



CERTIFICATION



Approved. Sealed. Code Compliant.

Technical Evaluation Report

TER 1306-03

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

Atlas® Roofing Corporation

Products:

**EnergyShield® Pro,
EnergyShield® Pro2,
EnergyShield® CGF Pro,
EnergyShield® Ply Pro**

Issue Date:

July 23, 2013

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August 16, 2022

Subject to Renewal:

April 1, 2023



COMPANY
INFORMATION:

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DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

SECTION: 07 21 00 - Thermal Insulation

1 PRODUCTS EVALUATED¹

- 1.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, EnergyShield® Ply Pro
 - 1.1.1 EnergyShield® CGF Pro was formerly known as Rboard® Pro.

2 APPLICABLE CODES AND STANDARDS^{2,3}

2.1 Codes

- 2.1.1 *IBC—15, 18, 21: International Building Code®*
- 2.1.2 *IRC—15, 18, 21: International Residential Code®*
- 2.1.3 *IECC—15, 18, 21: International Energy Conservation Code®*
- 2.1.4 *FBC-B—17, 20: Florida Building Code – Building⁴*
- 2.1.5 *FBC-R—17, 20: Florida Building Code – Residential⁴*

2.2 Standards and Referenced Documents

- 2.2.1 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 2.2.2 *ASTM D1929: Standard Test Method for Determining Ignition Temperature of Plastics*
- 2.2.3 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 2.2.4 *ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*
- 2.2.5 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*
- 2.2.6 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*
- 2.2.7 *NFPA 259: Standard Test Method for Potential Heat of Building Materials*

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

² Unless otherwise noted, all references in this TER are from the 2021 version of the codes and the standards referenced therein. This material, design, or method of construction also complies with the 2000-2018 versions of the referenced codes and the standards referenced therein.

³ All terms defined in the applicable building codes are italicized.

⁴ All references to the *FBC-B* and *FBC-R* are the same as the 2018 *IBC* and *IRC* unless otherwise noted in the Florida Supplement at the end of this TER.

- 2.2.8 *NFPA 285: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*
- 2.2.9 *NFPA 286: Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*
- 2.2.10 *UL 263: Standard for Fire Tests of Building Construction and Materials*
- 2.2.11 *UL 723: Test for Surface Burning Characteristics of Building Materials*

3 PERFORMANCE EVALUATION

- 3.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro were evaluated to determine:
 - 3.1.1 Performance for use in buildings of Type V construction in accordance with IBC Section 2603 and IRC Section R316.
 - 3.1.2 Performance for use in buildings of Type I-IV construction in accordance with IBC Section 2603.5.
 - 3.1.2.1 Use in fire-resistance-rated wall assemblies in accordance with IBC Section 2603.5.1.
 - 3.1.2.2 Use without a thermal barrier in accordance with IBC Section 2603.4 and Section 2603.5.2.
 - 3.1.2.3 Potential heat generated by the foam plastic insulating sheathing (FPIS) in accordance with IBC Section 2603.5.3.
 - 3.1.2.4 Surface-burning characteristics in accordance with IBC Section 2603.3 and Section 2603.5.4.
 - 3.1.2.5 Performance with regard to vertical and lateral fire propagation in accordance with IBC Section 2603.5.5.
 - 3.1.2.6 Performance with regard to ignition in accordance with IBC Section 2603.5.7.
- 3.2 Any code compliance issues not specifically addressed in this section are outside the scope of this TER.
- 3.3 Any engineering evaluation conducted for this TER was performed within DrJ's ANAB accredited ICS code scope and/or the defined professional engineering scope of work on the dates provided herein.

