



Listing and Technical Evaluation Report™

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Fire Performance of EnergyShield® Products in Buildings of Type I-V Construction

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 21 00 - Thermal Insulation

1 Innovative Products Evaluated¹

- 1.1 EnergyShield® Pro
- 1.2 EnergyShield® CGF Pro
 - 1.2.1 EnergyShield CGF Pro is formerly known as Rboard® Pro
- 1.3 EnergyShield® Ply Pro
- 1.4 EnergyShield® XR

2 Product Description and Materials

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



Figure 1. EnergyShield Continuous Wall Insulation Products



Table 1. Product Descriptions¹

EnergyShield Ply Pro	
Description	Atlas EnergyShield Ply Pro is composed of a glass-faced, closed-cell, rigid polyisocyanurate (polyiso) foam core complying with ASTM C1289, Type V, with Type II, Class 2 foam bonded to fire treated plywood. <ul style="list-style-type: none"> Nominal density of the polyiso foam core is 2.0 pcf. Foam core for EnergyShield Ply Pro is Class A, NFPA 285 compliant.
Facer Material(s)	Coated glass facers, laminated to a 5/8" or 3/4" fire treated PS 2 compliant plywood panel (one side)
Dimensions (in)	Standard product width: 48" (1,129 mm) Standard product length: 96" or 108" (2,438 mm or 2,743 mm)
Available Thicknesses (in)	<ul style="list-style-type: none"> 1 5/8" through 4 5/8" (5/8" fire-treated plywood bonded to 1" to 4" polyiso foam core) 1 3/4" through 4 3/4" (3/4" fire-treated plywood bonded to 1" to 4" polyiso foam core)
EnergyShield Pro, EnergyShield CGF Pro, & EnergyShield XR	
Description	Atlas EnergyShield insulation boards consist of closed-cell, rigid polyisocyanurate (polyiso) foam cores bonded to various facer materials. <ul style="list-style-type: none"> Nominal density of the polyiso foam core is 2.0 pcf. Foam core for EnergyShield Pro, and EnergyShield CGF Pro is Class A fire-rated. <i>EnergyShield Pro:</i> <ul style="list-style-type: none"> Foam core is ASTM C1289 Type I, Class 1 and 2 compliant. <i>EnergyShield CGF Pro:</i> <ul style="list-style-type: none"> Foam core is ASTM C1289 Type II, Class 2 compliant. <i>EnergyShield XR:</i> <ul style="list-style-type: none"> Foam core is ASTM C1289 Type I, Class 1 and 2 compliant.
Facer Material(s)	<i>EnergyShield Pro:</i> <ul style="list-style-type: none"> Reflective, 12 mil reinforced foil facer on one side and a white, 12 mil reinforced acrylic-coated aluminum facer on the other side. <i>EnergyShield CGF Pro:</i> <ul style="list-style-type: none"> High performance coated glass facer on front and back. One side is dark gray for use in open joint Rainscreen applications. <i>EnergyShield XR:</i> <ul style="list-style-type: none"> Impermeable foil facers on both sides.
Dimensions	Standard product width: 48" (1,129 mm) Standard product length: 96" or 108" (2,438 mm or 2,743 mm) (Nominal 16" or 24" (406 mm or 310 mm) widths for use in cavity wall applications are available as well as custom sizes).
Available Thicknesses	<i>EnergyShield Pro:</i> <ul style="list-style-type: none"> 3/4" through 4" <i>EnergyShield CGF Pro:</i> <ul style="list-style-type: none"> 1/2" through 4" <i>EnergyShield XR:</i> <ul style="list-style-type: none"> 1 1/2" through 4"
SI: 1 in = 25.4 mm, 1 psi = 0.0069 MPa 1. Where applicable, meets or exceeds minimum compressive strength of 15 psi	

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



3 Definitions

- 3.1 New Materialsⁱⁱ 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.ⁱⁱⁱ The design strengths and permissible stresses shall be established by tests^{iv} and/or engineering analysis.^v
- 3.2 Duly Authenticated Reports^{vi} and Research Reports^{vii} are test reports and related engineering evaluations, which are written by an approved agency^{viii} and/or an approved source.^{ix}
- 3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the Defend Trade Secrets Act (DTSA).^x
- 3.3 An approved agency is “approved” when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is listed in the ANAB directory.
- 3.4 An approved source is “approved” when a professional engineer (i.e., Registered Design Professional) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.^{xi}
- 3.5 Testing and/or inspections conducted for this Duly Authenticated Report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed Registered Design Professional (RDP).
- 3.5.1 The Center for Building Innovation (CBI) is ANAB^{xii} ISO/IEC 17025 and ISO/IEC 17020 accredited.
- 3.6 The regulatory authority shall enforce^{xiii} 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^{xiv} 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.^{xv}
- 3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory where recognition of certificates, validation, and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope, shall be approved.^{xvi} Therefore, all ANAB ISO/IEC 17065 Duly Authenticated Reports are approval equivalent.^{xvii}
- 3.9 Approval equity is a fundamental commercial and legal principle.^{xviii}

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation^{xix}

4.1 Standards

- 4.1.1 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 4.1.2 *ASTM D1929: Standard Test Method for Determining Ignition Temperature of Plastics*
- 4.1.3 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 4.1.4 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*
- 4.1.5 *ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*
- 4.1.6 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*
- 4.1.7 *NFPA 259: Standard Test Method for Potential Heat of Building Materials*
- 4.1.8 *NFPA 285: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*



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

4.1.10 *UL 263: Standard for Fire Tests of Building Construction and Materials*

4.1.11 *UL 723: Test for Surface Burning Characteristics of Building Materials*

4.2 *Regulations*

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

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

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

4.2.4 *FBC-B—20, 23: Florida Building Code – Building^{xx}*

4.2.5 *FBC-R—20, 23: Florida Building Code – Residential^{xx}*

5 **Listed^{xxi}**

5.1 A nationally recognized testing laboratory such as CBI, states that the materials, designs, methods of construction, and/or equipment have met nationally recognized standards and/or have been tested and found suitable for use in a specified manner.

6 **Tabulated Properties Generated from Nationally Recognized Standards**

6.1 *General*

6.1.1 The insulation boards are Foam Plastic Insulating Sheathing (FPIS) in compliance with IBC Section 2603.

6.1.1.1 EnergyShield Pro and EnergyShield XR comply with IRC Section R316.

6.1.2 The insulation boards are used in buildings of Type I-IV construction in accordance with IBC Section 2603.5.

6.1.2.1 EnergyShield Pro and EnergyShield XR are also used in buildings of Type V construction in accordance with IBC Section 2603.4, IBC Section 2603.5, IBC Section 2603.10, and in residential construction, in accordance with IRC Section R316.

6.1.3 Environmental Product Declarations (EPD) for EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are available at www.polyiso.org.

