatherTek Building Wraps

Product	Assessment of Water Resistance
WeatherTek BW[1]	Pass
WeatherTek DW[2]	Pass
WeatherTek Plus[2]	Pass

1. Tested in accordance with ASTM D779 per ASTM E2556
2. Evaluated in accordance with AATCC 127 and ASTM E2556

6.1.4 The pliability of the WeatherTek Building Wraps was tested in accordance with Annex A1.3 of ASTM E2556 (see **Table 4**).

Table 4. Pliability of WeatherTek Building Wraps[1]

Product	Assessment of Pliability
WeatherTek BW	Pass
WeatherTek DW	
WeatherTek Plus	
1. Tested in accordance with Annex A1.3 of ASTM E2556 at 32°F (0°C)	

6.1.5 WeatherTek Building Wraps are a vapor permeable material with a water vapor permeance greater than five (5) perms (see **Table 5**).

Table 5. Water Vapor Barrier Properties[1]

Product	Water Vapor Transmission (perm)
WeatherTek BW	13.6
WeatherTek DW	24
WeatherTek Plus	17
1. Tested in accordance with ASTM E96, Desiccant Method.	

6.2 *Exterior Insulation and Finish System (EIFS) Drainage Plane*

6.2.1 WeatherTek DW meets the requirements of IBC Section 1403.10,[30] IBC Section 1407.4.1, and IRC Section R703.9.2 for use in an EIFS with drainage (see **Table 6**).

6.2.2 WeatherTek DW shall be installed with flashing in accordance with IRC Section R703.4 and shall terminate not less than 6" (152 mm) above the finished ground level.

Table 6. EIFS with Drainage Efficiency[1]

Product	Drainage Efficiency
WeatherTek DW[2]	> 90%
1. Tested in accordance with ASTM E2273. 2. WeatherTek DW must be installed film side towards the exterior sheathing.	

6.3 *Flame Spread and Smoke Developed Characteristics*

6.3.1 WeatherTek Building Wraps have the flame spread and smoke developed characteristics as shown in **Table 7** in accordance with IBC Section 1402.6.[31]

Table 7. Flame Spread and Smoke Developed Indexes[1]

Product	Flame Spread	Smoke Developed
WeatherTek BW	≤ 25	≤ 450
WeatherTek DW		
WeatherTek Plus		
1. Tested in accordance with ASTM E84.		

6.4 *Vertical and Lateral Flame Propagation*

6.4.1 WeatherTek Building Wraps were tested to assess their performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 and IBC Section 2603.5.5.

6.4.1.1 Engineering analysis also was conducted to assess substitution of other products within the approved wall assemblies.

6.4.1.2 The wall assemblies listed in **Table 8** are approved for use in buildings of Type I-IV construction of any height.

Table 8. Approved NFPA 285 Wall Assemblies for use with WeatherTek Building Wraps

Wall Component	Materials
Base Wall System Use item 1 or 2	1. 20-gauge (minimum) 3 5/8" (minimum) steel studs spaced a maximum 24" o.c. with 5/8" type X gypsum wallboard interior 2. Any Base Wall in Appendices A – J ***Important:*** Do not substitute the base wall from one approval to another. The materials used in each approval must be used together and not mixed with others.
Firestopping in Stud Cavity at Floor Lines Use item 1 or 2	1. 4" (minimum), 4 pcf (minimum) mineral fiber (mineral wool) installed friction fit or with z-clips 2. Any Firestop in Appendices A – J ***Important:*** Do not substitute the fire stop from one approval to another. The materials used in each approval must be used together and not mixed with others.
Cavity Insulation Use any item 1 - 5	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (faced or unfaced) complying with the applicable code 4. Fiberglass (Batt type Class A ASTM E84 faced or unfaced) 5. Any cavity insulation listed in Appendices A – J ***Important:*** Do not substitute the cavity insulation from one approval to another. The materials used in each approval must be used together and not mixed with others. Some cavity insulations require 5/8" exterior gypsum sheathing.

Table 8. Approved NFPA 285 Wall Assemblies for use with WeatherTek Building Wraps

Wall Component	Materials
Exterior Sheathing Use any item 1 - 2	1. Minimum 1/2" thick exterior type gypsum sheathing 2. Any sheathings listed in Appendices A - J ***Important:*** Do not substitute sheathing from one approval to another. The materials used in each approval must be used together and not mixed with others. Some cavity insulations require 5/8" exterior gypsum sheathing
Weather-Resistive Barrier on Base Ball Use any items 1 – 4 Do not substitute WRB insulation, or cladding from one approval to another Do not use WRB under and over the insulation WRB may only be used under or over the insulation (or with no insulation where applicable per the Special Note cited to the right)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW ***Important:*** The materials used in each approval must be used together and not mixed with others. Each approval number component list is shown in specific appendices in this report (see **Appendix A** through **Appendix J**). ***Special Note:*** WRB 1 - 4 may be used bare with no insulation covering the WRB
Exterior Insulation Use any item 1 - 12	1. Atlas EnergyShield Polyiso – Various (Ref Report Number 1306-03) – See **Appendix A** (NFPA-23) 2. None (with WRB 1 - 3 listed above) 3. Mineral Wool (unfaced noncombustible) – 1" (minimum) 4 pcf density (minimum) 4. Hunter Xci Polyiso – Various Class A Insulation (Ref Report Number 1402-01) – See **Appendix B** (NFPA 285-19) 5. Hunter Xci Polyiso – Various Class B Insulation (Ref Report Number 1402-02) – See **Appendix C** (NFPA 285-19) 6. CCW R2+ Polyiso – Various Class A Insulation (Ref Report Number 1407-02) – See **Appendix D** (NFPA 285-12) 7. CCW R2+ Polyiso – Various Class B Insulation (Ref Report Number 1407-01) – See **Appendix E** (NFPA 285-12) 8. Atlas Thermal Star EPS (Ref UL ER 16529-01) – See **Appendix F** (NFPA 285-12) 9. Kingspan Kooltherm Insulation (Ref Report Number 1601-06) – See **Appendix G** (NFPA 285-12) 10. InSoFast EPS Panels (Ref Report Number 1910-03) – See **Appendix H** (NFPA 285-12) – must use the special window perimeter listed below. 11. Window Headers/jambs shall incorporate 25-gauge L flashing and 2" of mineral wool above the opening and on both jambs 12. Rmax® ECOMAXci FR Air Barrier Polyiso (Ref Report Number 1212-03) – See **Appendix I** (NFPA 285-12) 13. Rmax® ECOMAXci FR Ply Polyiso (Ref Report Number 1811-02) – See **Appendix J** (NFPA 285-12) ***Important:*** The materials used in each approval must be used together and not mixed with others. Each approval number component list is shown in a specific Appendix in this report (See **Appendix A** through **Appendix J**).

Table 8. Approved NFPA 285 Wall Assemblies for use with WeatherTek Building Wraps

Wall Component	Materials
WRB Over Insulation Use any Item 1 - 3 only for use with Atlas, Hunter, CCW or mineral wool insulation Do not use WRB under and over the insulation WRB may only be used under or over the insulation (or with no insulation where applicable)	1. None 2. WeatherTek Plus 3. WeatherTek DW 4. WeatherTek BW ***Important:*** WRB over insulation – Only for use with Atlas EnergyShield, Hunter, CCW, or mineral wool insulations listed herein (Insulation #1, #3, #4, #5, #6, or #7).
Cladding Use any item 1 - 10	1. For Atlas EnergyShield Polyiso (Ref Report Number 1306-03) – See **Appendix A** claddings (NFPA-23) 2. For Hunter Xci Polyiso Class A Insulation (Ref Report Number 1402-01) – See **Appendix B** claddings (NFPA 285-19) 3. For Hunter Xci Polyiso Class B Insulation (Ref Report Number 1402-02) – See **Appendix C** claddings (NFPA 285-19) 4. For CCW R2+ Polyiso – Various Class A Insulation (Ref Report Number 1407-02) – See **Appendix D** claddings (NFPA 285-12) 5. For CCW R2+ Polyiso – Various Class B Insulation (Ref Report Number 1407-01) – See **Appendix E** claddings (NFPA 285-12) 6. For Atlas Thermal Star EPS (Ref UL ER 16529-01) – See **Appendix F** claddings (NFPA 285-12) 7. For Kingspan Kooltherm Insulation (Ref Report Number 1601-06) – See **Appendix G** claddings (NFPA 285-12) 8. For InSoFast EPS Panels (Ref Report Number 1910-03) – See **Appendix H** claddings (NFPA 285-12) – must use the special window perimeter listed below. 9. For Rmax® ECOMAXci FR Air Barrier Polyiso (Ref Report Number 1212-03) – See **Appendix I** claddings (NFPA 285-12) 10. For Rmax® ECOMAXci FR Ply Polyiso (Ref Report Number 1811-02) – See **Appendix J** claddings (NFPA 285-12) ***Note:*** Any cladding in **Appendix A** through **Appendix J** may be used when mineral wool is used. ***Important:*** The materials used in each approval must be used together and not mixed with others. Each approval number component list is shown in specific Appendices in this report (See **Appendix A** through **Appendix J**).
Special Window Opening Design	1. InSoFast EPS requires a special window opening design. See **Appendix H**. 2. Atlas EPS requires a special window opening detail. See **Appendix F**.
SI: 1 in = 25.4 mm	

6.4.2 For buildings constructed in accordance with the IBC for Types I-IV construction, where the wall height is greater than 40' in height above grade plane, NFPA 285 testing is not required where WeatherTek Building Wraps are the only combustible material in the wall as permitted in IBC Section 1402.6,[32] Exception 2.