4 PRODUCT DESCRIPTION AND MATERIALS

- 4.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro are proprietary FPIS.
 - 4.1.1 EnergyShield® Pro is a polyisocyanurate (polyiso) insulation board that includes a coated aluminum foil facer material on the front side and a reflective aluminum facer on the back side (*ASTM C1289* Type I, Class 1 and Type I, Class 2 sheathing). The products are considered Class I vapor retarders at all thicknesses.
 - 4.1.2 EnergyShield® Pro2 is a polyiso insulation board that includes a coated aluminum foil facer material on the front side, a reflective aluminum facer on the back side, and a glass fiber reinforced polyiso core (*ASTM C1289* Type I, Class 2 sheathing). The products are considered Class I vapor retarders at all thicknesses.
 - 4.1.3 EnergyShield® CGF Pro is a polyiso insulation board that includes a coated glass facer material on both sides (*ASTM C1289* Type II, Class 2 sheathing).
 - 4.1.4 EnergyShield® Ply Pro is a polyiso insulation board that includes glass facers on both sides and is bonded on one side to an APA-TECO rated exposed fire retardant treated plywood (*ASTM C1289* Type V).
- 4.2 *Material Availability*
 - 4.2.1 *EnergyShield® Pro, EnergyShield® Pro2, and EnergyShield® CGF Pro:*
 - 4.2.1.1 Thickness: ½" (13 mm) through 4" (76 mm)



4.2.2 EnergyShield® Ply Pro:

- 4.2.2.1 Available with either a 5/8" or 3/4" fire retardant treated plywood bonded to 1" through 4" coated glass faced polyiso.
- 4.2.2.2 Total thickness with 5/8" plywood: 1.6" through 4.6"
- 4.2.2.3 Total thickness with 3/4" plywood: 1.7" through 4.7"
- 4.2.3 Standard product width: 48" (1219 mm)
 - 4.2.3.1 Panels can also be supplied in nominal 16" and 24" widths for use in cavity wall applications.
- 4.2.4 Standard lengths: 96" (2,438 mm) and 108" (2,743 mm)

5 APPLICATIONS

5.1 General

- 5.1.1 The insulation boards are FPIS in compliance with IBC Section 2603.
 - 5.1.1.1 EnergyShield® Pro and EnergyShield® Pro2 comply with IRC Section R316.
- 5.1.2 The insulation boards are used in buildings of Type I-IV construction in accordance with IBC Section 2603.5.
 - 5.1.2.1 EnergyShield® Pro and EnergyShield® Pro2 are also used in buildings of Type V construction in accordance with IBC Section 2603.4, Section 2603.5, and Section 2603.10, and in residential construction in accordance with IRC Section R316.
- 5.1.3 Environmental Product Declarations (EPD) for EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro are available at polyiso.org.
- 5.1.4 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.

5.2 Fire-Resistance-Rated Walls

- 5.2.1 EnergyShield® Pro and EnergyShield® Pro2 were tested to assess their performance with regard to fire-resistance-rated walls in accordance with UL 263 (or ASTM E119) and IBC Section 2603.5.1.
 - 5.2.1.1 EnergyShield® Pro, EnergyShield® Pro2, and EnergyShield® CGF Pro 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® Pro2, EnergyShield® CGF Pro and EnergyShield® Ply Pro are approved for the following UL assemblies:
 - 5.2.1.1.1 BXUV, W307
 - 5.2.1.2 Additionally, EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro and EnergyShield® Ply Pro are Listed by name in the following designs:

BXUV.U026	BXUV.U460	BXUV.V321
BXUV.U326	BXUV.V499	BXUV.V454
BXUV.U330	BXUV.U902	BXUV.V455
BXUV.U354	BXUV.U904	BXUV.W417
BXUV.U355	BXUV.U905	BXUV.W429
BXUV.U364	BXUV.U906	BXUV.W456
BXUV.U424	BXUV.U907	
BXUV.U425	BXUV.U939	

5.3 Thermal Barrier

5.3.1 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*⁵ and *IRC Section R302.9.4* for use on either walls only or ceilings only without a thermal barrier, in accordance with *IBC Section 2603.4* and *Section 2603.5.2* and *IRC Section R316.4* and *Section R316.6*.