6.2 *Fire-Resistance Rated Walls*

6.2.1 EnergyShield Pro and EnergyShield XR were tested to assess its performance with regard to fire resistance-rated walls in accordance with UL 263 (or ASTM E119) and IBC Section 2603.5.1.

6.2.1.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR have been accorded a UL BRYX listing per UL 723, which allows them to be used in UL 263 tested assemblies permitting products classified in accordance with the UL BRYX classification. Therefore, EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are approved for the following UL assemblies:

6.2.1.1.1 1-hour: BXUV.W307

6.2.1.1.2 2-hour: BXUV.W307



6.2.1.2 Additionally, EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are listed by name in the following designs:

- 6.2.1.2.1 45 Minutes: [BXUV.U424](#), [BXUV.U425](#), [BXUV.V321](#), [BXUV.V499](#), [BXUV.W456](#)
- 6.2.1.2.2 1-hour: [BXUV.U026](#), [BXUV.U326](#), [BXUV.U330](#), [BXUV.U354](#), [BXUV.U355](#), [BXUV.U364](#), [BXUV.U424](#), [BXUV.U425](#), [BXUV.U460](#), [BXUV.V499](#), [BXUV.V454](#), [BXUV.V455](#), [BXUV.W417](#), [BXUV.W429](#), [BXUV.W456](#)
- 6.2.1.2.3 1.5-hour: [BXUV.U424](#), [BXUV.U425](#), [BXUV.V499](#), [BXUV.W456](#)
- 6.2.1.2.4 2-hour: [BXUV.U424](#), [BXUV.U425](#), [BXUV.V499](#), [BXUV.U905](#), [BXUV.U906](#), [BXUV.U939](#), [BXUV.V455](#), [BXUV.W456](#)
- 6.2.1.2.5 3-hour: [BXUV.U904](#), [BXUV.U907](#), [BXUV.U939](#), [BXUV.W429](#)
- 6.2.1.2.6 4-hour: [BXUV.U902](#), [BXUV.U907](#), [BXUV.U939](#)

6.3 Thermal Barrier

6.3.1 EnergyShield Pro insulation boards were tested in accordance with NFPA 286 on walls and on ceilings and have met the acceptance criteria of [IBC Section 803.1.1.1^{xxii}](#) and [IRC Section R302.9.4](#) for use on either walls only or ceilings only without a thermal barrier up to a maximum thickness of 4 in., in accordance with [IBC Section 2603.4](#), [IBC Section 2603.5.2](#), [IBC Section 2603.9](#), [IRC Section R316.4](#) and [IRC Section R316.6](#).

6.4 Ignition Barrier

6.4.1 EnergyShield Pro insulation boards were tested in accordance with NFPA 286 on walls and on ceilings up to a maximum thickness of 4 in and have met the acceptance criteria of [IBC Section 803.1.1.1^{xxiii}](#) and [IRC Section R302.9.4](#) for use on either walls only or ceilings only without an ignition barrier, in accordance with [IRC Section 316.5.3](#), [IRC Section 316.5.4](#), [IRC Section R316.6](#), [IBC Section 2603.4.1.6](#), [IBC Section 2603.5.2](#) and [IBC Section 2603.9](#).

6.4.2 EnergyShield CGF Pro insulation boards were tested in accordance with NFPA 286 on walls and on ceilings up to a maximum thickness of 4 in and have met the acceptance criteria of [IBC Section 803.1.1.1^{xxiv}](#) and [IRC Section R302.9.4](#) for use on walls and ceilings without an ignition barrier, in accordance with [IRC Section 316.5.3](#), [IRC Section 316.5.4](#), [IRC Section R316.6](#), [IBC Section 2603.4.1.6](#), [IBC Section 2603.5.2](#) and [IBC Section 2603.9](#).

6.4.3 EnergyShield XR insulation boards were tested in accordance with NFPA 286 on walls and on ceilings up to a maximum thickness of 4 in and have met the acceptance criteria of [IBC Section 803.1.1.1^{xxv}](#) and [IRC Section R302.9.4](#) for use on walls and ceilings without an ignition barrier, in accordance with [IRC Section 316.5.3](#), [IRC Section 316.5.4](#), [IRC Section R316.6](#), [IBC Section 2603.4.1.6](#), [IBC Section 2603.5.2](#) and [IBC Section 2603.9](#).



6.5 *Potential Heat*

6.5.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR were tested to assess the potential heat generated by the FPIS in accordance with IBC Section 2603.5.3 and are shown in **Table 2**.

Table 2. Potential Heat

Product	Potential Heat (Btu/lb) ¹	Potential Heat (Btu/ft ² per in)
EnergyShield Pro	12,000	2,000
EnergyShield CGF Pro		
EnergyShield Ply Pro ²		
EnergyShield XR		

SI: 1 Btu/lb = 2.326 kJ/kg, 1 Btu/ft² per in = 4.471 kJ/m² per cm

1. Tested in accordance with NFPA 259.
2. EnergyShield Ply Pro foam only.

6.6 *Surface Burn Characteristics*

6.6.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR were evaluated for surface burning characteristics listed in **Table 3** in accordance with IBC Section 2603.5.4.

Table 3. Surface Burn Characteristics

Product ¹	Flame Spread	Smoke Developed
EnergyShield Pro	< 25	< 450
EnergyShield CGF Pro		
EnergyShield Ply Pro		
EnergyShield XR ²		

1. Foam core tested in accordance with UL 723. Flame spread and smoke developed numbers are shown for comparison purposes only.
2. Foam core tested in accordance with ASTM E84. Flame spread and smoke developed numbers are shown for comparison purposes only.

6.7 *Vertical and Lateral Fire Propagation*

6.7.1 EnergyShield Pro was tested to assess its performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 and IBC Section 2603.5.5.

6.7.1.1 Engineering analysis has also been conducted to assess substitution of other products within the approved wall assemblies, including EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR.

6.7.1.2 The wall assemblies listed in **Table 4** are approved for use in buildings of Type I-IV construction.



6.7.2 The use of firestopping as described in **Table 4** is required. The use of additional firestopping extending from the base wall through EnergyShield products and terminating at the backside of the cladding is not approved.

