Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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EnergyShield® Products as the Primary Water-Resistive Barrier and Air Barrier

Trade Secret Report Holder:

Atlas® Roofing Corporation

Phone: 770-933-4478 Website: www.atlasrwi.com

CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION Section: 07 25 00 - Water-Resistive Barriers/Weather Barriers

1 Innovative Products Evaluated[1]

1.1 EnergyShield Products:

1.1.1 EnergyShield®

1.1.2 EnergyShield® XR

1.1.3 EnergyShield® Pro

1.1.4 EnergyShield® CGF

1.1.5 EnergyShield® CGF Pro

2 Product Description and Materials

2.1 EnergyShield products are proprietary Foam Plastic Insulating Sheathing (FPIS) products.

2.1.1 EnergyShield is a polyisocyanurate (polyiso) insulation board that includes a tri-laminate foil facer material on both sides (ASTM C1289 Type I, Class 1 and Type I, Class 2 sheathing).

2.1.2 EnergyShield XR is a polyiso insulation board that includes tri-laminated foil facer material on both sides (ASTM C1289 Type I Class 1 and Type I Class 2 sheathing).

2.1.3 EnergyShield Pro is a polyiso insulation board that includes a white coated aluminum foil facer material on one side and a reflective aluminum facer on the other side (ASTM C1289 Type I, Class 1 and Type I, Class 2 sheathing).

2.1.4 EnergyShield CGF is a polyiso insulation board that includes a coated glass mat facer on both sides (ASTM C1289 Type II Class 2 sheathing).

2.1.5 EnergyShield CGF Pro is a polyiso insulation board that includes a light color coated glass mat facer on one side and a dark color coated glass mat facer on the other side (ASTM C1289 Type II, Class 2 sheathing).

2.2 *Material Availability*

2.2.1 *Thickness:*

2.2.1.1 $^{1}/_{2}$" (13 mm) through $4^{1}/_{2}$" (114 mm)

2.2.2 *Standard Product Width:*

2.2.2.1 48" (1,219 mm)

2.2.2.2 Panels can also be supplied in nominal 16" and 24" (406 mm and 610 mm) widths for use in cavity wall applications.

2.2.3 *Standard Lengths:*

2.2.3.1 96" (2,438 mm)

2.2.3.2 108" (2,743 mm)

2.2.3.3 Panels can be supplied in other lengths upon request.

2.3 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 the following featured local jurisdictions and is not limited to: 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 the following featured states, and is not limited to: 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 *AAMA 714: Voluntary Specification for Liquid Applied Flashing Used to Create a Water-Resistive Seal around Exterior Wall Openings in Buildings*

4.2.2 *AATCC TM 127: Test Method for Water Resistance: Hydrostatic Pressure*

4.2.3 *ABTG/FS 100: Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies*

4.2.4 *ABTG/FS 200: Standard for Use of Foam Plastic Insulating Sheathing (FPIS) in Building Envelopes: Above Grade Walls*

4.2.5 *ASTM C203: Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation*

4.2.6 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*

4.2.7 *ASTM C1371: Test Method for Determination of Emittance of Materials near Room Temperature Using Portable Emissometers*

4.2.8 *ASTM D903: Standard Test Method for Peel or Stripping Strength of Adhesive Bonds*

4.2.9 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

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

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

4.2.12 *ASTM E2357: Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies*

4.2.13 *CAN/ULC-S742: Standard for Air Barrier Assemblies – Specification*

4.3 *Regulations*

4.3.1 *IBC – 15, 18, 21, 24: International Building Code®*

4.3.2 *IRC – 15, 18, 21, 24: International Residential Code®*

4.3.3 *IECC – 15, 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 EnergyShield products may be used as a WRB as prescribed in IBC Section 1403.2,[26] IRC Section R703.2, and FS 200 Section 3.2, when installed on exterior walls as described in this section and the manufacturer installation instructions.

6.1.1.1 When installed direct to framing, EnergyShield products shall be installed with board joints placed directly over vertical exterior framing spaced a maximum of 16" (405 mm) o.c. The fasteners used to attach the board shall be installed in accordance with **Section 9**. Blocking of horizontal joints is not required.

6.1.1.2 EnergyShield products installed over sheathing are not required to be installed with vertical or horizontal board joints aligned to underlying framing. The fasteners used to attach the boards shall be installed in accordance with **Section 9**.

6.1.2 Flashing must be installed through wall penetrations and shall comply with all applicable code sections. Results of testing using various flashing products per IBC Section 1402.2 can be found in **Table 1** and **Table 2**.