5.3.1.1 In addition, engineering analysis was performed to compare EnergyShield® Pro and EnergyShield® Pro2 insulation boards with respect to their flammability characteristics.

5.3.1.2 Testing in accordance with *ASTM D1929*, *NFPA 259*, *UL 723*, and *ASTM E1354* was compared for both of the products to determine the product performance similarities.

5.3.1.3 Based on the similar performance of both products in these tests, EnergyShield® Pro and EnergyShield® Pro2 insulation boards are approved for use without a thermal barrier in accordance with *IBC Section 2603.9* and *IRC Section R316.6*. However, installation on walls and ceilings in the same room is not approved.

5.4 Potential Heat

5.4.1 The insulation boards were tested to assess the potential heat generated by the FPIS in accordance with *IBC Section 2603.5.3* and are shown in Table 1.

TABLE 1. POTENTIAL HEAT

Product	Potential Heat (Btu/lb) ¹	Potential Heat (Btu/ft ² /in)
EnergyShield® Pro	12,000	2,000
EnergyShield® Pro2		
EnergyShield® CGF Pro		
EnergyShield® Ply Pro ⁽²⁾		

SI: 1 Btu/lb = 2.326 kJ/kg, 1 Btu/ft²/in = 4.471 kJ/m²/cm
 1. Tested in accordance with *NFPA 259*.
 2. EnergyShield® Ply Pro foam only.

5.5 Surface Burn Characteristics

5.5.1 The EnergyShield® products have the surface burn characteristics listed in Table 2 in accordance with *IBC Section 2603.5.4*.

TABLE 2. SURFACE BURN CHARACTERISTICS

Product ¹	Flame Spread	Smoke Developed
EnergyShield® Pro	< 25	< 450
EnergyShield® CGF Pro		
EnergyShield® Pro2		
EnergyShield® Ply Pro		

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

⁵ 2015 *IBC Section 803.1.2.1*

5.6 Vertical and Lateral Fire Propagation

- 5.6.1 EnergyShield® Pro and EnergyShield® Pro2 were tested to assess their performance with regard to vertical and lateral fire propagation in accordance with *NFPA 285* and *IBC Section 2603.5.5*.
 - 5.6.1.1 Engineering analysis has also been conducted to assess substitution of other products within the approved wall assemblies, including EnergyShield® CGF Pro and EnergyShield® Ply Pro
 - 5.6.1.2 The wall assemblies listed in Table 3 are approved for use in buildings of Type I-IV construction.
- 5.6.2 The use of firestopping as described in Table 3 is required. The use of additional firestopping extending from the base wall through EnergyShield products and terminating at the back side of the cladding is NOT approved.

TABLE 3. APPROVED *NFPA 285* WALL ASSEMBLIES¹

Wall Component	Materials
Base Wall Use any of these items	1. Cast Concrete Walls (1" minimum) 2. CMU Concrete Walls (1" minimum) 3. 20 ga. (min.) 3 ⁵ / ₈ " (min.) steel studs with 5/8"-thick Type X gypsum wallboard on interior 4. FRT wood studs spaced at a maximum of 24" o.c. with 5/8"-thick Type X gypsum wallboard on interior
Floor Line Fire-Stopping Use any of these items	1. None – only with exterior sheathing option 1, 3, or 4 (gypsum wallboard, concrete, or DensElement®) 2. 4", 4 pcf mineral fiber (wool) safing insulation (e.g., Thermafiber®) installed with Z-clips or equivalent 3. 1½" FRT lumber for use with FRT studs
Cavity Insulation Use any of these items Note: SPF cavity insulations 5 - 17 must use fire stopping at floor lines (compliant with Item 2) and 5/8" exterior gypsum sheathing.	1. None 2. Any noncombustible insulation per <i>ASTM E136</i> 3. Any mineral fiber (Board Type Class A <i>ASTM E84</i> faced or unfaced) 4. Any fiberglass (Batt Type Class A <i>ASTM E84</i> faced or unfaced) 5. 5½" (max.) Icynene LD-C-50 spray foam in 6" deep studs (max.) full fill without an air gap 6. 5½" (max.) Icynene MD-C-200™, 2 pcf spray foam in 6" deep studs (max.) full fill without an air gap 7. 5½" (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 2½" air gap 9. 3½" (max.) Gaco™ Western 183M spray foam in 3 ⁵ / ₈ " deep studs (max.) 10. 3½" (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.) Acella (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.
Exterior Sheathing Use any of these items Note: when Items 4 or 5 (integrated sheathing WRBs) are used, WRBs listed below may not be added on top of the sheathing.	1. ½" 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. ½" or thicker GP DensElement® sheathing with integrated water-resistive barrier (WRB) 5. ½" 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 When SPF is used in the cavity, exterior sheathing must be used. See specific sheathing thicknesses above.
WRB over Exterior Sheathing Use any of these items	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