6.4.3 WeatherTek BW, WeatherTek DW, and WeatherTek Plus were tested in accordance with ASTM E1354 and met the criteria to exempt the wall assembly from the NFPA 285 testing requirement in IBC Section 1402.6.[33]

6.4.4 Testing of WeatherTek Building Wraps in accordance with ASTM E1354 is as shown in **Table 9**.

Table 9. Testing in Accordance with ASTM E1354

Product	Peak heat release rate (kW/m^2)	Total Heat release (MJ/m^2)	Effective Heat of Combustion (MJ/kg)
WeatherTek BW	<150	< 20	< 18
WeatherTek DW			
WeatherTek Plus	<150		

6.5 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[34]

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.[35]

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.[36]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 WeatherTek Building Wraps comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 WRB in accordance with IBC Section 1403.2 and IRC Section R703.2.

8.1.2 Air barrier material in accordance with IECC Section C402.6.1.

8.1.3 EIFS drainage plane in accordance with IBC Section 1407.4 and IRC Section R703.9.

8.1.4 Flame spread and smoke developed in accordance with IBC Section 1402.6.[37]

8.1.5 Vertical and lateral flame spread in accordance with IBC Section 1402.6.[38]

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[39] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[40] 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 *Installation Procedure*

9.3.1 *Surface Preparation:*

9.3.1.1 Ensure all sheathing surfaces are dry, clean, and free of sharp edges or protrusions.

9.3.2 *General Application:*

9.3.2.1 Beginning at the base of the wall, unroll the first course of WeatherTek Building Wraps horizontally with the printed side facing out. The wrap should overlap the bottom sill plate by a minimum of 1".

9.3.2.2 Proceed with subsequent courses, ensuring each new course overlaps the previous one by a minimum of 6", both horizontally and vertically, in a shingling manner to promote proper water shedding.

9.3.2.3 The wrap shall be overlapped by at least 12" at corners.

9.3.3 *Fastening:*

9.3.3.1 Secure the building wrap using plastic-capped nails or staples.

9.3.3.2 Fasteners should be spaced a maximum of 32" apart, both horizontally and vertically.

9.3.4 *Seaming:*

9.3.4.1 All vertical and horizontal seams, overlaps, and any punctures must be sealed using WeatherTek SeamTape.

9.3.5 *Window and Door Openings:*

9.3.5.1 Cut the building wrap at rough openings by making a horizontal slice across the top and a vertical cut two-thirds down the center, followed by angled cuts to the lower corners. Fold the resulting flaps into the opening and secure them to the frame.

9.3.5.2 Install the window or door according to the manufacturer installation instructions, applying sealant to the top and side flanges only, leaving the bottom flange unsealed for drainage.

9.3.5.3 Integrate the opening with the WRB by applying flashing tape. The sill flashing is applied first, followed by the jamb (side) flashing, and finally the head (top) flashing. Each piece of flashing must overlap the piece below it in a shingling manner.

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 Breaking Strength and Elongation testing in accordance with ASTM D5034

10.1.2 Pliability testing in accordance with ASTM E2556, Annex A1.3.

10.1.3 Water Vapor Transmission testing in accordance with ASTM E96/E96M.

10.1.4 Water Resistance testing in accordance with AATCC 127 and/or ASTM D779.

10.1.5 Surface Burning Characteristics testing in accordance with ASTM E84.

10.1.6 Testing for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter in accordance with ASTM E1354.

10.1.7 Vertical and Lateral Fire Propagation testing in accordance with NFPA 285.

10.1.8 Comparative air resistance testing in accordance with TAPPI T460.

10.2 Surface burning characteristics testing was performed by Southwest Research Institute (SwRI).

10.3 Evaluation of air barrier properties for WeatherTek DW.

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.[41]

10.8 Where additional condition of use and/or regulatory compliance information is required, please search for WeatherTek Building Wraps on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, WeatherTek Building Wraps 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 Based on the substantiating data provided, when used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, WeatherTek Building Wraps shall be approved for the following applications:

11.2.1 Use as a WRB in accordance with IBC Section 1403.2 and IRC Section R703.2.

11.2.2 WeatherTek DW is approved for use as an air barrier material in accordance with IECC Section C402.6.1.

11.2.3 WeatherTek DW is approved for use as an EIFS drainage plane in accordance with IBC Section 1407.4 and IRC Section R703.9.

11.2.4 Use to resist vertical and lateral flame propagation in accordance with IBC Section 1402.5.

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

11.4 IBC Section 104.2.3[42] (IRC Section R104.2.2[43] and IFC Section 104.2.3[44] 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:**[45] Building regulations require that the building official shall accept duly authenticated reports.[46]

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.[47]

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 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:

12.3.1 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.

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

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

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

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

12.3.6 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.

12.3.7 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.

12.4 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.

12.5 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).

12.6 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 WeatherTek Building Wraps, 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 www.weathertekbp.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.

Appendix A

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

Wall Component	Materials
Base Wall System Use any of these items No sheathing is needed for items 1 and 2	1. Cast Concrete Walls (1" minimum) 2. CMU Concrete Walls (1" minimum) 3. 20-gauge (minimum) 3 5/8" (minimum) steel studs with 5/8" thick Type X gypsum wallboard on interior 4. Fire-Retardant Treated (FRT) wood studs spaced 24" o.c. (maximum) with 5/8" thick Type X gypsum wallboard on interior
Floor Line Fire-Stopping Use any of these items	1. None – only with exterior sheathing option 1, 3, 4, or 5 (gypsum wallboard, concrete, DensElement®, or Securock ExoAir 430) 2. 4" thick, 4 pcf mineral fiber (wool) safing insulation installed with Z-clips or equivalent 3. 1 1/2" FRT lumber for use with FRT studs
Cavity Insulation Use any of these items	1. None 2. Any noncombustible insulation per ASTM E136 3. Any mineral fiber (Board Type Class A ASTM E84 faced or unfaced) 4. Any fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (maximum) Icynene LD-C-50 spray foam in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior gypsum sheathing 6. 5 1/2" (maximum) Icynene MD-C-200™, 2 pcf spray foam in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior gypsum sheathing 7. 5 1/2" (maximum) Icynene MD-R-210, 2 pcf spray foam in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior gypsum sheathing 8. 6" (maximum) SWD Urethane Quik-Shield (QS) 112, 2 pcf spray foam in 6" deep studs (maximum) or partial fill with a maximum 2 1/2" air gap. Use with 5/8" exterior gypsum sheathing 9. 3 1/2" (maximum) Gaco™ Western 183M spray foam in 3 5/8" deep studs (maximum). Use with 5/8" exterior gypsum sheathing 10. 3 1/2" (maximum) Gaco™ Western F1850 with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 11. 3 5/8" (maximum) Demilec Sealection® 500 with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 12. 3 3/8" (maximum) Demilec HeatLok Soy 200 Plus® with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 13. 3" (maximum) Bayer Bayseal® with 5/8" exterior sheathing 14. 3" (maximum) Lapolla FoamLok™ FL 2000 with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 15. 3 5/8" (maximum) BASF SprayTite® 81206 or WallTite® (US and US-N) with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 16. 3 5/8" (maximum) Accella (Premium Spray Products) Foamsulate™ 220 with 5/8" exterior sheathing in 3 5/8" deep studs (maximum) 17. 3 5/8" (maximum) JM Corbond III – Full stud Cavity depth or less for use with 5/8" exterior gypsum sheathing 18. BASF WallTite (LWP, Max, XL, Plus) – 3 5/8" (maximum). Use with 1/2" exterior gypsum sheathing

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

Wall Component	Materials
Cavity Insulation Continued	19. Carlisle SealTite PRO HFO, SealTite PRO Closed Cell, SealTite Pro One Zero, SealTite Pro Open Cell, SealTite Pro High Yield, SealTite Pro No Mix, SealTite Pro No Trim 21, SealTite Pro OCX – 3 5/8" (maximum). Use with 1/2" exterior gypsum sheathing 20. Huntsman HeatLok HFO or HFO Pro – 3 5/8" (maximum). Use with 5/8" exterior gypsum sheathing 21. Holcim Enverge EasySeal 5, Enverge SucraSeal – 3 5/8" (maximum). Use with 1/2" exterior gypsum sheathing 22. SWD Urethane (Quick-Shield Goblin or Yeti – 1" to 3 5/8" thick for use in 3 5/8" studs (maximum). Use with 5/8" exterior gypsum sheathing
Exterior Sheathing Use any of these items ***Note:*** Sheathings 1 - 4 are only used for stud base walls ***Note:*** No sheathing is needed for Base Walls 1 or 2	1. 1/2" or thicker exterior type gypsum sheathing a. *Special Notes for EnergyShield XR:* i. EnergyShield XR must use Sheathings 1, 3, 4, 5, or 7 for light claddings (claddings that are not 1 - 6) ii. EnergyShield XR may be used with no sheathing only when using claddings 1 – 6 (heavy masonry) 2. 2" thick precast concrete panels attached to structural elements of building 3. 7/16" (minimum) FRT plywood panels complying with IBC Section 2303.2 and installed following code allowances for Types I, II, III, or IV construction (not for use with exterior insulation #4, EnergyShield XR) 4. NEXGEN MAXTERRA® MgO 12 mm, 16 mm, or 20 mm ***Note:*** When SPF is used in the cavity, exterior sheathing must be used. See specific sheathing thicknesses above.
WRB Over Sheathing Use any of these items These WRB may be used under the insulation or with no insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Z Girts Use any of these items for claddings requiring girts	1. Metallic Z Girts 2. Horizontal Smart Ci-GreenGirt 3. Horizontal Armatherm FRR Z Girt 4. Knight Wall ThermaZee 5. Strongirt (Horizontal only) – Claddings must be 8 mm minimum thickness, and not for use with Claddings 7, 8, 10, or 12 6. SFS NH3 (horizontal only) 7. Cascadia Clip (horizontal only) ***Note:*** Girt spacing should comply with wind load per manufacturer instructions.