6.1.3 All joints between boards shall be tightly abutted and sealed with an approved joint sealing product shown in **Table 1** or **Table 2**.

Table 1. List of Approved Liquid Flashing Joint Sealing Products Applied to EnergyShield Insulation Boards

Product	Approved Criteria		
Zip System™ Liquid Flash[1]	Water Resistance[2]	Weathering[3]	Water Penetration[4]
Prosoco R-Guard® FastFlash®			
Sto RapidGuard™			
GCP Perm-A-Barrier® Universal Flashing			
Tremco Dymonic® 100			
Carlisle BarriBond HP			
Siplast® WALLcontrol™ STPE Liquid Flashing			
Atlas EnergyShield® WAVE Liquid Flashing			
Air-Bloc® LF Liquid-Applied Flashing			
Sustant™ SealSkin™ Flash & Seal			

1. A facer from one surface of the insulation board was removed and the liquid flashing was applied directly to board joints, verifying water resistance of the core.
2. Testing conducted using the AATCC-127 Test Method.
3. Testing conducted using AAMA 714-15.
4. Testing conducted using ASTM E331 per IBC Section 1402.2.

Table 2. List of Approved Adhered Joint Sealing Products for use with EnergyShield Insulation Boards

Product	Approved Criteria		
3M™ Venture Tape™ Aluminum Foil Tape 1521CW	Water Resistance[1]	Weathering[2]	Water Penetration[3]
3M™ All Weather Flashing Tape 8067			
DuPont™ Styrofoam™ Brand Tape			
GCP Perm-A-Barrier® Aluminum Flashing			
GCP Perm-A-Barrier® Detail Membrane			
GCP Perm-A-Barrier® Wall Flashing			
Henry® Blueskin® Butyl Flash			
Henry® Blueskin® SA			
ZIP System™ Flashing Tape			
IPG® UL723 Cold Weather Aluminum Foil Tape			
Protecto Wrap® Super Stick Building Tape®			
Protecto Wrap® Protecto Seal 45 Butyl™			
Protecto Wrap® BT20XL Butyl™			
Protecto Wrap® BT25XL™			
Siga Wigluv®			
Siga Wigluv® black			
Kemper System UT-40 Universal Tape®			

1. Testing conducted using the AATCC-127 Test Method
2. Testing conducted using AAMA 711-2020
3. Testing conducted using ASTM E331 per IBC Section 1402.2.

6.2 *Emittance*

6.2.1 EnergyShield Pro has an emittance value for the reflective side of less than 0.1, as measured by ASTM C1371.

6.3 *Air Barrier Material*

6.3.1 EnergyShield CGF, EnergyShield CGF Pro, EnergyShield Pro, EnergyShield XR, and EnergyShield were evaluated to assess their performance and have met the requirements for use as an air barrier material in accordance with FS 200 Section 3.3.4.1 and IECC Section C402.6.2.3.1 (See **Table 3**).

Table 3. Air Barrier Material Permeability of EnergyShield Products

Product	Test Method[1]	Permeance (L/s·m²)
EnergyShield CGF, EnergyShield CGF Pro, EnergyShield XR, EnergyShield Pro and EnergyShield	ASTM E2178	< 0.02

1. Minimum thickness for EnergyShield Pro & EnergyShield is ¾" and for EnergyShield CGF, EnergyShield CGF Pro is 1.1" tested at 75 Pa.

6.3.2 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield CGF, EnergyShield XR and EnergyShield shall be installed in accordance with the manufacturer installation instructions and this report, with all seams, including the top and bottom edges, sealed.

6.4 *Air Barrier Assembly*

6.4.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield CGF, EnergyShield XR, and EnergyShield were evaluated to assess their performance and have met the requirements for use as an air barrier assembly in accordance with FS 200, Section 3.3.4.2 and IECC Section C402.6.2.3.2[27] (See **Table 4**).

Table 4. Air Barrier Assembly Permeability

Product	Test Method	Permeance [L/(s·m²)][1]
EnergyShield CGF, EnergyShield CGF Pro, EnergyShield XR, EnergyShield Pro and EnergyShield	ASTM E2357	< 0.2
	CAN/ULC-S742	< 0.05
1. Liter per second per square meter		

6.4.2 Any of the products listed in **Table 2** and **Table 5** may be used in the construction of the air barrier assembly.