Wall Component	Materials
	<ol style="list-style-type: none"> 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, 705 VP, or 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 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 and Air-Bloc® VP 160 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
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>Note: Girt spacing should be to comply with wind load per manufacturer's instructions.</p>
Exterior Insulation Use any of these items Items 1-3 may be multiple layers of 1 inch thick (minimum) Items 1, 2, and 3 may be multiple layers of thinner product with facers on each side.	<ol style="list-style-type: none"> 1. 4" (max.) Atlas® EnergyShield® Pro (or Pro2) 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) <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>
WRB Over Exterior Insulation Use any of these items Note – Item 2 is an insulation joint tape, not full coverage.	<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

Wall Component	Materials
<p>Items 15 and 16 may only be used with claddings 1 - 6</p>	<ol style="list-style-type: none"> 8. Henry Foilskin, Metal Clad, Air-Bloc® 21FR, VP 160, AB 17 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 claddings 1-6) 16. Siga Majvest® 500 SA (only with 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 ¾" min. of stucco and 3½" max of Atlas® Polyiso listed in Section 1.1 and "Exterior Insulation" above)
<p>Flashing of window, door and other exterior wall penetrations</p>	<ol style="list-style-type: none"> 1. Any acrylic, asphalt or butyl-based flashing tape- max. 12-inch width. 2. Any liquid applied flashing material- max. 12-inch width
<p>Exterior Cladding Use any of these items</p> <p>Note: Cladding 8 (zinc) may only be used with Energyshield® Pro or Pro2.</p> <p>Max. Air Gap: 2-1/4"</p>	<ol style="list-style-type: none"> 1. Brick – nominal 4" clay brick or CMU veneer (hollow or solid) with maximum 2¼" air gap behind the brick or CMU. Brick ties/anchors 24" o.c. (max.) 2. Stucco – minimum ¾" thick exterior cement plaster and lath. A secondary WRB (WRB items above allowed over foam) can be installed between the insulation and lath and must not be full-coverage asphalt or butyl-based self-adhered membranes, but may be asphalt or butyl-based slip sheet (stapled) with no adhesive. 3. Limestone – minimum 2" thick 4. Natural stone veneer – minimum 2" thick 5. Cast artificial stone – minimum 1½" thick complying with <i>ICC-ES AC 51</i> 6. Terracotta cladding – minimum 1¼" thick 7. Any ACM that has successfully passed <i>NFPA 285</i> 8. Uninsulated sheet metal building panels including aluminum, steel, copper, or zinc (see note) 9. Uninsulated fiber-cement cladding siding minimum ¼" thick 10. Stone/aluminum honeycomb composite building panels that have successfully passed <i>NFPA 285</i> criteria 11. Autoclaved-aerated-concrete (AAC) panels (minimum 1½" thick) 12. Reynobond® ZCM zinc metal composite panel 13. Terreal Zephir® Evolution Rainscreen System (terra cotta), minimum 9/16" thick 14. FunderMax® M.Look using the manufacturer standard installation technique. The air gap between the cladding and insulation or WRB must not exceed 1½". 15. CERACLAD using the manufacturer standard installation technique with an air gap not exceeding 0.59" (15 mm). 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. ¾-inch thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to min. ½-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.