Table 4. Approved NFPA 285 Wall Assemblies¹

Wall Component	Materials
<p>Base Wall Use any of these items No Sheathing is needed for 1 and 2.</p>	<ol style="list-style-type: none"> 1. Cast Concrete Walls (1" minimum) 2. CMU Concrete Walls (1" minimum) 3. 20-gauge (min.) 3⁵/₈" (min.) steel studs with 5/8" thick Type X gypsum wallboard on interior 4. Fire-Retardant Treated (FRT) wood studs spaced 24" o.c. (max.) with 5/8" thick Type X gypsum wallboard on interior
<p>Floor Line Fire-Stopping Use any of these items</p>	<ol style="list-style-type: none"> 1. None – only with exterior sheathing option 1, 3, or 4 (gypsum wallboard, concrete, or DensElement®) 2. 4 inch thick, 4 pcf mineral fiber (wool) safing insulation (i.e., Thermafiber®) installed with Z-clips or equivalent 3. 1 1/2" FRT lumber for use with FRT studs
<p>Cavity Insulation Use any of these items</p> <p>NOTE: SPF cavity insulations 5 - 17 must use fire stopping at floor lines (compliant with Item 2) and 5/8" exterior gypsum sheathing.</p>	<ol style="list-style-type: none"> 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" (max.) Icynene LD-C-50 spray foam in 6" deep studs (max.) full fill without an air gap 6. 5 1/2" (max.) Icynene MD-C-200™, 2 pcf spray foam in 6" deep studs (max.) full fill without an air gap 7. 5 1/2" (max.) Icynene MD-R-210, 2 pcf spray foam in 6" deep studs (max.) full fill without an air gap 8. 6" (max.) SWD Urethane Quik-Shield (QS) 112, 2 pcf spray foam in 6" deep studs (max.) or partial fill with a maximum 2 1/2" air gap 9. 3 1/2" (max.) Gaco™ Western 183M spray foam in 3 5/8" deep studs (max.) 10. 3 1/2" (max) Gaco™ Western F1850 with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 11. 3 5/8" (max.) Demilec Sealection® 500 with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 12. 3 3/8" (max.) Demilec HeatLok Soy 200 Plus® with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 13. 3" (max.) Bayer Bayseal® with 5/8" exterior sheathing 14. 3" (max.) Lapolla FoamLok™ FL 2000 with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 15. 3 5/8" (max.) BASF SprayTite® 81206 or WallTite® (US & US-N) with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 16. 3 5/8" (max.) Accella (Premium Spray Products) Foamsulate™ 220 with 5/8" exterior sheathing in 3 5/8" deep studs (max.) 17. JM Corbond III – Full stud Cavity depth or less for use with 5/8" exterior gypsum sheathing.
<p>Exterior Sheathing Use any of these items</p> <p>NOTE: when Items 4 or 5 (integrated sheathing WRBs) are used, WRBs listed below may not be added on top of the sheathing.</p> <p>Sheathings 1-6 are only used for stud base walls.</p>	<ol style="list-style-type: none"> 1. 1/2" or thicker exterior type gypsum sheathing 2. None – when cavity SPF insulation is not used 3. 2" precast concrete panels attached to structural elements of building 4. 1/2" or thicker GP DensElement® sheathing with integrated water-resistive barrier (WRB) 5. 1/2" or 5/8" thick USG Securock® ExoAir 430 6. 7/16" (min.) 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) <p>When SPF is used in the cavity, exterior sheathing must be used. See specific sheathing thicknesses above.</p>



Table 4. Approved NFPA 285 Wall Assemblies¹

Wall Component	Materials
No sheathing is needed for Base Walls 1 or 2.	
WRB over Base Wall Use any of these items	<ol style="list-style-type: none"> 1. None 2. DuPont™ Tyvek CommercialWrap® or CommercialWrap® D or other Tyvek Wraps in ESR 2375 – stapled (one or two layers) 3. Henry Air-Bloc® 32MR (75 wet mils) - Discontinued 4. Any WRB which has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than those listed above.² Examples of such are listed below: 5. BASF Enershield® HP, Enershield®-I 6. CCW 705, Fire Resist 705 VP, Fire Resist 705 FR-A, Fire Resist Barritech NP, VP, or VP LT 7. Dow Chemical DefendAir 200 Low Temp or DefendAir 200 C (Charcoal) 8. Dryvit Backstop® NT™, NT™ Smooth, NT™ Spray, NT™ Texture, NTX™, or NT-VB. 9. DuPont™ Fluid Applied (0.8 mm) 10. GE Momentive Elemax 2600 11. Grace Perm-A-Barrier® PAB VPL LT, PAB NPL 10, PAB NPL, PAB NPS, PAB VPS, PAB VPL, PAB AWM or PAB VPL 50 12. Henry Air-Bloc® 21FR, Air-Bloc® VP 160, Air-Bloc® 17MR, or Blueskin® SA 13. Hohmann & Barnard Enviro-Barrier™ VP, X Barrier™, Enviro-Barrier™ 14. Jumpstart HWW-65A, HWW-65B, HWHP-80A, HWMP-90A, HWD2-72A, HWHPT-92A, HWMPC-110A 15. Parex WeatherSeal Spray and Roll On 16. Prosoco R-Guard® Spray Wrap, Spray Wrap MVP, R-Guard® MVP, R-Guard® VB, R-Guard® Cat-5, or Cat-5 Rainscreen 17. Sto Emerald Coat® or Gold Coat® 18. STS Wall Guardian® FW 100A 19. Tremco ExoAir® 230 (31.5 mils), ExoAir® 130, ExoAir® 111 20. Vaproshield Wrapshield SA®, Revealshield SA® 21. WR Meadows Air-Shield™ LMP (Gray), Air-Shield™ LMP (Black), Air-Shield™ TMP, Air-Shield™ LSR, Air-Shield™ SMP 22. Soprema® LM 204 VP, Sopraseal® Stick VP, Sopraseal® 1100T, Soprasolin HD 23. Siga Majvest 500 SA 24. Dörken Systems Inc. DELTA®-STRATUS SA 25. Fortifiber WeatherSmart, WeatherSmart Drainable, WeatherSmart Commercial 26. Pecora XL-Perm^{ULTRA} VP, XL-Perm^{ULTRA} NP, ProPerm VP 27. NaturaSeal NS-A-250LP, NS-A-250HP 28. Master Wall Rollershield-RS 29. Siplast WALLcontrol™ Modified Silicone (STPE) VP Liquid AWB 30. Siplast WALLcontrol™ Reinforced Aluminum Butyl Adhered AWB 31. Siplast FT Block-Aide 32. Siplast WALLcontrol™ Monolith VP Adhered AWB 33. Atlas EnergyShield WAVE Modified Silicone (STPE) VP Liquid AWB 34. Sika SikaGard 535
Z Girts Use any of these items for claddings requiring girts	<ol style="list-style-type: none"> 1. Metallic Z Girts 2. Horizontal Smart Ci-GreenGirt 3. Horizontal Armatherm FRR Z Girt <p><i>NOTE: Girt spacing should be to comply with wind load per manufacturer instructions.</i></p>