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

Wall Component	Materials
Exterior Insulation Use any of these items Items 1, 2, 3, and 4 may be multiple layers of thinner product with facers on each side	1. 4" (maximum) Atlas EnergyShield Pro 2. 4" (maximum) EnergyShield CGF Pro 3. 4 3/4" (maximum) EnergyShield Ply Pro (4" EnergyShield CGF Pro with 5/8" or 3/4" FRT Plywood) 4. 4" (maximum) Atlas EnergyShield XR ***Note 1:*** 1/2" (minimum) exterior gypsum sheathing may be attached to exterior side of any item listed above. 5/8" (minimum) FRT plywood may be attached to exterior side of item 1 or item 2 listed above. ***Note 2:*** GP DensGlass and GP DensElement (both minimum 1/2") may be installed exterior to ES Pro and ES Pro CGF. ***Note 3:*** MgO Board may be installed over the polyiso foam boards. NEXGEN MAXTERA® 12mm, 16mm, or 20mm mechanically attached or adhered with construction adhesive 2" dabs spaced 18" apart or 1' long, 1/4" wide ribbons spaced 1' apart. ***Note 4:*** The listed sheathing products installed over Items 1 and 2 may only be covered with the WRB products listed to be used over insulation (see WTB list below this section), but are now used over the sheathing covering the insulation unless other are justified via Fire Engineering Evaluation. ***Note 5:*** Mineral Wool (unfaced) that meets ASTM E136 as noncombustible may be used over Items 1, 2, 3, or 4. When the mineral wool thickness is 2" or greater and density is 4 pcf (minimum), the air gap from the mineral wool surface to the back of the listed claddings is unlimited, except Cladding #7 and #12 are restricted to a 2.25" air gap. When the mineral wool is less than 2" thick or 4 pcf density, the air gap form the mineral wool surface to the back of the cladding is restricted to that listed for each Exterior Cladding below.
WRB Over Exterior Insulation Use any of these items ***Note:*** Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Use any of these items ***Important:*** Maximum air gap 2 1/4" (distance from cladding inner face to insulation) ***Note:*** Cladding 8 (zinc) may only be used with EnergyShield Pro or EnergyShield Ply Pro ***Note:*** Diamond Furr® TT-4 (manufactured by Brand X Metals) may be used to install 3-coat stucco item 2 in the cladding list ***Note:*** Cladding may be attached with Knight® Wall Systems THERMAZEE® or other metallic Z girt	1. Brick – nominal 4" clay brick or CMU veneer (hollow or solid) with maximum 2 1/4" air gap behind the brick or CMU. Brick ties/anchors 24" o.c. (maximum) 2. Stucco – minimum 3/4" thick exterior cement plaster and lath. An optional secondary WRB (WRB allowed OVER foam over first WRB) can be installed between the insulation and lath. The optional second WRB may be any mechanically attached sheet product, asphalt or butyl-based building paper (stapled or other mechanical attachment) with no adhesive. The second WRB may not be self-adhering full coverage asphalt or self-adhering full coverage butyl-based membranes. See note for Diamond Furr TT-4 installation. For example, the secondary WRB may be paper backing attached to lath meeting Federal Specification UUB790A: Type 1, Grade D, Style 2, or Fortifiber/Henry Jumbo Tex 60 Minute 3. Limestone – minimum 2" thick 4. Natural stone veneer – minimum 2" thick 5. Cast artificial stone – minimum 1 1/2" thick complying with ICC-ES AC 51 6. Terracotta cladding – minimum 1 1/4" thick 7. Any ACM that has successfully passed NFPA 285 8. Uninsulated sheet metal building panels including aluminum, steel, copper, or zinc (see Note)

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

Wall Component	Materials
Exterior Cladding Continued	9. Uninsulated fiber-cement cladding or siding minimum 1/4" thick. Must be 8 mm minimum when Strongirt is used 10. Stone/aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria 11. Autoclaved-Aerated-Concrete (AAC) panels (minimum 1 1/2" thick) 12. Reynobond® ZCM zinc metal composite panel 13. Terreal Zephir® Evolution Rainscreen System (terra cotta), minimum 9/16" thick 14. ***User Note*** – reserved for FunderMax m.look cladding with maximum 1 1/2" air space, cladding manufacturer no longer supports use of this cladding in U.S. exterior walls 15. CERACLAD using the manufacturer standard installation technique, air gap not to exceed 15 mm. 16. CUPACLAD Slate: 101 Logic, 101 Random, 101 Parallel, 210 Vanguard. Must be 8 mm minimum when Strongirt is used 17. Glen-Gery Thin Tech® Masonry Veneer (only with optional noncombustible mortar) 18. Glen-Gery Tru-Brix (only with optional noncombustible mortar) 19. Telling Corium Thin Brick System (only with steel or aluminum brick tray and optional noncombustible mortar) 20. Thin brick or stone (minimum 3/4" thick clay brick) fully adhered with cementitious mortar (standard or polymer modified) to the base wall. A secondary WRB can be installed between the exterior sheathing and the brick. The secondary WRB shall not be full-coverage asphalt or butyl-based self-adhered membranes. See cladding #2 for examples 21. Telluride Stone (minimum 1") applied to the base wall (with Atlas approved WRB or WRB in Cladding #20) using plaster/lath. 22. Nichiha Cladding 5/16" per CCRR 0258. Must be 8 mm minimum when Strongirt is used 23. Ceramic or Porcelain Tile. Must be 8 mm minimum when Strongirt is used a. 1/4" minimum generic Ceramic or Porcelain tile - mechanically attached b. Ceramic or Porcelain tile – 3/8" thick (minimum) bonded using noncombustible mortar adhesive to a 1/2" thick (minimum) cement board or gypsum sheathing c. 12 mm Porcelanosa XTone per ESR 4555 24. Any one coat stucco (3/8" to 1/2" minimum) that meets any of the following: a. AC11 acceptance criteria for one coat stucco; or b. is approved for use in Type I-IV construction; or c. has been tested per NFPA 285; or d. stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes 25. Any noncombustible cement board adhered to the exterior side or mechanically attached to framing through EnergyShield Pro or EnergyShield CGF Pro. The cement board is covered with NFPA 285 approved EIFS lamina (mesh, base coat, and finish coat) **WITHOUT** the EIFS Expanded Polystyrene (EPS) board. Adhered cement board may be installed over the polyiso with construction adhesive of 2" D dabs spaced 18" apart or 1' long, 1/4" wide ribbons spaced 1' apart. EIFS Approval Examples: MasterWall (IAPMO ER0433), Dryvit (ESR 1543), STO (ESR 2536), and other accredited third-party EIFS approvals. 26. 8 mm (min) or 5/16" (min) Swisspearl® Fiber Cement Cladding

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

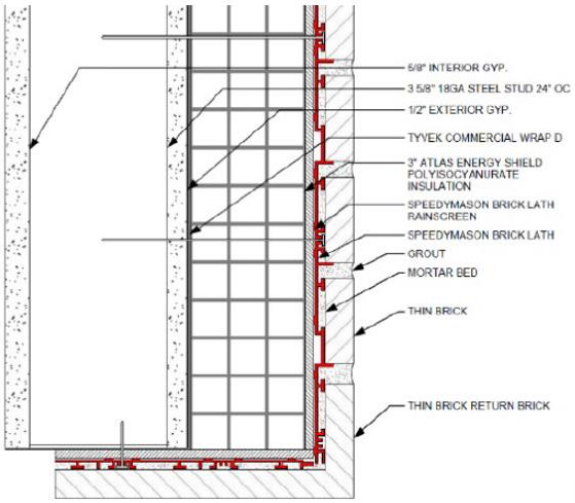
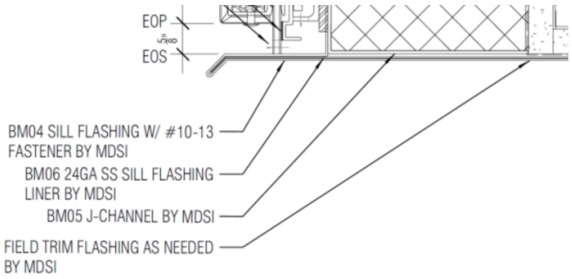
Wall Component	Materials
Exterior Cladding Continued	27. Thin Brick with SpeedyMason Brick Lath and Brick Lath Rainscreen – minimum $^{9}/_{16}$" thick a. May be used without exterior stud sheathing, with the exception of EnergyShield XR, which must use $^{1}/_{2}$" (minimum) gypsum sheathing. b. All screws must penetrate through to studs, with the exception of EnergyShield Ply Pro, where the system can attach directly to the FRT plywood. c. Must use Spec Mix Adhered Veneer Thin Veneer Adhesion Mortar XP500 or cementitious mortar (standard or polymer modified) d. Must use header as test (thin brick return) See image below: 
Flashing of Opening Perimeter (Windows, Doors, etc.) Use items 1, 2, or 3	1. There is no restriction on flashings of openings for wall designs referencing compliance with NFPA 285-12, when using gypsum sheathing on the exterior of studs or Base Wall 1 or 2. 2. For wall designs referencing NFPA 285-23 or older editions of NFPA 285 with gypsum sheathing on the stud exterior, or for Base Wall 1 or 2, use the following: Header 24-gauge Steel with 0.040 aluminum surrounding the steel. See example below: 

Table 10. Atlas EnergyShield Polyiso Approved NFPA 285-23 Wall Assemblies[1,2]

Wall Component	Materials
Flashing of Opening Perimeter (Windows, Doors, etc.) Continued	3. When the Atlas polyiso is directly attached to studs with no sheathing over the exterior side of studs, use $^{5}/_{8}$" Type X gypsum board on the opening perimeter, and 24-gauge (minimum) steel flashing shall be used. This meets NFPA 285-23 or older versions of NFPA 285. ***Exception:*** When the Atlas polyiso is directly attached to studs and is covered with $^{1}/_{2}$" (minimum) gypsum sheathing, 12 mm (minimum) NexGen MgO, GP DensGlass, or DensElement, the 24-gauge steel flashing restriction is waived if the studs are fire stopped at every floor line with mineral wool.