SI: 1 inch = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Jensen Hughes, Inc. and Priest and Associates.

Wall Component	Materials
2. Acceptance criteria for <i>ASTM E1354</i> 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.	

5.7 Ignition

- 5.7.1 The insulation boards were evaluated to assess performance with regard to ignition in accordance with IBC Section 2603.5.7.
 - 5.7.1.1 The insulation boards comply with this section when the exterior side of the sheathing is protected with one or more of the following materials:
 - 5.7.1.1.1 A thermal barrier complying with IBC Section 2603.4
 - 5.7.1.1.2 A minimum 1" (25 mm) thickness of concrete or masonry
 - 5.7.1.1.3 Glass-fiber-reinforced concrete panels of a minimum thickness of $\frac{3}{8}$ " (9.5 mm)
 - 5.7.1.1.4 Metal-faced panels having minimum 0.019" thick (0.48 mm) aluminum or 0.016" thick (0.41 mm) corrosion-resistant steel outer facings
 - 5.7.1.1.5 A minimum $\frac{7}{8}$ " (22.2 mm) thickness of stucco complying with IBC Section 2510

6 INSTALLATION

- 6.1 Installation shall comply with the manufacturer's installation instructions and this TER. In the event of a conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern.
- 6.2 *Installation Procedure*
 - 6.2.1 All required wall bracing shall be installed prior to insulation board installation.
 - 6.2.2 The insulation boards should be oriented with the printed side facing the exterior side of the building.
 - 6.2.3 Insulation boards shall be installed horizontally with sheathing edges bearing directly on framing members and edges of abutting panels in moderate contact with each other.
 - 6.2.4 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.
 - 6.2.4.1 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.
 - 6.2.4.2 Space fasteners a maximum of 12" o.c. at the perimeter and 16" o.c. in the field.
 - 6.2.4.3 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.
 - 6.2.5 Cladding materials shall be installed in accordance with the cladding manufacturer's installation instructions.
 - 6.2.6 Additional information on the installation and detailing of foam sheathing can be found on the American Chemistry Council's Foam Sheathing Committee web page at americanchemistry.com.

7 SUBSTANTIATING DATA

- 7.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 7.1.1 Contribution of materials to room fire growth in accordance with *NFPA 286*
 - 7.1.2 Potential heat in accordance with *NFPA 259*
 - 7.1.3 Flame spread and smoke developed ratings in accordance with *ASTM E84* and *UL 723*
 - 7.1.4 Fire performance criteria in accordance with *NFPA 285*
 - 7.1.5 Ignition temperature in accordance with *ASTM D1929*
- 7.2 Engineering analysis comparing the fire resistance properties of EnergyShield® Pro and EnergyShield® Pro2 by Jensen Hughes, Inc.
- 7.3 Engineering analysis assessing the substitution of products within the approved *NFPA 285* tested wall assemblies by Jensen Hughes, Inc.
- 7.4 Engineering analysis assessing the substitution of products within the approved *NFPA 285* tested wall assemblies by Priest & Associates Consulting, LLC
- 7.5 Information contained herein is the result of testing and/or data analysis by sources which conform to *IBC Section 1703* and/or professional engineering regulations. DrJ relies upon accurate data to perform its ISO/IEC 17065 evaluations.
- 7.6 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through state or local adoption of codes and standards. The providers of the codes and standards are legally responsible for their content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a product as being equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety. Where the accuracy of the provisions provided herein is reliant upon the published properties of materials, DrJ relies upon the grade mark, grade stamp, mill certificate, and/or test data provided by material suppliers to be minimum properties. DrJ analysis relies upon these properties to be accurate.