Table 4. Approved NFPA 285 Wall Assemblies¹

Wall Component	Materials
<p>Exterior Insulation Use any of these items</p> <p>Items 1, 2, 3 and 4 may be multiple layers of thinner product with facers on each side.</p>	<ol style="list-style-type: none"> 1. 4" (max.) Atlas EnergyShield Pro 2. 4" (max.) EnergyShield CGF Pro 3. 4³/₄" (max.) EnergyShield Ply Pro (4" EnergyShield CGF Pro with 5/8" or 3/4" FRT Plywood) 4. 4" (max.) Atlas EnergyShield XR (Exterior Claddings 1 - 6 only) <p>NOTE: 1/2" (min.) exterior gypsum sheathing may be attached to exterior side of any item listed above. 5/8" (min) FRT plywood may be attached to exterior side of Item 1 or 2 listed above.</p> <p>NOTE: GP DensGlass (min. 1/2") and GP DensElement (min. 1/2") may be installed exterior to ES Pro & ES Pro CGF.</p> <p>NOTE: The listed sheathing products as installed over Items 1 & 2 may only be covered with the WRB products listed to be used over insulation (see WRB list below this section) but are now used over the sheathing covering the insulation unless others are justified via Fire Engineering Evaluation. DensElement already has a WRB. No WRB goes over this product except the sheathing joint flashing listed in ICC ESR 3786.</p>
<p>WRB Over Exterior Insulation Use any of these items</p> <p>NOTE: Item 2 is an insulation joint tape, not full coverage.</p> <p>Items 15 and 16 may only be used with claddings 1 – 6</p>	<ol style="list-style-type: none"> 1. None 2. Atlas 3" IPG Cold Weather Foil Tape 3. CCW 705FR-A, Barritech NP, Barritech VP, VP LT, 705 VP 4. Dow Chemical DefendAir 200 Low Temp or DefendAir 200 C (Charcoal) 5. Dryvit Backstop® NT™, NT™ Smooth, NT™ Spray, NT™ Texture 6. GE Momentive SEC 2500 SilShield, SilShield SEC2600 AWB (aka Elemax 2600) 7. Grace Perm-a-Barrier® PAB AWM, PAB VPL, PAB VPS, PAB NPS, PAB NPL, PAB VPL LT 8. Henry Foilskin, Metal Clad, Air-Bloc® 21FR, VP 160, or AB 17MR 9. Jumpstart HWW-65A, HWW-65B, HWHP-80A, HWMP-90A, HWD2-72A, HWHPT-92A, HWMPC-110A 10. Parex WeatherSeal Spray and Roll On 11. Prosoco R-Guard® VB, R-Guard® Cat-5, R-Guard® Cat-5 Rainscreen, Spraywrap MVP 12. Sto EmeraldCoat® 13. Vaproshield Wrapshield SA®, Vaproshield Revealshield SA® 14. Soprema® Soprasolin HD (with any cladding) 15. Soprema® Sopraseal Stick VP (only with exterior claddings 1-6) 16. Siga Majvest® 500 SA (only with exterior claddings 1-6) 17. DuPont™ Tyvek® CommercialWrap or CommercialWrap D or other Tyvek Wraps in ESR 2375 18. WR Meadows Air-Shield SMP 19. Fortifiber WeatherSmart, WeatherSmart Drainable, WeatherSmart Commercial 20. Pecora XL-Perm^{ULTRA} VP, XL-Perm^{ULTRA} NP, ProPerm VP 21. Master Wall Rollershield-RS 22. Fortifiber 2 layers Super Jumbo Tex (only with Cladding #2 3/4" min. of stucco and 3 1/2" max of Atlas Polyiso listed in Section 1.1 and "Exterior Insulation" above) 23. Siplast WALLcontrol™ Monolith VP Adhered AWB
<p>Flashing of Opening Perimeter (Windows, Doors, etc.)</p>	<p>No restriction - except as noted below.</p> <p>When the Atlas polyiso is directly attached to studs with no sheathing over the exterior side of studs, 5/8" Type X gypsum board opening perimeter, and 24-gauge (min) steel flashing shall be used.</p> <p>Exception - When the Atlas polyiso is directly attached to studs and is covered with 1/2" (min.) gypsum sheathing, GP DensGlass, or DensElement, the 24-gauge steel flashing restriction is waived if the studs are firestopped at every floor line with mineral wool.</p>



Table 4. Approved NFPA 285 Wall Assemblies¹

Wall Component	Materials
<p>Exterior Cladding Use any of these items</p> <p>NOTE: Important – Maximum air gap 2.25" (distance from cladding inner face to insulation)</p> <p>NOTE: Cladding 8 (zinc) may only be used with EnergyShield Pro or EnergyShield Ply Pro.</p> <p>NOTE: Diamond Furr TT-4 (mfg. by Brand X Metals) may be used to install 3-coat stucco item 2 in the cladding list.</p> <p>Cladding may be attached with Knight Wall Thermazee or other metallic Z girt.</p>	<ol style="list-style-type: none"> 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. (max.) 2. Stucco – minimum 3/4" thick exterior cement plaster and lath. An optional secondary WRB (WRB allowed OVER foam over 1st WRB) can be installed between the insulation and lath. The optional 2nd WRB may be any mechanically attached sheet product, or 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. 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) 9. Uninsulated fiber-cement cladding siding minimum 1/4" thick 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. 15. CERACLAD using the manufacturer standard installation technique. 16. CUPACLAD Slate: 101 Logic, 101 Random, 101 Parallel, 210 Vanguard 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 (min. 3/4 inch thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to min. 1/2 inch thick cement backer board or gypsum sheathing. A secondary water-resistive barrier can be installed between the exterior sheathing and the brick. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes. 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 per Intertek CCRR 0258. 23. Ceramic or Porcelain Tile <ol style="list-style-type: none"> a. 1/4 in. min. generic Ceramic or Porcelain tile - mechanically attached b. Ceramic or Porcelain tile – 3/8 in. thick (min.) bonded using noncombustible mortar adhesive to a 1/2 in. thick (min.) cement board or gypsum sheathing c. 12 mm Porcelanosa XTone per ESR 4555.
<p>SI: 1 inch = 25.4 mm</p> <ol style="list-style-type: none"> 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. 	