SI: 1 inch = 25.4 mm

1. The assemblies combinations created herein, and the various substitutions of products, are based on testing and professional thermal engineering analysis by Jensen Hughes, Inc. and Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk HRR is the peak heat release rate during the test.

Appendix B

Table 11. NFPA 285 Approved Wall Assemblies with Xci Foil Class A or Xci 286 Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast Concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. Fire-Retardant Treated Wood (FRTW) studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any item 1 – 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type faced or unfaced) 5. Any fiberglass (Batt type faced or unfaced) 6. 3 1/4" (maximum) Carlisle SPI SealTite Pro, SealTite PRO Closed Cell or SealTite PRO One Zero – only with Exterior Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use any item 1 - 4 WRB may be used under insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2 depending on cladding ***Note:*** A construction which utilizes no exterior sheathing may not use spray foam cavity insulation	1. 3 1/2" thick (maximum) Xci Foil Class A or Xci-286 for all claddings 2. 4" thick Xci Foil Class A or Xci-286 for claddings 1 - 6
WRB Over Exterior Insulation Do no use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 11. NFPA 285 Approved Wall Assemblies with Xci Foil Class A or Xci 286 Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any items 1 – 16 Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7-16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap. 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached. 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 11. Thin brick/cultured stone set in thin set adhesive and metal lath. 12. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria. 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 12. NFPA 285 Approved Wall Assemblies with Xci CG Class A Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: Minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by building code
Fire-Stopping at Floor Lines Use item 1 or 2	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any item 1 - 6	1. None. 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use any item 1-4 WRB may be used under the insulation (or without insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2, depending on cladding	1. 4" thick (maximum) Xci CG Class A for claddings 1 - 6. 2. 3 1/2" thick (maximum) Xci CG Class A for claddings 7 - 16 (with special Opening Perimeter).
WRB Over Exterior Insulation Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 12. NFPA 285 Approved Wall Assemblies with Xci CG Class A Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any item 1 – 16 Cladding 1 - 6 for 4" (maximum) insulation thickness Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above). 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap. 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached. 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 11. Thin brick/cultured stone set in thin set adhesive and metal lath. 12. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria. 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still. 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 13. NFPA 285 Approved Wall Assemblies with Xci Ply Class A Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines Use item 1 or 2	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any item 1 - 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use any item 1 - 4 WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2, depending on cladding	1. 4 1/4" thick (maximum) Xci Ply Class A (3 1/2" foam maximum, 3/4" FR Plywood maximum) with Claddings 7 - 16 (with special Opening Perimeter) 2. 4 3/4" thick (maximum) Xci Ply Class A (4" foam maximum, 3/4" FR Plywood maximum) may be used with claddings 1 - 6.
WRB Over Exterior Insulation Do not use WRB under and over the insulation Only with Claddings 1 - 6	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 13. NFPA 285 Approved Wall Assemblies with Xci Ply Class A Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any item 1 – 16 Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter. Maximum Air Gap 2" for Cladding 1 – 6. Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum) 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness 8. Uninsulated sheet metal building panels including steel, copper, aluminum 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria 11. Thin brick/cultured stone set in thin set adhesive and metal lath 12. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive 13. Terra Cotta Cladding – Any Rainscreen Terra Cotta (minimum 1/2" thick) with ventilated shiplap 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge > steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 14. NFPA 285 Approved Wall Assemblies with Xci Foil Class A Plus Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines Use item 1 or 2	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any item 1 - 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use any item 1-4 WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW
Exterior Insulation	1. 4" thick (maximum) Xci Foil Class A Plus for all claddings listed
WRB Over Exterior Insulation Do not use WRB under and over the insulation Only with Claddings 1 - 6	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 14. NFPA 285 Approved Wall Assemblies with Xci Foil Class A Plus Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any item 1 – 16 Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter. Maximum Air Gap 2" for Cladding 1 – 6. Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum) 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard open or non-open joint installation technique such as shiplap 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness 8. Uninsulated sheet metal building panels including steel, copper, aluminum 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria 11. Thin brick/cultured stone set in thin set adhesive and metal lath 12. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge > steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Appendix C

Table 15. NFPA 285 Approved Wall Assemblies with Xci CG Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by building code
Fire-Stopping at Floor Lines Use Item 1 or 2	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any Item 1 - 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use Any item 1 - 4 WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2 depending on cladding	1. 4" thick (maximum) Xci CG or Xci CG (Class A) for claddings 1-6. 2. 3 1/2" thick (maximum) Xci CG or Xci CG (Class A) for claddings 7-16 (with special Opening Perimeter).
WRB Over Exterior Insulation Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 15. NFPA 285 Approved Wall Assemblies with Xci CG Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any Item 1 - 16 Cladding 1 - 6 for 4" (maximum) insulation thickness Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap. 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached. 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 11. Thin brick/cultured stone set in thin set adhesive and metal lath. 12. Glen Gery Thin Tech® Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria. 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still. 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 16. NFPA 285 Approved Wall Assemblies with Xci Foil Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by building code
Fire-Stopping at Floor Lines Use Item 1 or 2	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any Item 1 - 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell, or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Products Use any items 1 - 4 WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2 depending on cladding	1. 4" thick (maximum) Xci Foil for claddings 1 - 6. 2. 3 1/2" thick (maximum) Xci Foil for claddings 7 - 16 (with special Opening Perimeter).
WRB Over Exterior Insulation Do not use WRB under and over the insulation Only with Claddings 1 - 6	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 16. NFPA 285 Approved Wall Assemblies with Xci Foil Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any Item 1 - 16 Cladding 1 - 6 for 4" (maximum) insulation thickness Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap. 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached. 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 11. Thin brick/cultured stone set in thin set adhesive and metal lath. 12. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria. 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still. 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 17. NFPA 285 Approved Wall Assemblies with Xci Ply Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2" x 4" dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use any Item 1 - 6	1. None 2. 1 1/2" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell or SealTite PRO One Zero 3. Any noncombustible insulation per ASTM E136 4. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 5. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 6. 3 1/4" (maximum) of Carlisle SPI SealTite PRO, SealTite PRO Closed Cell or SealTite PRO One Zero – only with Sheathing 2
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction.
WRB Products Use any items 1 - 4 WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2 depending on cladding	1. 4 1/4" thick (maximum) Xci Ply (Class A) (3 1/2" foam maximum, 3/4" FR Plywood maximum) with Claddings 7 - 16 (with special Opening Perimeter). 2. 4 3/4" thick (maximum) Xci Ply (Class A) (4" foam maximum, 3/4" FR Plywood maximum) may be used with claddings 1 - 6.
WRB Over Exterior Insulation Do not use WRB under and over the insulation Only with Claddings 1 - 6	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 17. NFPA 285 Approved Wall Assemblies with Xci Ply Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Cladding Use any Item 1 - 16 Cladding 1 - 6 for 4" (maximum) insulation thickness Cladding 7 - 16 for 3 1/2" (maximum) insulation thickness with special opening perimeter Maximum Air Gap 2" for Claddings 1 - 6. Maximum Air Gap 1 1/2" for Claddings 7 - 16. If Claddings 2, 3, 4, 5, 11, 12, or 14 are on stucco base with lath, a secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full coverage asphalt or self-adhering membranes, but may be slip sheet (stapled) with no adhesive. Armatherm Z Girts may be used horizontally in Hunter assemblies	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath (with approved WRB over exterior insulation as listed above) 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard open or non-open joint installation technique such as shiplap. 7. Any ACM or MCM that has passed NFPA 285 with foam of comparable thickness. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. 1/4" (minimum) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached. 10. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 11. Thin brick/cultured stone set in thin set adhesive and metal lath. 12. Glen Gery Thin Tech® Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 13. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 14. 1/2" Stucco – Any one-coat stucco (1/2" minimum) that meets AC11 acceptance criteria. 15. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 16. AFC Terraslat by Tonality – Tonality Classic26 or Tonality Classic22
Special Opening Perimeter Use with Claddings 7 - 16	1. Tested Opening – 2 layers 5/8" gypsum, with 18-gauge steel flashing at header and 1 layer 5/8" and 18-gauge Galvanized Steel Flashing at jambs and still. 2. 2" mineral wool 4 lb density 3. 1 1/2" thick FRT wood buck 4. Two layers of 3/4" FRT Plywood

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Appendix D

Table 18. Approved NFPA 285 Assemblies with CCW R2+ SHEATHE Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use one Option: 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. Fire-Retardant Treated Wood (FRTW) studs: minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by building code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15. Items 8, 9, 10, and 11 may only be used with exterior sheathing 2.	1. None 2. 1 1/2" (minimum) of Covestro EcoBay CC SPF (up to full cavity thickness) 3. 1 1/2" (minimum) of BASF Walltite SPF (up to full cavity thickness) 4. Any noncombustible insulation per ASTM E136 5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354[2] (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, PK. HRR)[3] than Covestro EcoBay CC or BASF Walltite 8. NCFI InsulBloc SPF (up to full cavity thickness) 9. Icynene MD-C-200v3 (Proseal) up to 5 1/2" (only with 1/2" [minimum] exterior gypsum sheathing) 10. SWD Urethane Quik-Shield 112 up to 6" (maximum) stud cavities with an air gap not exceeding 2 1/2" 11. 1 1/2" (minimum) ThermoSeal 2000 (up to full cavity thickness) 12. Carlisle® SealTite PRO High Yield, SealTite PRO Open Cell, SealTite PRO No Mix, SealTite PRO No Trim 21, or SealTite PRO OCX – up to full cavity thickness with 1/2" (minimum) exterior gypsum sheathing 13. Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, F1880 – 3 1/2" (maximum) for use with 5/8" Exterior Gypsum Sheathing 14. JM Corbond III or Corbond IV – Full stud cavity depth or less for use with 5/8" exterior gypsum sheathing 15. Huntsman ProSeal HFO (8" maximum thickness with no air gap, 6" maximum thickness with air gap) for use with 1/2" or thicker exterior gypsum sheathing
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction

Table 18. Approved NFPA 285 Assemblies with CCW R2+ SHEATHE Exterior Insulation[1,2,3]

Wall Component	Materials
WRB Products Use any item 1 - 4 WRB may be used under insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation	1. 3 1/2" thick (maximum) R2+ SHEATHE for all claddings 2. 4" thick WeatherTek Building Wraps for claddings 1 - 6
WRB Over Exterior Insulation Do not use WRB under and over insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 Item 7 may use any tested/approved installation technique. Items 8, 9, or 12 may use any standard installation technique.	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt that meets requirement #9 in WRB over Exterior Insulation can be used as a slip sheet between the WRB/exterior insulation and the lath. 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap. 7. Any MCM that has passed NFPA 285. 8. Uninsulated sheet metal building panels including steel, copper and aluminum. 9. Uninsulated fiber-cement siding. 10. Stone/Aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria. 11. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 12. Terra Cotta Cladding – Any Rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 13. 1/2" stucco – any one-coat stucco (1/2" minimum) which meets AC11 acceptance criteria or is approved for use in Type I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes. 14. Thin brick/cultured stone set in thin set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum 3/4". For these systems which require a more durable WRB system, any building wrap or 15# felt that meets requirement #9 in WRB over Exterior Insulation can be used as a slip sheet between the WRB/AVP and the lath. 15. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 16. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 17. FunderMax m.look Grey Core – minimum 1/4" thick using any standard installation technique

Table 18. Approved NFPA 285 Assemblies with CCW R2+ SHEATHE Exterior Insulation[1,2,3]

Wall Component	Materials
SI: 1 in = 25.4 mm 1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis. 2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis. 3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.	

Appendix E

Table 19. Approved NFPA 285 Wall Assemblies Using R2+ MATTE as Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW (Fire-Retardant-Treated Wood) studs: minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by building code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15. Items 8, 9, 10, and 11 may only be used with exterior sheathing 2.	1. None 2. 1 1/2" minimum Covestro EcoBay CC SPF (up to full cavity thickness) 3. 1 1/2" minimum BASF Walltite SPF (up to full cavity thickness) 4. Any noncombustible insulation per ASTM E136 5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, PK. HRR) than Covestro EcoBay CC or BASF Walltite 8. NCFI InsulBloc SPF (up to full cavity thickness) 9. Icynene MD-C-200v3 (Proseal) up to 5 1/2" (only with 1/2" [minimum] exterior gypsum sheathing) 10. SWD Urethane Quik-Shield 112 up to 6" (maximum) stud cavities with an air gap not exceeding 2 1/2". 11. 1 1/2" (minimum) ThermoSeal 2000 (up to full cavity thickness). 12. Carlisle® SealTite PRO High Yield, SealTite PRO Open Cell, SealTite PRO No Mix, SealTite PRO No Trim 21 or SealTite PRO OCX – up to full cavity thickness with 1/2" (minimum) exterior gypsum sheathing 13. Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, F1880 – 3 1/2" (maximum) for use with 5/8" Exterior Gypsum Sheathing 14. JM Corbond III or Corbond IV – Full stud cavity depth or less for use with 5/8" exterior gypsum sheathing 15. Huntsman ProSeal HFO (8" maximum thickness with no air gap, 6" maximum thickness with air gap) for use with 1/2" or thicker exterior gypsum sheathing
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction

Table 19. Approved NFPA 285 Wall Assemblies Using R2+ MATTE as Exterior Insulation[1,2,3]

Wall Component	Materials
Water Resistive Barrier (WRB) Over Sheathing WRB may be used under insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use option 1	1. 3 1/2" (maximum) R2+ MATTE
WRB Over Exterior Insulation Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Use 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 Item 7 may use any tested/approved installation technique. Items 8, 9, or 12 may use any standard installation technique.	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum) 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath. 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural stone veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast artificial stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap. 7. Any MCM that has successfully passed NFPA 285. 8. Uninsulated sheet metal building panels including steel, copper, aluminum. 9. Uninsulated fiber-cement siding. 10. Stone/Aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria. 11. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 12. Terra Cotta Cladding – Any rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 13. 1/2" stucco – Any one coat stucco (1/2" minimum) which meets AC11 acceptance criteria or is approved for use in Type I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes. 14. Thin brick/cultured stone set in thin set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum 3/4". 15. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 16. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 17. FunderMax m.look Grey Core – minimum 1/4" thick using any standard installation technique.

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 20. Approved NFPA 285 Wall Assemblies with R2+ SILVER as Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW (fire-retardant-treated wood) studs: minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15. Items 8, 9, 10, and 11 may only be used with exterior sheathing 2.	1. None 2. 1 1/2" minimum Covestro EcoBay CC SPF (up to full cavity thickness) 3. 1 1/2" minimum BASF Walltite SPF (up to full cavity thickness) 4. Any noncombustible insulation per ASTM E136 5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, PK. HRR) than Covestro EcoBay CC or BASF Walltite 8. NCFI InsulBloc SPF (up to full cavity thickness) 9. Icynene MD-C-200v3 (Proseal) up to 5 1/2" (only with 1/2" [minimum] exterior gypsum sheathing) 10. SWD Urethane Quik-Shield 112 up to 6" (maximum stud cavities with an air gap not exceeding 2 1/2" 11. 1 1/2" (minimum) ThermoSeal 2000 (up to full cavity thickness) 12. Carlisle® SealTite PRO High Yield, SealTite PRO Open Cell, SealTite PRO No Mix, SealTite PRO No Trim 21 or SealTite PRO OCX – up to full cavity thickness with 1/2" (minimum) exterior gypsum sheathing 13. Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850 or F1880 – 3 1/2" (maximum) for use with 5/8" exterior gypsum sheathing 14. JM Corbond III or Corbond IV – Full stud cavity depth or less for use with 5/8" exterior gypsum sheathing 15. Huntsman ProSeal HFO (8" maximum thickness with no air gap, 6" maximum thickness with air gap) for use with 1/2" or thicker exterior gypsum sheathing
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction allowed in place of gypsum sheathing when combustible cavity insulation is not used.
WRB Over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 20. Approved NFPA 285 Wall Assemblies with R2+ SILVER as Exterior Insulation[1,2,3]

Wall Component	Materials
Exterior Insulation	1. 3 1/2" (maximum) R2+ SILVER
WRB Over Exterior Insulation Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Use 1, 2, 3, 4, 5, or 6	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt can be used as a slip sheet between the WRB/exterior insulation and the lath. 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural Stone Veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap.

SI: 1 in = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Table 21. Approved NFPA 285 Wall Assemblies with R2+ BASE as Exterior Insulation[1,2,3]

Wall Component	Materials
Base Wall System Use either 1, 2, 3, or 4	1. Cast concrete walls 2. CMU concrete walls 3. 25-gauge minimum 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum a. 5/8" Type X gypsum wallboard interior b. Lateral bracing every 4' 4. FRTW studs: minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" Type X gypsum wallboard interior b. Bracing as required by code
Fire-Stopping at Floor Lines	1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. 2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.
Cavity Insulation Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15. Items 3, 8, 9, 10, and 11 may only be used with exterior sheathing 2.	1. None 2. 1 1/2" minimum Covestro EcoBay CC SPF (up to full cavity thickness) 3. 1 1/2" minimum BASF Walltite SPF (up to full cavity thickness) 4. Any noncombustible insulation per ASTM E136 5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced) 6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced) 7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, PK. HRR) than Covestro EcoBay CC or BASF Walltite 8. NCFI InsulBloc SPF (up to full cavity thickness) 9. Icynene MD-C-200v3 (Proseal) up to 5 1/2" (only with 1/2" [minimum] exterior gypsum sheathing) 10. SWD Urethane Quik-Shield 112 up to 6" in 6" (maximum) stud cavities with an air gap not exceeding 2 1/2" 11. 1 1/2" (minimum) ThermoSeal 2000 (up to full cavity thickness) 12. Carlisle® SealTite PRO High Yield, SealTite PRO Open Cell, SealTite PRO No Mix, SealTite PRO No Trim 21 or SealTite PRO OCX – up to full cavity thickness with 1/2" (minimum) exterior gypsum sheathing 13. Gaco (Firestone) F6500R, 052N, F4500, 183M, F1850, F1880 – 3 1/2" (maximum) for use with 5/8" Exterior Gypsum Sheathing 14. JM Corbond III or Corbond IV – Full stud cavity depth or less for use with 5/8" exterior gypsum sheathing 15. Huntsman ProSeal HFO (8" maximum thickness with no air gap, 6" maximum thickness with air gap) for use with 1/2" or thicker exterior gypsum sheathing
Exterior Sheathing Use either 1 or 2	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (minimum) FRTW structural panels in Type III construction
WRB Over Sheathing WRB may be used under insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation	1. 4 1/4" (maximum) R2+ BASE (3 1/2" foam maximum, 3/4" FR Plywood maximum)

Table 21. Approved NFPA 285 Wall Assemblies with R2+ BASE as Exterior Insulation[1,2,3]

Wall Component	Materials
WRB Over Exterior Insulation Do no use WRB under and over insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Use 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 Item 9 may use any tested/approved installation technique. Items 10, 11, or 14 may use any standard installation technique.	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt can be used as a slip sheet between the WRB/exterior insulation and the lath. 3. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 4. Natural Stone Veneer – Minimum 2" thick using any standard non-open joint installation technique such as grouted/mortared stone. 5. Cast Artificial Stone – Minimum 1 1/2" thick using any standard non-open joint installation technique such as shiplap. 6. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap. 7. Thin brick/cultured stone set in thin set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum 3/4". For these systems, which require a more durable WRB system, any building wrap or 15# felt can be used as a slip sheet between the WRB/AVP and the lath. 8. TABS II Panel System with 1/2" thick bricks using TABS Wall Adhesive. 9. Any MCM that has successfully passed NFPA 285. 10. Uninsulated sheet metal building panels including steel, copper, aluminum. 11. Uninsulated fiber-cement siding. 12. Stone/Aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria. 13. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 criteria. 14. Terra Cotta Cladding – Any rain-screen Terra Cotta (minimum 1/2" thick) with ventilated shiplap. 15. 1/2" Stucco – any one-coat stucco (1/2" minimum) which meets AC11 acceptance criteria or is approved for use in Type I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes. 16. Natural Stone Veneer – minimum 1 1/4" thick using any standard installation technique. 17. FunderMax m.look Grey Core – minimum 1/4" thick using any standard installation technique