Table 5. Approved Liquid Flashing Materials for use with EnergyShield Air Barrier Assemblies

Product	Flashing Product
EnergyShield CGF, EnergyShield CGF Pro, EnergyShield XR, EnergyShield Pro, and EnergyShield	Zip System™ Liquid Flash
	Prosoco R-Guard® FastFlash®
	Siplast® WALLcontrol™ STPE Liquid Flashing
	Atlas EnergyShield® WAVE Liquid Flashing
	Air-Bloc® LF Liquid-Applied Flashing
	Sto RapidGuard®
	Tremco Dymonic® 100
	Sustant™ SealSkin™ Flash & Seal

6.4.3 The following requirements must be met when using EnergyShield CGF, EnergyShield CGF Pro, EnergyShield Pro, EnergyShield XR and EnergyShield as an air barrier assembly:

6.4.3.1 EnergyShield, EnergyShield Pro and EnergyShield XR must be a minimum of 3/4" in thickness. EnergyShield CGF and EnergyShield CGF Pro must be a minimum of 1.1".

6.4.3.2 Install directly over studs or over a structural sheathing.

6.4.3.3 Vertical joints of all rigid insulation shall be backed by studs or structural sheathing.

6.4.3.4 Joints shall be sealed with any of the approved joint sealing products listed in **Table 2** or **Table 5**, or a solvent acrylic adhesive tape minimum 3" wide, such as 3M™ Venture Tape™ 1520CW or equivalent.

6.4.3.5 Penetrations, damage, and transitions to other materials shall be flashed with any of the approved joint sealing products listed in **Table 2** or **Table 5**, or a solvent acrylic adhesive tape, minimum 3" wide, butyl flashing tape minimum 4" wide, or sealant, such as Henry® 925 BES Sealant or equivalent.

6.4.3.6 Seal Block Lok brick ties from Hohmann & Barnard, Inc. with caulk, as needed.

6.4.3.7 No sealant is needed for Pos-I-Tie® brick ties with Rodenhouse Thermal-Grip ci prong washers.

6.4.3.8 No sealant is needed for Grip-Deck screws with Rodenhouse Thermal-Grip ci prong washers.

6.5 *Transverse Wind Loading*

6.5.1 EnergyShield products are permitted to resist transverse wind load forces as set forth in **Table 6**.

Table 6. Load Capacity (psf) for EnergyShield Products Resisting Transverse Wind Loads[1,2,3]

Product	Minimum Thickness (in)	Maximum Stud Spacing (in)	Fastener Schedule	Fastener Spacing (edge:field) (in)	Allowable Design Value (psf)	Allowable Stress Design Wind Speed V_{asd} (mph)	Basic Wind Speed V_{ult} (mph)
EnergyShield, EnergyShield XR and EnergyShield Pro	1/2	16 o.c.	2 1/2" x 0.113" Ring Shank Nail with 1" Plastic Cap	6:12	19.1	90	115
	3/4	16 o.c.		6:12	27.0	105	140
	1	16 o.c.	3" Galvanized Roofing Nail	12:16	46.1	140	180
	1 1/2	16 o.c.			72.1	155	200
	1 1/2	24 o.c			37.3	125	160
	2	16 o.c.			123.1	155	200
EnergyShield CGF and EnergyShield CGF Pro	1/2	16 o.c.	2 1/2" x 0.113" Ring Shank Nail with 1" Plastic Cap	6:12	45.7	140	180
	3/4	16 o.c.	3" Galvanized Roofing Nail	12:16	78.7	155	200
	1	16 o.c.			120.5	155	200
	1	24 o.c.			48.2	145	185

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m²

1. Design wind load capacity shall be in accordance with IBC Section 1609.1.1.
2. Wind speeds are based on the methodology detailed in ASCE 7-22 and the following assumptions:
   a. A building height of 30-ft, GC_p= -1.4 for Zone 5 and an Effective Wind Area of 10 ft², Exposure B: K_z=0.69, Topographic Factor: K_{zt}=1.0, Ground Elevation Factor: K_e=1.0, Internal Pressure Coefficient, GC_{pi}=+/-0.18 for an enclosed building, K_d = 0.85 for 'Component and Cladding'
   b. V_{ult} is limited to 200 mph.
3. $V_{asd} = V_{ult}\sqrt{0.6}$. V_{asd} is limited to 155 mph $(200\sqrt{0.6})$.

6.6 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[28]

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.[29]

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.[30]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 EnergyShield products comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 EnergyShield products were evaluated to determine their performance for use as a Water Resistive Barrier (WRB) in accordance with IBC Section 1403.2[31] and IRC Section R703.2 when installed with various joint sealing products.