6.8 Ignition

- 6.8.1 The insulation boards were evaluated to assess performance with regard to ignition in accordance with IBC Section 2603.5.7.
- 6.8.1.1 The insulation boards comply with this section when the exterior side of the sheathing is protected with one or more of the following materials:
- 6.8.1.1.1 A thermal barrier complying with IBC Section 2603.4.
 - 6.8.1.1.2 A minimum 1" (25 mm) thickness of concrete or masonry.
 - 6.8.1.1.3 Glass-fiber-reinforced concrete panels of a minimum thickness of $\frac{3}{8}$ " (9.5 mm).
 - 6.8.1.1.4 Metal-faced panels having minimum 0.019" thick (0.48 mm) aluminum or 0.016" thick (0.41 mm) corrosion-resistant steel outer facings.
 - 6.8.1.1.5 A minimum $\frac{7}{8}$ " (22.2 mm) thickness of stucco complying with IBC Section 2510.
 - 6.8.1.1.6 A minimum $\frac{1}{4}$ " (6.4 mm) thickness of fiber-cement lap, panel or shingle siding complying with IBC Section 1404.16 and IBC Section 1404.16.1, or IBC Section 1404.16.2.
- 6.9 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^{xxvi}

- 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.^{xxvii}
- 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.^{xxviii}

8 Regulatory Evaluation and Accepted Engineering Practice

- 8.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:
- 8.1.1 Performance for use in buildings of Type V construction in accordance with IBC Section 2603 and IRC Section R316.
 - 8.1.2 Performance for use in buildings of Type I-IV construction in accordance with IBC Section 2603.5.
 - 8.1.3 Use in fire-resistance-rated wall assemblies in accordance with IBC Section 2603.5.1.
 - 8.1.4 Use without a thermal barrier in accordance with IBC Section 2603.4 and IBC Section 2603.5.2.
 - 8.1.5 Use without an ignition barrier in accordance with IBC Section 2603.4.1.6 and IBC Section 2603.5.7.
 - 8.1.6 Potential heat generated by the FPIS in accordance with IBC Section 2603.5.3.
 - 8.1.7 Surface-burning characteristics in accordance with IBC Section 2603.3 and IBC Section 2603.5.4.
 - 8.1.8 Performance with regard to vertical and lateral fire propagation in accordance with IBC Section 2603.5.5.
 - 8.1.9 Performance with regard to ignition in accordance with IBC Section 2603.5.7.



- 8.2 Any building code, regulation, and/or accepted engineering evaluations (i.e., research reports, Duly Authenticated Reports, etc.) that are conducted for this Listing were performed by DrJ Engineering, LLC (DrJ), an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP/approved sources. DrJ is qualified^{xxix} to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.
- 8.3 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which are also its areas of professional engineering competence.
- 8.4 Any regulation specific issues not addressed in this section are outside the scope of this report.

9 Installation

- 9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.
- 9.2 In the event of a conflict between the manufacturer installation instructions and this report, the more restrictive shall govern.
- 9.3 *Installation Procedure*
 - 9.3.1 All required wall bracing shall be installed prior to the installation of any Atlas EnergyShield products.
 - 9.3.2 Insulation boards shall be installed with sheathing edges bearing directly on framing members and edges of abutting panels in moderate contact with each other.
 - 9.3.3 Secure the insulation boards to framing members with fasteners capable of resisting the imposed loads. Fasteners will vary, depending on the substrate and cladding materials.
 - 9.3.3.1 Fastener heads shall be a minimum of $\frac{3}{8}$ " diameter. Do not allow the fastener head to penetrate the insulation board facer. Use of washers at the fastener head is recommended.
 - 9.3.3.2 Fastener spacing shall be in accordance with manufacturer instructions.
 - 9.3.3.3 For steel construction, fasteners shall be corrosion resistant, self-drilling screws with a minimum $\frac{3}{4}$ " diameter cap washer. Fasteners shall be of sufficient length to penetrate through the framing a minimum of three (3) threads.
 - 9.3.4 Cladding materials shall be installed in accordance with the cladding manufacturer installation instructions.
 - 9.3.5 Acceptable window header examples can be found at www.atlasrwi.com.
 - 9.3.6 Additional information on the installation and detailing of foam sheathing can be found on the American Chemistry Council's Foam Sheathing Committee website at www.americanchemistry.com.

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 Contribution of materials to room fire growth in accordance with NFPA 286
 - 10.1.2 Potential heat in accordance with NFPA 259
 - 10.1.3 Flame spread and smoke developed ratings in accordance with ASTM E84 and UL 723
 - 10.1.4 Fire performance criteria in accordance with NFPA 285
 - 10.1.5 Ignition temperature in accordance with ASTM D1929



- 10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or RDPs. Accuracy of external test data and resulting analysis is relied upon.
- 10.3 Where pertinent, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.
- 10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or Duly Authenticated Reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this Duly Authenticated Report, may be dependent upon published design properties by others.
- 10.5 Testing and engineering analysis: The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.^{xxx}
- 10.6 Where additional condition of use and/or regulatory compliance information is required, please search for EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR on the DrJ Certification website.

11 Findings

- 11.1 As outlined in Section 6, EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR have performance characteristics that were tested and/or meet applicable regulations and are suitable for use pursuant to its specified purpose.
- 11.2 When used and installed in accordance with this Duly Authenticated Reports and the manufacturer installation instructions, EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR shall be approved for the following applications:
 - 11.2.1 EnergyShield Pro is approved for use in exterior or interior walls only or ceilings only without a thermal barrier in accordance with IBC Section 2603.9. However, installation on walls and ceilings in the same room is not approved.
 - 11.2.2 EnergyShield Pro may be installed at a maximum thickness of 4" (102 mm) to either walls only or ceilings only of attics and crawl spaces. The insulation boards are permitted to be installed exposed in attics and crawl spaces without a covering applied to the attic or crawl space side of the insulation boards provided all of the following conditions apply:
 - 11.2.2.1 Attic ventilation is provided when required by IBC Section 1202.2.1^{xxxi} or IRC Section R806, except air impermeable insulation is permitted in unvented attics in accordance with IRC Section R806.5.
 - 11.2.2.2 Under-floor (crawl space) ventilation is provided when required by IBC Section 1202.4^{xxxii} or IRC Section R408.1, as applicable.
 - 11.2.2.3 Combustion air is provided in accordance with IMC (International Mechanical Code) Section 701.



- 11.2.3 EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR Insulation Boards may be installed at a maximum thickness of 4" (102 mm) on walls and ceilings of attics and crawl spaces. The insulation boards are permitted to be installed exposed in attics and crawl spaces without a covering applied to the attic or crawl space side of the insulation boards provided all of the following conditions apply:
- 11.2.3.1 Entry into the attic is only for service to utilities, and no storage is permitted.
 - 11.2.3.2 There are no interconnected attic areas or crawl space areas.
 - 11.2.3.3 Air in the attic or crawl space is not circulated to other parts of the building.
 - 11.2.3.4 Attic ventilation is provided when required by IBC Section 1202.2.1^{xxxiii} or IRC Section R806, except air impermeable insulation is permitted in unvented attics in accordance with IRC Section R806.5.
 - 11.2.3.5 Under-floor (crawl space) ventilation is provided when required by IBC Section 1202.4^{xxxiv} or IRC Section R408.1, as applicable.
- 11.2.4 Combustion air is provided in accordance with IMC Section 701.
- 11.2.5 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are approved for use in exterior walls of buildings of Type I-IV construction in accordance with IBC Section 2603.5.
- 11.2.6 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are approved for use in exterior walls of buildings of Type I-IV construction in accordance with IBC Section 2603.5.1 for fire resistance rated walls per the assemblies listed in Section **6.8**.
- 11.2.7 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR are approved for use in wall assemblies meeting the requirements of NFPA 285 testing when constructed in accordance with **Table 4**.
- 11.2.8 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR described in this report comply with, or are a suitable alternative to, the applicable sections of the codes listed in Section **4**.
- 11.3 Unless exempt by state statute, when EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR 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 104.11 (IRC Section R104.11 and IFC Section 104.10^{xxxv} are similar) in pertinent part states:

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



- 11.6 **Approved:**^{xxxvi} Building regulations require that the building official shall accept Duly Authenticated Reports.^{xxxvii}
- 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 Agreements (MLA), this Duly Authenticated Report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 Duly Authenticated Reports are equivalent.^{xxxviii}

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 EnergyShield Pro is approved for use in both interior and exterior walls.
- 12.4 When the insulation boards are used on exterior walls of buildings of Type I, II, III or IV construction must be as described in **Table 4**.
- 12.5 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.
- 12.6 EnergyShield Ply Pro may be used as an attachment for cladding per IRC Section R703.3.3.
- 12.6.1 Reductions for fasteners in FRT material must be accounted for in accordance with the FRT manufacturer requirements.
- 12.7 As listed herein, EnergyShield Pro, EnergyShield CGF Pro, and EnergyShield XR shall not be used:
- 12.7.1 As a nail base for claddings.
- 12.7.2 To resist lateral loads.
- 12.7.2.1 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.
- 12.8 The wall assemblies listed in **Table 4** are based on compliance with the fire provisions of the codes listed in Section 4. Consideration of wall assembly performance with regard to other attributes, such as water vapor control, condensation, energy code requirements, etc. are outside the scope of this report.
- 12.9 When required by adopted legislation and enforced by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:
- 12.9.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.
- 12.9.2 This report and the installation instructions shall be submitted at the time of permit application.
- 12.9.3 These innovative products have an internal quality control program and a third-party quality assurance program.
- 12.9.4 At a minimum, these innovative products shall be installed per Section 9 of this report.



- 12.9.5 The review of this report by the AHJ shall comply with IBC Section 104 and IBC Section 105.4.
- 12.9.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.4, IBC Section 110.4, IBC Section 1703, IRC Section R104.4, and IRC Section R109.2.
- 12.9.7 The application of 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.
- 12.10 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, “*the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new material or assemblies as provided for in Section 104.11,” all of IBC Section 104, and IBC Section 105.4.*
- 12.11 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).
- 12.12 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

- 13.1 The innovative products listed in Section 1.1 through Section 1.4 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 drjcertification.org.
- 14.2 For information on the status of this report, please contact [DrJ Certification](#).

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

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



Appendix A

1 Legislation that Authorizes AHJ Approval

- 1.1 **Fair Competition:** State legislatures have adopted Federal regulations for the examination and approval of building code referenced and alternative products, materials, designs, services, assemblies, and/or methods of construction that:
 - 1.1.1 Advance innovation,
 - 1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints, and
 - 1.1.3 Benefit consumers through lower prices, better quality, and greater choice.
- 1.2 **Adopted Legislation:** The following local, state, and federal regulations affirmatively authorize these innovative products to be approved by AHJs, delegates of building departments, and/or delegates of an agency of the federal government:
 - 1.2.1 Interstate commerce is governed by the Federal Department of Justice to encourage the use of innovative products, materials, designs, services, assemblies, and/or methods of construction. The goal is to “*protect economic freedom and opportunity by promoting free and fair competition in the marketplace.*”
 - 1.2.2 Title 18 US Code Section 242 affirms and regulates the right of individuals and businesses to freely and fairly have new products, materials, designs, services, assemblies, and/or methods of construction approved for use in commerce. Disapproval of alternatives shall be based upon non-conformance with respect to specific provisions of adopted legislation and shall be provided in writing stating the reasons why the alternative was not approved, with reference to the specific legislation violated.
 - 1.2.3 The federal government and each state have a public records act. In addition, each state also has legislation that mimics the federal Defend Trade Secrets Act 2016 (DTSA),^{xxxix} where providing test reports, engineering analysis and/or other related IP/TS is subject to prison of not more than ten years^{xi} and/or a \$5,000,000 fine or 3 times the value of^{xii} the Intellectual Property (IP) and Trade Secrets (TS).
 - 1.2.3.1 Compliance with public records and trade secret legislation requires approval through the use of Listings, certified reports, Technical Evaluation Reports, Duly Authenticated Reports, and/or research reports prepared by approved agencies and/or approved sources.
 - 1.2.4 For new materials^{xiii} that are not specifically provided for in any regulation, the design strengths and permissible stresses shall be established by tests, where suitable load tests simulate the actual loads and conditions of application that occur.
 - 1.2.5 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design using accepted engineering practice.^{xiiii}
 - 1.2.6 The commerce of approved sources (i.e., registered PEs) is regulated by professional engineering legislation. Professional engineering commerce shall always be approved by AHJs, except where there is evidence provided in writing, that specific legislation have been violated by an individual registered PE.
 - 1.2.7 The AHJ shall accept Duly Authenticated Reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in IBC Section 104.11.^{xiv}