SI: 1 in = 25.4 mm

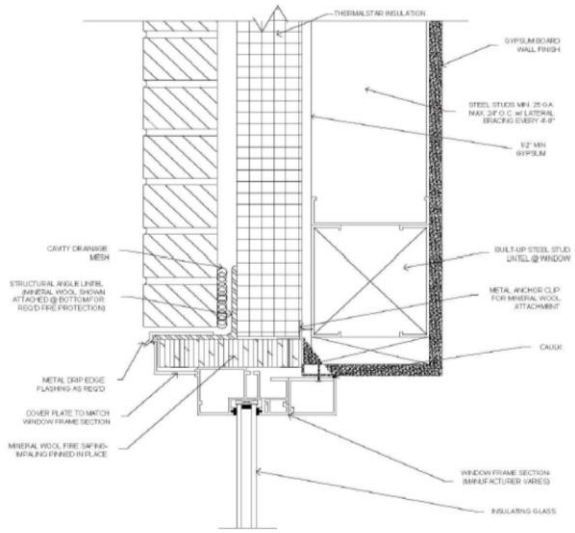
1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. T_{ign} is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.

Appendix F

Table 22. Approved NFPA 285 Wall Assemblies for Atlas Thermal Star EPS[1]

Wall Component	Materials
Base Wall System Use 1, 2, or 3	1. Cast-concrete Wall 2. CMU Cast Concrete Wall 3. 25-gauge (minimum) 3 5/8" thick (minimum) steel studs spaced 24" o.c. (maximum) a. Any 5/8" Type X GWB interior b. Any 1/2" exterior gypsum sheathing c. Lateral bracing every 4 ft. vertically
Floorline Firestopping	1. Any approved 4.0 pcf density mineral fiber based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth. Use mineral fiber insulation manufacturer instructions for installation
Cavity Insulation Use either 1, 2, or 3	1. None 2. Any Class A, B, or C Fiberglass batt insulation (faced or unfaced) 3. Any noncombustible insulation (faced or unfaced)
Exterior Gypsum Sheathing	1. 1/2" or thicker exterior grade gypsum sheathing
Water-Resistive Barrier Over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
WRB Over Exterior Insulation	1. None
Exterior Insulation Use any items 1 - 9	1. None 2. ThermalStar Type I up to 10.2" thick 3. ThermalStar Type II up to 7.2" thick 4. ThermalStar Type IX up to 5.4" thick 5. ThermalStar LWI 10 up to 10.2" thick 6. ThermalStar LWI 15 up to 7.2" thick 7. ThermalStar LWI 25 up to 5.4" thick 8. ThermalStar LCI 10 up to 10.2" thick 9. ThermalStar LCI 15 up to 7.2" thick

Table 22. Approved NFPA 285 Wall Assemblies for Atlas Thermal Star EPS[1]

Wall Component	Materials
Exterior Veneer Use any of these options	1. Brick – Nominal 4" thick, clay or concrete brick or veneer with maximum 2" air gap behind the brick. Brick ties/Anchors 24" o.c. (maximum). 2. Concrete – Minimum 4" thick, with maximum 2" air gap behind the cladding 3. Concrete Masonry Units – Minimum 4" thick, with maximum 2" air gap behind the cladding 4. Stucco – Minimum 3/4" thick, exterior cement plaster and lath. 5. Limestone – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 6. Natural Stone Veneer – Minimum 2" thick using any standard non-open joint installation technique such as shiplap. 7. Cast Artificial Stone – Minimum 1 1/2" thick using any standard non-open joint installation technique such as shiplap. 8. Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap.
Window Header Use either 1 or 2 – See figure for Window Header Detail	1. Flashing composed of 25-gauge (minimum) sheet metal (steel) with 1" thick, 4 pcf mineral wool over the interior of the sheet metal 2. Any header design deemed more robust than item 1 per analysis  STUD WALL w/ ATLAS EPS THERMALSTAR INSULATION WINDOW HEAD w/ MINERAL WOOL FIRE SAFING & BRICK
1. For more information regarding window detailing for NFPA 285 assemblies, please contact the manufacturer.	

Appendix G

Table 23. Approved NFPA 285 Wall Assemblies Containing Maximum 4 3/4" Thick Kooltherm Insulation[1]

Wall Component	Materials
Base Wall System Use 1, 2, or 3	1. Cast-concrete Wall 2. Concrete Masonry Wall 3. One layer 5/8" thick Type X gypsum wallboard on interior installed over steel studs: minimum 3 5/8" depth, minimum 20-gauge, spaced at a maximum of 24" o.c. with lateral bracing every 4' vertically.
Floorline Firestopping	1. 4 lb/cu ft. mineral wool in each stud cavity at each floor line, attached with Z-clips or equivalent.
Cavity Insulation Use either 1, 2, or 3	1. None 2. Fiberglass batt or mineral wool insulation (faced or unfaced) 3. Any noncombustible insulation (faced or unfaced)
Exterior Gypsum Sheathing Use item 1 or 2	1. None; when base wall systems #1 or #2 are used, sheathing is optional 2. Minimum 5/8" thick, Type X, exterior type gypsum sheathing
Water-Resistive Barrier Over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation	1. Kingspan Kooltherm K15, K8, K10, K12, or K20 insulation – minimum 1" (25 mm) thick to a maximum of 4 3/4" (120 mm) thick. Standard silver aluminum, black coated aluminum, white coated aluminum or glass tissue facers are all acceptable facing materials.
Sealing of Exterior Insulation	1. Optional; all exterior insulation joints and veneer tie penetrations sealed with acrylic, asphalt or butyl-based sealing tape – maximum 4" width
Exterior Veneer Use any of these options	1. Brick a. Standard nominal 4" thick, clay brick b. Brick veneer anchors – standard types – installed maximum 24" o.c. vertically on each stud c. Maximum 2" air gap between exterior insulation and brick 2. Concrete a. Minimum 2" thick b. Maximum 2" air gap between exterior insulation and concrete. c. Any standard non-open joint technique may be used. 3. Concrete Masonry Units (CMU) a. Minimum 4" thick b. Maximum 2" air gap between exterior insulation and CMU 4. Stone Veneer a. Minimum 2" thick limestone or natural stone veneer b. Minimum 1 1/2" thick cast artificial stone veneer c. Any standard non-open joint technique may be used (such as shiplap, etc.) 5. Stucco a. Minimum 3/4" thick 2 or 3-coat stucco installed over lath

Table 23. Approved NFPA 285 Wall Assemblies Containing Maximum 4 3/4" Thick Kooltherm Insulation[1]

Wall Component	Materials
Flashing of Window, Door and Other Exterior Wall Penetrations[1]	1. As an option, flash window, door, and other exterior penetrations with limited amounts of acrylic, asphalt or butyl-based sealing tape, maximum 12" width. 2. As an option, Kooltherm® Cavity Closure can be used to close wall cavities at openings.
1. For more information regarding window detailing for NFPA 285 assemblies, please contact the manufacturer.	

Table 24. Approved NFPA 285 Wall Assemblies Containing Maximum 3" Thick Kooltherm Insulation[1]

Wall Component	Materials
Base Wall System Use 1, 2, or 3	1. Cast-concrete Wall 2. Concrete Masonry Wall 3. One layer 5/8" thick Type X gypsum wallboard on interior installed over steel studs: minimum 3 5/8" depth, minimum 20-gauge, spaced at a maximum of 24" o.c. with lateral bracing every 4' vertically.
Floorline Firestopping	1. 4 lb/cu ft. mineral wool in each stud cavity at each floor line, attached with Z-clips or equivalent.
Cavity Insulation Use either 1, 2, or 3	1. None 2. Fiberglass batt or mineral wool insulation (faced or unfaced) 3. Any noncombustible insulation (faced or unfaced)
Exterior Gypsum Sheathing Use item 1 or 2	1. None (only allowed when base wall systems #1 or #2 are used) 2. 1/2" or 5/8" thick, Type X, exterior type gypsum sheathing
Water-Resistive Barrier Over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation	1. Kingspan Kooltherm K15, K8, K10, K12, or K20 insulation – minimum 1" (25 mm) thick to a maximum of 3" (75 mm) thick. Standard silver aluminum, black coated aluminum, white coated aluminum or glass tissue facers are all acceptable facing materials.
Sealing of Exterior Insulation	1. Optional; all exterior insulation joints and veneer tie penetrations sealed with acrylic, asphalt or butyl-based sealing tape – maximum 4" width
Exterior Veneer Use any of these options	1. MCM Panel System a. Any metal composite material system that has been successfully tested by the panel manufacturer via the NFPA 285 test method. b. Acceptable NFPA 285 testing shall consist of successful NFPA 285 test results on wall assembly incorporating a comparable thickness of combustible foam insulation behind the MCM. c. MCM panels shall be maximum 4 mm thick. 2. Steel, Aluminum, or Copper Metal Exterior Wall Cladding a. Aluminum cladding shall be minimum 0.080" thick. b. Steel cladding shall be minimum 0.0149" thick. c. Copper cladding shall be minimum 0.0216" thick. d. Any standard installation technique may be used. e. Also acceptable to install cladding using Knight Wall Rainscreen Attachment System. 3. Fiber-Cement Siding (Noncombustible) a. Minimum 1/4" thick. b. Any standard installation technique with noncombustible furring can be used. c. A maximum 1 1/2" air gap allowed behind the fiber-cement siding.