8.1.2 EnergyShield CGF, EnergyShield CGF Pro, EnergyShield Pro and EnergyShield were evaluated for use as an air barrier material in accordance with IECC Section C402.6.2.3.1.[32]

8.1.3 EnergyShield, EnergyShield XR and EnergyShield Pro were evaluated for use as part of an air barrier assembly in accordance with IECC Section C402.6.2.3.2.[33]

8.1.4 EnergyShield products were evaluated to determine their ability to resist transverse loads for wall assemblies used in light-frame wood construction in accordance with IBC Section 1609.1.1 and IRC Section R301.2.1.

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[34] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[35] 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 All required wall bracing shall be installed prior to insulation board installation.

9.3.2 Insulation boards shall be installed with edges tightly abutted together.

9.3.3 Secure the insulation boards using fasteners capable of penetrating into framing members or structural substrate capable of resisting imposed loads. See manufacturer installation instructions for fastening details per substrate, framing material, cladding type, duration of exposure before cladding, and other relevant fastening factors dependent on imposed loads.

9.3.4 For metal construction, fasteners shall be corrosion resistant and be approved by the fastener manufacturer for the framing material.

9.3.5 Fasteners shall sit flush with the insulation board surface. Do not allow the fastener head to penetrate the insulation board facer. Repair any damage with a joint sealing product.

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 Water penetration testing in accordance with ASTM E331 per IBC Section 1402.2

10.1.2 Peel adhesion testing is accordance with ASTM D903

10.1.3 Emittance of materials near room temperature in accordance with ASTM C1371

10.1.4 Air barrier material properties in accordance with ASTM E2178

10.1.5 Air barrier assembly properties in accordance with ASTM E2357 and CAN/ULC-S742

10.1.6 Transverse load testing in accordance with ASTM C203 and ASTM E330

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

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

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

10.5 *Testing and Engineering Analysis:*

10.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[36]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for EnergyShield on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, EnergyShield products have performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, EnergyShield shall be approved for the following applications:

11.2.1 Use as a WRB in accordance with IBC Section 1403.2,[37] IRC Section R703.2, and FS 200 Section 3.2.

11.2.2 Use as an air barrier material in accordance with FS 200 Section 3.3.4.1 and IECC Section C402.6.2.3.1[38] EnergyShield CGF, EnergyShield CGF Pro, EnergyShield Pro, and EnergyShield only.)

11.2.3 Use as part of an air barrier assembly in accordance with FS 200 Section 3.3.4.2 and IECC Section C402.6.2.3.2[39] (EnergyShield, EnergyShield XR, and EnergyShield Pro only.)

11.2.4 Use in resisting transverse loads in accordance with IBC Section 1609.1.1, IRC Section R301.2.1, FS 100 and FS 200 Section 3.1.1.

11.2.5 EnergyShield products have been evaluated in the context of the codes listed in **Section 4** and are compliant with all known state and local building codes.

11.3 Unless exempt by state statute, when EnergyShield products are to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

11.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Atlas Roofing Corporation.

11.5 IBC Section 104.2.3[40] (IRC Section R104.2.2[41] and IFC Section 104.2.3[42] 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.

11.6 **Approved:**[43] Building regulations require that the building official shall accept duly authenticated reports.[44]

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

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

11.6.3 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.

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

11.8 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.[45]

12 Conditions of Use

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

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

12.3 As listed herein, EnergyShield products shall not be used:

12.3.1 As a structural nailing base for claddings.

12.4 In areas where the probability of termite infestation is very heavy, in accordance with IBC Section 2603.8, the product must not be placed on exterior walls located within 6" (152 mm) of the ground.

12.5 Use of the insulation boards to resist lateral loads is outside the scope of this report.

12.5.1 Walls shall be braced by other materials in accordance with the applicable code, and the exterior wall covering shall be capable of resisting the full design wind pressure.

12.6 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:

12.6.1 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.

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

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

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

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

12.6.6 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.

12.6.7 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.

12.7 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.

12.8 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).

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

13 Identification

13.1 The innovative products listed in **Section 1.1** 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.atlasrwi.com.

14 Review Schedule

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

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

Notes

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

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

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

4 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

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

6 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.2.3.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

26 2015 IBC Section 1404.2

27 2021 IECC Section C402.5.1.4

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

29 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

30 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

31 2015 IBC Section 1404.2

32 2021 IECC Section C402.5.1.3

33 2021 IECC Section C402.5.1.4

34 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.

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

36 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

37 2015 IBC Section 1404.2

38 2021 IECC Section C402.5.1.3

39 2021 IECC Section C402.5.1.4

40 2021 IBC Section 104.11

41 2021 IRC Section R104.11

42 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

43 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.

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

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