- 1.3 **Approved^{xlv} by Los Angeles:** The Los Angeles Municipal Code (LAMC) states in pertinent part that the provisions of LAMC are not intended to prevent the use of any material, device, or method of construction not specifically prescribed by LAMC. The Department shall use Part III, Recognized Standards in addition to Part II, Uniform Building Code Standards of Division 35, Article 1, Chapter IX of the LAMC in evaluation of products for approval where such standard exists for the product or the material and may use other approved standards that apply. Whenever tests or certificates of any material or fabricated assembly are required by Chapter IX of the LAMC, such tests or certification shall be made by a testing agency approved by the Superintendent of Building to conduct such tests or provide such certifications. The testing agency shall publish the scope and limitation(s) of the listed material or fabricated assembly.^{xlvi} The Superintendent of Building Approved Testing Agency Roster is provided by the Los Angeles Department of Building and Safety (LADBS). The Center for Building Innovation (CBI) Certificate of Approval License is TA24945. Tests and certifications found in a DrJ Listing are LAMC approved. In addition, the Superintendent of Building shall accept Duly Authenticated Reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in the California Building Code (CBC) Section 1707.1.^{xlvii}
- 1.4 **Approved by Chicago:** The Municipal Code of Chicago (MCC) states in pertinent part that an Approved Agency is a Nationally Recognized Testing Laboratory (NRTL) acting within its recognized scope and/or a certification body accredited by the American National Standards Institute (ANSI) acting within its accredited scope. Construction materials and test procedures shall conform to the applicable standards listed in the MCC. Sufficient technical data shall be submitted to the building official to substantiate the proposed use of any product, material, service, design, assembly, and/or method of construction not specifically provided for in the MCC. This technical data shall consist of research reports from approved sources (i.e., MCC defined Approved Agencies).
- 1.5 **Approved by New York City:** The 2022 NYC Building Code (NYCBC) states in part that an approved agency shall be deemed^{xlviii} an approved testing agency via ISO/IEC 17025 accreditation, an approved inspection agency via ISO/IEC 17020 accreditation, and an approved product evaluation agency via ISO/IEC 17065 accreditation. Accrediting agencies, other than federal agencies, must be members of an internationally recognized cooperation of laboratory and inspection accreditation bodies subject to a mutual recognition agreement^{xlix} (i.e., ANAB, International Accreditation Forum [IAF], etc.).
- 1.6 **Approved by Florida:** Statewide approval of products, methods, or systems of construction shall be approved, without further evaluation by:
- 1.6.1 A certification mark or listing of an approved certification agency,
 - 1.6.2 A test report from an approved testing laboratory,
 - 1.6.3 A product evaluation report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity, or
 - 1.6.4 A product evaluation report based upon testing, comparative or rational analysis, or a combination thereof, developed, signed and sealed by a professional engineer or architect, licensed in Florida.
 - 1.6.5 For local product approval, products or systems of construction shall demonstrate compliance with the structural wind load requirements of the Florida Building Code (FBC) through one of the following methods:
 - 1.6.5.1 A certification mark, listing or label from a commission-approved certification agency indicating that the product complies with the code,
 - 1.6.5.2 A test report from a commission-approved testing laboratory indicating that the product tested complies with the code,
 - 1.6.5.3 A product-evaluation report based upon testing, comparative or rational analysis, or a combination thereof, from a commission-approved product evaluation entity which indicates that the product evaluated complies with the code,



- 1.6.5.4 A product-evaluation report or certification based upon testing or comparative or rational analysis, or a combination thereof, developed and signed and sealed by a Florida professional engineer or Florida registered architect, which indicates that the product complies with the code, or
- 1.6.5.5 A statewide product approval issued by the Florida Building Commission.
- 1.6.6 The [Florida Department of Business and Professional Regulation \(DBPR\)](#) website provides a listing of companies certified as a [Product Evaluation Agency](#) (i.e., EVLMiami 13692), a [Product Certification Agency](#) (i.e., CER10642), and as a [Florida Registered Engineer](#) (i.e., ANE13741).
- 1.7 **Approved by Miami-Dade County (i.e., Notice of Acceptance [NOA]):** A Florida statewide approval is an NOA. An NOA is a Florida local product approval. By Florida law, Miami-Dade County shall accept the statewide and local Florida Product Approval as provided for in Florida legislation [553.842](#) and [553.8425](#).
- 1.8 **Approved by New Jersey:** Pursuant to the 2018 Building Code of New Jersey in [IBC Section 1707.1 General](#),ⁱ it states: *“In the absence of approved rules or other approved standards, the building official shall accept duly authenticated reports from [approved agencies](#) in respect to the quality and manner of use of new materials or assemblies as provided for in the administrative provisions of the Uniform Construction Code (N.J.A.C. 5:23)”*.ⁱⁱ Furthermore N.J.A.C 5:23-3.7 states: *“Municipal approvals of alternative materials, equipment, or methods of construction.”*
 - 1.8.1 **Approvals:** Alternative materials, equipment, or methods of construction shall be approved by the appropriate subcode official provided the proposed design is satisfactory and that the materials, equipment, or methods of construction are suitable for the intended use and are at least the equivalent in quality, strength, effectiveness, fire resistance, durability, and safety of those conforming with the requirements of the regulations.
 - 1.8.1.1 A field evaluation label and report or letter issued by a nationally recognized testing laboratory verifying that the specific material, equipment, or method of construction meets the identified standards or has been tested and found to be suitable for the intended use, shall be accepted by the appropriate subcode official as meeting the requirements of the above.
 - 1.8.1.2 Reports of engineering findings issued by nationally recognized evaluation service programs such as but not limited to, the Building Officials and Code Administrators (BOCA), the International Conference of Building Officials (ICBO), the Southern Building Code Congress International (SBCCI), the International Code Council (ICC), and the National Evaluation Service, Inc., shall be accepted by the appropriate subcode official as meeting the requirements of the above.
 - 1.8.2 The [New Jersey Department of Community Affairs](#) has confirmed that technical evaluation reports, from any accredited entity listed by [ANAB](#), meets the requirements of item the previous paragraph, given that the listed entities are no longer in existence and/or do not provide *“reports of engineering findings.”*
- 1.9 **Approved by the Code of Federal Regulations Manufactured Home Construction and Safety Standards:** Pursuant to Title 24, Subtitle B, Chapter XX, [Part 3282.14](#)ⁱⁱⁱ and [Part 3280](#),ⁱⁱⁱ the Department encourages innovation and the use of new technology in manufactured homes. The design and construction of a manufactured home shall conform to the provisions of Part 3282 and Part 3280 where key approval provisions in mandatory language follow:
 - 1.9.1 *“All construction methods shall be in conformance with accepted engineering practices.”*
 - 1.9.2 *“The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.”*
 - 1.9.3 *“The design stresses of all materials shall conform to accepted engineering practice.”*



- 1.10 **Approval by US, Local and State Jurisdictions in General:** In all other local and state jurisdictions, the adopted building code legislation states in pertinent part that:
- 1.10.1 For new materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests.^{liv}
 - 1.10.2 For innovative alternatives and/or methods of construction, the building official shall accept Duly Authenticated Reports from approved agencies with respect to the quality and manner of use of new materials or assemblies.^{lv}
 - 1.10.2.1 An approved agency is “approved” when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is in the ANAB directory.
 - 1.10.2.2 An approved source is “approved” when an RDP is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.^{lvi}
 - 1.10.3 The design strengths and permissible stresses of any structural material...shall conform to the specifications and methods of design of accepted engineering practice performed by an approved source.^{lvii}
- 1.11 **Approval by International Jurisdictions:** The USMCA and GATT agreements provide for approval of innovative materials, designs, services, and/or methods of construction through the Agreement on Technical Barriers to Trade and the IAF Multilateral Recognition Arrangement (MLA), where these agreements:
- 1.11.1 State that conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.
 - 1.11.2 **Approved:** The purpose of the MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories to the MLA and subsequently, acceptance of accredited certification and validation/verification statements in many markets based on one accreditation for the timely approval of innovative materials, designs, services, and/or methods of construction.
 - 1.11.3 ANAB is an IAF-MLA signatory where recognition of certificates, validation, and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope, shall be approved.^{lviii}
 - 1.11.4 Therefore, all ANAB ISO/IEC 17065 Duly Authenticated Reports are approval equivalent.^{lix}
- 1.12 Approval equity is a fundamental commercial and legal principle.^{lix}