Table 24. Approved NFPA 285 Wall Assemblies Containing Maximum 3" Thick Kooltherm Insulation[1]

Wall Component	Materials
Exterior Veneer Continued	4. Swisspearl Carat Panels a. Minimum 0.315" (8 mm) thick with closed or open joints (maximum 1/2" joints when open). b. Any standard installation technique using noncombustible furring can be used. c. A maximum 1 1/2" air gap allowed behind panels. 5. Brick a. Standard nominal 4" thick, clay brick b. Brick veneer anchors – standard types – installed maximum 24" o.c. vertically on each stud c. Maximum 2" air gap between exterior insulation and brick 6. Concrete a. Minimum 2" thick b. Maximum 2" air gap between exterior insulation and concrete. c. Any standard non-open joint technique may be used. 7. Concrete Masonry Units (CMU) a. Minimum 4" thick b. Maximum 2" air gap between exterior insulation and CMU 8. Stone Veneer a. Minimum 2" thick limestone or natural stone veneer b. Minimum 1 1/2" thick cast artificial stone veneer c. Any standard non-open joint technique may be used (such as shiplap, etc.). 9. Stucco a. Minimum 3/4" thick b. 2 or 3-coat stucco installed over lath 10. Terracotta Cladding a. Use any terracotta cladding system in which terracotta is minimum 1 1/4" thick. b. Any standard joint installation technique such as shiplap, etc. may be used. 11. EIFS a. Henkel Polybit Industries Limited Ceresit EIFS – EIFS system consisting of Ceresit-CT 85 adhesive mortar and basecoat, Ceresit-CT 16 primer, and Ceresit-CT 60 finish coat. 12. Thin Brick a. Minimum 3/4" thick clay brick fully adhered with cementitious mortar (standard or polymer modified) to minimum 1/2" thick cement backer board or gypsum sheathing. b. A secondary water-resistive barrier can be installed between the board/sheathing and the brick. c. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes.
Flashing of Window, Door and Other Exterior Wall Penetrations[1]	1. As an option, flash window, door and other exterior penetrations with limited amounts of acrylic, asphalt or butyl-based sealing tape, maximum 12" width. 2. As an option, Kooltherm® Cavity Closure can be used to close wall cavities at openings.

1. For more information regarding window detailing for NFPA 285 assemblies, please contact the manufacturer.

Appendix H

Table 25. NFPA 285 InSoFast EPS Insulation Panel Approved Exterior Wall Assemblies[1,2]

Wall Component	Materials
Base Wall Use either 1, 2, or 3	1. Cast concrete walls 2. CMU concrete walls 3. 20-gauge (minimum) 3 5/8" (minimum) steel studs spaced 24 in o.c. (maximum) with 5/8" (minimum) type X Special Fire Resistant Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	1. 4-pcf mineral fiber insulation installed
Cavity Insulation Use either 1, 2, 3, or 4	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (Board type Class A ASTM E84 faced or unfaced) 4. Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced)
Exterior Sheathing Under Exterior Insulation For base wall system 3	1. 1/2" or thicker exterior glass matt gypsum sheathing meeting ASTM C1177
Water Resistive Barrier (WRB) over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Adhesive Use item 1 or 2 with Base Wall item 1 or 2	1. 3/8" beads of Loctite PL premium adhesive 16" o.c. 2. NFPA 285 approved EIFS *"mud"*
Exterior Insulation Use either 1 or 2 adhered with adhesive or mechanically attached	1. InSoFast UX 2.0 Panels (with or without raceways) 2. InSoFast EX 2.5 Panels (with or without raceways)
Cladding Use item 1 or 2	1. 1/2" (minimum) generic cement board mechanically attached to InSoFast interior frame strips with screws 8" o.c. in the field and 12" o.c. on panel edges 2. 1/2" (minimum) glass matt board (such as DensGlass) mechanically attached to InSoFast interior frame strips with screws 8" o.c. in the field and 12" o.c. on panel edges
WRB Over Cladding	1. Any WRB that has been tested or approved to be used in an NFPA 285 compliant assembly paired with the outer coverings listed below ***Note:*** The WRB must be approved for use directly under exterior sheathing installed over exterior insulation or over exterior insulation. WRB allowed over Exterior Sheathing Under Exterior Insulation are protected by the insulation and do not qualify as allowable WRB for this location.

Table 25. NFPA 285 InSoFast EPS Insulation Panel Approved Exterior Wall Assemblies[1,2]

Wall Component	Materials
Outer Covering Use any item 1 - 7 ***Note:*** Where aluminum is listed, this means aluminum sheet metal panels – not aluminum composite panels.	1. EIFS coatings that are NFPA 285 approved for applications over cement board 2. Adhered thin brick (with noncombustible mortar) 3. Adhered stone (with noncombustible mortar) 4. Fiber cement lap or panels (or any non-combustible cladding) mechanically fastened through the cladding directly to the InSoFast Studs 5. Fiber cement lap or panels (or any non-combustible cladding) mechanically fastened to metal hat channels or mounting element fastened through the cladding into the InSoFast Studs 6. Vertical or horizontal steel or aluminum cladding mechanically fastened through the cladding into the InSoFast Studs 7. Vertical or horizontal steel or aluminum cladding mechanically fastened to metal hat channels or non-combustible mounting element fastened through the cladding into the InSoFast Studs

1. The assemblies and combinations herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest & Associates Consulting, LLC.
2. ***Note:*** Window headers/jambs for all constructions shall incorporate 25-gauge L flashing and 2" of mineral wool above the opening and on both jambs.

Appendix I

Table 26. Rmax® Polyiso ECOMAXci FR Air Barrier Fire Performance – Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
Base Wall System Select option 1, 2, 3, or 4	1. Cast concrete walls 2. CMU Concrete walls 3. 20-gauge (minimum) 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 1/2" (minimum) type X Special Fire Resistant Gypsum Wallboard Interior b. Bracing as required by code 4. Where allowed by code in Types I, II, III, or IV construction, FRTW (Fire-Retardant-Treated Wood) studs complying with IBC Section 2303.2, minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" type X Gypsum Wallboard Interior b. Bracing as required by code
Floorline Firestopping Select item 1 or 2	1. 4 pcf mineral wool installed with Z-clips 2. FRTW fire blocking at floor line in accordance with applicable code requirements (use with FRTW framing)
Cavity Insulation Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 EZ FLO may be used inside the box headers and jamb studs for NFPA 285 assemblies requiring SPF in stud cavities	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (board type Class A, ASTM E84 faced or unfaced) 4. Any Fiberglass (batt type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (maximum) Icynene LD-C-50 SPF in 6" deep studs (maximum). Use with 5/8" exterior sheathing. 6. 5 1/2" (maximum) Icynene MD-C-200 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 7. 5 1/2" (maximum) Icynene MD-R-210 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 8. SWD Urethane QS 112 2 pcf SPF in 6" deep studs (maximum) partial fill with a maximum 2 1/2" air gap or full fill. Use with 5/8" exterior sheathing. 9. Gaco Western 183M SPF (3 1/2" maximum). Use with 5/8 exterior sheathing. 10. Gaco Western F1850 SPF (3 1/2" maximum). Use with 5/8 exterior sheathing. 11. Demilec Sealection 500 SPF (3 5/8" maximum). Use with 5/8 exterior sheathing. 12. Demilec HeatLok Soy 200 Plus SPF (3.4" maximum). Use with 5/8 exterior sheathing. 13. Bayer Bayseal SPF (3" maximum). Use with 5/8 exterior sheathing. 14. Lapolla FoamLok FL 2000 SPF (3" maximum). Use with 5/8 exterior sheathing. 15. BASF SprayTite 81206 or WallTite SPF (US and US-N) (3 5/8" maximum). Use with 5/8" exterior sheathing.
Exterior Sheathing Select option 1 or 2 ***Note:*** When SPF is used, 5/8" exterior gypsum sheathing must be used.	1. 1/2" thick, or thicker, exterior gypsum board sheathing 2. 1/2" (minimum) FRTW structural panels complying with IBC Section 2303.2 and installed in accordance with code allowances for Types I, II, III, or IV construction

Table 26. Rmax® Polyiso ECOMAXci FR Air Barrier Fire Performance – Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
Weather-Resistive Barrier Applied over Sheathing WRB may be used under the insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Insulation Use either 1 or 2 ***Note:*** See Exterior Sheathing options for thickness limitations when no exterior sheathing is used.	1. 4 1/2" (maximum consisting of a single panel or multiple thinner panels) Rmax® ECOMAXci® FR Air Barrier 2. 4 1/2" (maximum consisting of a single panel or multiple thinner panels) Rmax® EVOMAXci™
Weather-Resistive Barrier Applied Over Insulation Do not use WRB under and over the insulation	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 ***Note:*** For WRB over exterior insulation option 2 above, heavy masonry claddings 1 - 6 shall incorporate non-open joints.	**Heavy Masonry:** 1. Brick – nominal 4" clay brick or veneer with a maximum 2" air gap behind brick. Brick ties/anchors – 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath with an optional secondary water resistive barrier between the exterior insulation and lath.* 3. Limestone – minimum 2" thick any using standard installation technique. 4. Natural Stone Veneer – Minimum 2" thick using any standard installation technique. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard installation technique. 6. Terra Cotta Cladding – Minimum 1 1/4" thick using any standard installation technique. **Other:** 7. Any MCM or ACM (aluminum, steel, copper, zinc) (w/ 2 1/2" maximum air gap) that has successfully passed NFPA 285 using any standard installation technique, such as Carter Companies EVO Architectural Panel Systems for use with any FR ACM/MCM NFPA 285 material 8. Uninsulated sheet metal building panels including aluminum, zinc, steel, or copper using any standard installation technique. 9. Uninsulated fiber-cement board siding using any standard installation technique. 10. Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 or equivalent. a. Stone Panels Inc. Stone Lite Panel system has been analyzed using manufacturer standard installation technique 11. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 using any standard installation technique. 12. Thin Set Brick a. Glen-Gary Thin Tech™ Elite Series has been analyzed using manufacturer standard installation technique. b. Tabs II Panel System with 1/2" bricks using Tabs Wall Adhesive 13. Natural Stone Veneer – minimum 1 1/4" (adhered with mortar or concrete/cement based adhesive).