Issue Date: March 7, 2022

Subject to Renewal: April 1, 2025

FBC Supplement to Report Number 1306-03

REPORT HOLDER: Atlas® Roofing Corporation

1 Evaluation Subject

- 1.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR

2 Purpose and Scope

- 2.1 Purpose
 - 2.1.1 The purpose of this Report Supplement is to show EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR, recognized in Report Number 1306-03, have also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.
- 2.2 *Applicable Code Editions*
 - 2.2.1 *FBC-B—20, 23: Florida Building Code – Building*
 - 2.2.2 *FBC-R—20, 23: Florida Building Code – Residential*

3 Conclusions

- 3.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR, described in Report Number 1306-03, comply with the FBC-B and FBC-R and are subject to the conditions of use described in this supplement.
- 3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this report, they are listed here:
 - 3.2.1 FBC-B Section 104.4 and Section 110.4 are reserved.
 - 3.2.2 FBC-R Section R104 and Section R109 are reserved.
 - 3.2.3 FBC-B Section 803.1.2.1 replaces IBC Section 803.1.1.1.
 - 3.2.4 FBC-B Section 1203.2 replaces IBC Section 1202.2.1.
 - 3.2.5 FBC-B Section 1203.4 replaces IBC Section 1202.4.
 - 3.2.6 FBC-B Section 1404.10 replaces IBC Section 1404.16, IBC Section 1404.16.1 and IBC Section 1404.16.2.
 - 3.2.7 FBC-B Section 2603.3 replaces IBC Section 2603.3.
 - 3.2.8 FBC-B Section 2603.5 replaces IBC Section 2603.5.
 - 3.2.9 FBC-B Section 2603.5.4 replaces IBC Section 2603.5.4.
 - 3.2.10 FBC-B Section 2603.8 replaces IBC Section 2603.8.
 - 3.2.11 FBC-B Section 2603.9 replaces IBC Section 2603.9.
 - 3.2.12 FBC-R Section R316.5.3 replaces IRC Section R316.5.3.



- 3.2.13 FBC-R Section R316.5.4 replaces IRC Section R316.5.4.
- 3.2.14 FBC-R Section R703.3.2 replaces IRC Section R703.3.3.
- 3.2.15 FBC-R Section R806.5 replaces IRC Section R806.5.

4 Conditions of Use

- 4.1 EnergyShield Pro, EnergyShield CGF Pro, EnergyShield Ply Pro, and EnergyShield XR, described in Report Number 1306-03, must comply with all of the following conditions:
 - 4.1.1 All applicable sections in Report Number 1306-03.
 - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.



Notes

- i For more information, visit drjcertification.org or call us at 608-310-6748.
- ii <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702>
- iii Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review <https://www.justice.gov/atr/mission> and <https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>
- iv <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706>:-:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests%20as
- v The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706>:-:text=shall%20conform%20to%20the%20specifications%20and%20methods%20of%20design%20of%20accepted%20engineering%20practice
- vi <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>:-:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies
- vii <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2>
- viii https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency
- ix https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source
- x <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](#).
- xi <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/>
- xii <https://www.cbiteest.com/accreditation/>
- xiii <https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>:-:text=to%20enforce%20the%20provisions%20of%20this%20code
- xiv <https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>:-:text=Where%20the%20alternative%20material%20design%20or%20method%20of%20construction%20is%20not%20approved%20the%20building%20official%20shall%20respond%20in%20writing%20stating%20the%20reasons%20why%20the%20alternative%20was%20not%20approved AND <https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#105.3.1>:-:text=If%20the%20application%20or%20the%20construction%20documents%20do%20not%20conform%20to%20the%20requirements%20of%20pertinent%20laws%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%20stating%20the%20reasons%20therefore
- xv <https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>:-:text=the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.11
- xvi <https://iaf.nu/en/about-iaf>
- xvii True for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- xviii <https://www.justice.gov/crt/deprivation-rights-under-color-law> AND <https://www.justice.gov/atr/mission>
- xix Unless otherwise noted, all references in this Listing are from the 2021 version of the codes and the standards referenced therein. This material, product, design, service and/or method of construction also complies with the 2000-2021 versions of the referenced codes and the standards referenced therein.
- xx All references to the FBC-B and FBC-R are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the Florida Supplement at the end of this report.
- xxi <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2>(Listed%20or%20certified); <https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#listed> AND <https://up.codes/viewer/colorado/ibc-2021/chapter/2/definitions#labeled>
- xxii 2015 IBC Section 803.1.2.1
- xxiii 2015 IBC Section 803.1.2.1
- xxiv 2015 IBC Section 803.1.2.1
- xxv 2015 IBC Section 803.1.2.1
- xxvi <https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4>
- xxvii <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%20livable%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades
- xxviii <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
- xxix Qualification is performed by a legislatively defined Accreditation Body. ANS 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.



- xxx See Code of Federal Regulations (CFR) [Title 24 Subtitle B Chapter XX Part 3280](#) for definition.
- xxxi [2015 IBC Section 1203.2](#)
- xxxii [2015 IBC Section 1203.4](#)
- xxxiii [2015 IBC Section 1203.2](#)
- xxxiv [2015 IBC Section 1203.4](#)
- xxxv [2018 IFC Section 104.9](#)
- xxxvi Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC [Section 201.4](#) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.
- xxxvii <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>
- xxxviii Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- xxxix <http://www.drjengineering.org/AppendixC> AND <https://www.drjcertification.org/cornell-2016-protection-trade-secrets>
- xl <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years>
- xli <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided>
- xlii <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2>
- xliii [IBC 2021, Section 1706.1 Conformance to Standards](#)
- xliv [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#)
- xlv See Section 11 for the distilled building code definition of **Approved**
- xlvi [Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES](#)
- xlvii <https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1>
- xlviii [New York City, The Rules of the City of New York, § 101-07 Approved Agencies](#)
- xlix [New York City, The Rules of the City of New York, § 101-07 Approved Agencies](#)
- i <https://up.codes/viewer/new-jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1>
- ii <https://www.nj.gov/dca/divisions/codes/codreg/ucc.html>
- iii <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14>
- iiii <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280>
- lv [IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials, Adopted law pursuant to IBC model code language 1706.2.](#)
- lv [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General, Adopted law pursuant to IBC model code language 1707.1.](#)
- lvi <https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional-boards-in-each-state-archive/> AND <https://apassociation.org/list-of-engineering-boards-in-each-state-archive/>
- lvii [IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards Adopted law pursuant to IBC model code language 1706.1.](#)
- lviii <https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%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>
- lix True for all ANAB accredited product evaluation agencies and all International Trade Agreements.
- lx <https://www.justice.gov/crt/deprivation-rights-under-color-law> AND <https://www.justice.gov/atr/mission>