Table 26. Rmax® Polyiso ECOMAXci FR Air Barrier Fire Performance – Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
	14. FunderMax m.look using the manufacturer standard installation technique. The air gap between cladding and insulation or WRB must not exceed 1 1/2".
Exterior Cladding Continued	15. Glen-Gary Tru-Brix (only with optional non-combustible mortar) 16. Thin brick (minimum 3/4" thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.* 17. Natural stone or artificial stone (minimum 3/4" thick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.* ***Note:** The secondary barriers shall not be full-coverage asphalt or butyl-based self-adhered membranes.
Rough Openings ***Note:** Must cover both the air gap between the cladding and the exterior insulation and the exposed edge of the exterior insulation.	Rough opening perimeters shall incorporate one of the following, spanning at a minimum from the interior edge of the cladding to the interior edge of the exterior insulation at the rough opening: 1. 0.08" (minimum) aluminum (examples include window frame, flashing, lintel, c-channel) 2. 20-gauge (minimum) sheet steel (examples include window frame, flashing, lintel, c-channel) 3. 1/2" (minimum) 4pcf (min) mineral wool 4. 3/4" (minimum) FRT wood buck 5. 3/4" (minimum) FRT plywood 6. 5/8" (minimum) type X GWB 7. 1/4" (minimum) fiber cement board All fenestrations and penetrations shall be flashed in accordance with the applicable code using asphalt, acrylic or butyl flashing tape, liquid flashing, R-SEAL 6000, or R-SEAL 2000 LF up to 12" maximum width.

SI: 1 in = 25.4 mm

1. All WRB shall be installed at recommended application rates and per the manufacturer installation instructions.

Appendix J

Table 27. Rmax® Polyiso ECOMAXci FR Ply Fire Performance - Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
Base Wall System Select option 1, 2, 3, or 4	1. Cast Concrete walls 2. CMU Concrete walls 3. 20-gauge (minimum) 3 5/8" (minimum) steel studs spaced 24" o.c. (maximum) a. 1/2" (minimum) type X Special Fire Resistance Gypsum Wallboard Interior b. Bracing as required by code 4. Where allowed by code in Types I, II, III, or IV construction, Fire-Retardant Treated Wood (FRTW) studs complying with IBC Section 2303.2, minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. 5/8" type X Gypsum Wallboard Interior b. Bracing as required by code
Floorline Firestopping Select item 1 or 2	1. 4 pcf mineral wool installed with Z-clips 2. FRTW fire blocking at floor line in accordance with applicable code requirements (use with FRTW framing)
Cavity Insulation Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 EZ FLO may be used inside the box headers and jamb studs for NFPA 285 assemblies requiring SPF in stud cavities	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (board type Class A, ASTM E84 faced or un-faced) 4. Any Fiberglass (batt type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (maximum) Icynene LD-C-50 SPF in 6" deep studs (maximum). Use with 5/8" exterior sheathing. 6. 5 1/2" (maximum) Icynene MD-C-200 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 7. 5 1/2" (maximum) Icynene MD-R-210 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 8. SWD Urethane QS 112 2 pcf SPF in 6" deep studs (maximum) partial fill with a maximum 2 1/2" air gap or full fill. Use with 5/8" exterior sheathing. 9. Gaco Western 183M SPF (3 1/2" maximum). Use with 5/8" exterior sheathing. 10. Gaco Western F 1850 SPF (3 1/2" maximum). Use with 5/8" exterior sheathing. 11. Demilec Sealection 500 SPF (3 5/8" maximum). Use with 5/8" exterior sheathing. 12. Demilec HeatLok Soy 200 Plus SPF (3.4" maximum). Use with 5/8" exterior sheathing. 13. Bayer Bayseal SPF (3" maximum). Use with 5/8" exterior sheathing. 14. Lapolla FoamLok FL 2000 SPF (3" maximum). Use with 5/8" exterior sheathing. 15. BASF SprayTite 81206 or WallTite (US and US-N) SPF (3 5/8" maximum). Use with 5/8" exterior sheathing.
Exterior Sheathing Select item 1 or 2	1. 1/2" (minimum), exterior gypsum board sheathing 2. 1/2" (minimum) FRTW structural panels complying with IBC Section 2303.2 and installed in accordance with code allowances for Types I, II, III, or IV construction.
Weather-Resistive Barrier Applied over Sheathing WRB may be used under insulation (or with no insulation)	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW

Table 27. Rmax® Polyiso ECOMAXci FR Ply Fire Performance - Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
Exterior Insulation Installation may include FRT plywood layer on exterior side or interior side. Use with plywood on interior side negates use of exterior sheathing since the FRT ply acts as the sheathing.	1. WeatherTek Building Wraps – 4 1/2" (maximum) foam thickness, 5/8" (minimum) FRT plywood thickness.
FRTW Structural Panels over Exterior Insulation (Optional)	1. For use with all cladding options, installed in accordance with applicable code requirements. Must be applied with joints staggered. Fasteners used for securing FRTW panels must penetrate through the foam plastic into FRTW or steel framing. The system must be designed to handle the cladding load and wind load per the applicable code. ***Note:*** May be applied in the field or factory. Adhesive must not be full coverage.
Weather-Resistive Barrier Applied over Insulation (or FRTW) Do not use WRB under and over the insulation WRB over FRTW may be used only with Claddings 1 - 6	1. WeatherTek Plus 2. WeatherTek DW 3. WeatherTek BW
Exterior Cladding Selection option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 ***Note:*** For WRB over exterior insulation, option 2 above, heavy masonry claddings 1 – 6 shall incorporation non-open joints.	**Heavy Masonry:** 1. Brick – nominal 4" clay brick or veneer with a maximum 2" air gap behind brick. Brick ties/anchors – 24" o.c. (maximum) 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath with an optional secondary water resistive barrier between the exterior insulation and lath.* 3. Limestone – minimum 2" thick any using standard installation technique. 4. Natural Stone Veneer – Minimum 2" thick using any standard installation technique. 5. Cast Artificial Stone, Precast Concrete Panels, or CMU – Minimum 1 1/2" thick, using any standard installation technique. Cast stone complying with ICC-ES AC 51. 6. Terra Cotta Cladding – Minimum 1 1/4" thick using any standard installation technique. **Other:** 7. Any MCM or ACM (aluminum, steel, copper, zinc) (with 2 1/2" maximum air gap) that has successfully passed NFPA 285 using any standard installation technique, such as Carter Companies EVO Architectural Panel Systems for use with any FR ACM/MCM NFPA 285 material. 8. Uninsulated sheet metal building panels including aluminum, zinc, steel, or copper using any standard installation technique. 9. Uninsulated fiber-cement board siding using any standard installation technique. 10. Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 or equivalent. a. Stone Panels Inc. Stone Lite Panel system has been analyzed using manufacturer standard installation technique. 11. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 using any standard installation technique.

Table 27. Rmax® Polyiso ECOMAXci FR Ply Fire Performance - Vertical and Lateral Fire Propagation[1]

Wall Component	Materials
Exterior Cladding Continued	12. Thin Set Brick: a. Glen-Gary Thin Tech™ Elite Series has been analyzed using manufacturer standard installation technique. b. Tabs II Panel System with 1/2" bricks using Tabs Wall Adhesive. 13. Natural Stone Veneer – minimum 1 1/4" (adhered with mortar or concrete/cement based adhesive). 14. FunderMax m.look, using the manufacturer standard installation technique. The air gap between cladding and insulation or WRB must not exceed 1 1/2". 15. Glen-Gery Tru-Brix (only with optional non-combustible mortar). 16. Thin brick (minimum 3/4" thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.* 17. Natural stone or artificial stone (minimum 3/4" thick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.* ***Note:** The secondary barriers shall not be full-coverage asphalt or butyl-based self-adhered membranes.
Rough Openings ***Note:** Must cover both the air gap between the cladding and the exterior insulation and the exposed edge of the exterior insulation.	Rough opening perimeters shall incorporate one of the following, spanning at a minimum from the interior edge of the cladding to the interior edge of the exterior insulation at the rough opening: 1. 0.08" (minimum) aluminum (examples include window frame, flashing, lintel, C-channel) 2. 20-gauge (minimum) sheet steel (examples include window frame, flashing, lintel, C-channel) 3. 1/2" (minimum) 4pcf (minimum) mineral wool 4. 3/4" (minimum) FRT wood buck 5. 3/4" (minimum) FRT plywood 6. 5/8" (minimum) type X GWB 7. 1/4" (minimum) fiber cement board All fenestrations and penetrations shall be flashed in accordance with the applicable code using asphalt, acrylic or butyl flashing tape, liquid flashing, R-SEAL 6000, or R-SEAL 2000 LF up to 12" maximum width.

SI: 1 in = 25.4 mm

1. All WRB shall be installed at recommended application rates and per the manufacturer installation instructions.

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 2021 IBC Section 1403.2

27 2021 IRC Section R703.2

28 2021 IBC Section 1404.4

29 2021 IRC Section R703.4

30 2021 IBC Section 1403.11

31 2021 IBC Section 1402.5

32 2021 IBC Section 1402.5

33 2021 IBC Section 1402.5

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

[35] 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

[36] 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

[37] 2021 IBC Section 1402.5

[38] 2021 IBC Section 1402.5

[39] 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.

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

[41] 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

[42] 2021 IBC Section 104.11

[43] 2021 IRC Section R104.11

[44] 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

[45] 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.

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

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