8 FINDINGS

- 8.1 When used and installed in accordance with this TER and the manufacturer's installation instructions, the product(s) listed in Section 1.1 are approved for the following:
 - 8.1.1 EnergyShield® Pro and EnergyShield® Pro2 are approved for use in exterior or interior walls only or ceilings only without a thermal barrier in accordance with *IBC Section 2603.4*.
 - 8.1.2 EnergyShield® Pro, EnergyShield® Pro2, and EnergyShield® CGF Pro and EnergyShield® Ply Pro are approved for use in exterior walls of buildings of Type I-IV construction in accordance with *IBC Section 2603.5*.
 - 8.1.3 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro 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 5.7.
 - 8.1.4 EnergyShield® Pro and EnergyShield® Pro2 are approved for use without a thermal barrier in accordance with *IBC Section 2603.9*. However, installation on walls and ceilings in the same room is not approved.
 - 8.1.5 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro are approved for use in wall assemblies meeting the requirements of *NFPA 285* testing when constructed in accordance with Table 3.
 - 8.1.6 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, and EnergyShield® Ply Pro described in this TER comply with, or are a suitable alternative to, the applicable sections of the codes listed in Section 2.



- 8.2 Building codes require data from valid research reports be obtained from approved sources (i.e., licensed registered design professionals [RDPs]).
- 8.2.1 Building official approval of a licensed RDP is performed by verifying the RDP and/or their business entity is listed by the licensing board of the relevant jurisdiction.
- 8.3 Agencies who are accredited through ISO/IEC 17065 have met the code requirements for approval by the building official. DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131 and employs RDPs.
- 8.4 Through ANAB accreditation and the IAF MLA, DrJ certification can be used to obtain product approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – “certified once, accepted everywhere.”
- 8.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10⁶ are similar) 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*.

9 CONDITIONS OF USE

- 9.1 EnergyShield® Pro and EnergyShield® Pro2 are approved for use in both interior and exterior walls.
- 9.2 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 3.
- 9.3 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.
- 9.4 EnergyShield® Ply Pro may be used as an attachment for cladding per IRC Section R703.3.3.
- 9.4.1 Reductions for fasteners in fire retardant treated (FRT) material must be accounted for In accordance with the FRT manufacturers' requirements.
- 9.5 EnergyShield® Pro, EnergyShield® Pro2, and EnergyShield® CGF Pro shall not be used as a nailbase for claddings.
- 9.6 The insulation boards shall not be used to resist lateral loads. 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.
- 9.7 The wall assemblies listed in Table 3 are based on compliance with the fire provisions of the codes listed in Section 2. 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 TER.
- 9.8 Where required by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of permit application.
- 9.9 Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the AHJ for review and approval.
- 9.10 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (e.g., owner or RDP).
- 9.11 At a minimum, this product shall be installed per Section 6 of this TER.
- 9.12 This product has an internal quality control program and a third-party quality assurance program in accordance with IBC Section 104.4 and Section 110.4 and IRC Section R104.4 and Section R109.2.

⁶ 2018 IFC Section 104.9



- 9.13 The actual design, suitability, and use of this TER, for any particular building, is the responsibility of the owner or the owner's authorized agent.
- 9.14 This TER shall be reviewed for code compliance by the AHJ in concert with IBC Section 104.
- 9.15 The implementation of this TER for this product is dependent on the design, quality control, third-party quality assurance, proper implementation of installation instructions, inspections required by IBC Section 110.3, and any other code or regulatory requirements that may apply.

10 IDENTIFICATION

- 10.1 The product(s) listed in Section 1.1 are identified by a label on the board or packaging material bearing the manufacturer's name, product name, TER number, and other information to confirm code compliance.
- 10.2 Additional technical information can be found at atlasrwi.com.

11 REVIEW SCHEDULE

- 11.1 This TER is subject to periodic review and revision. For the most recent version, visit drjcertification.org.
- 11.2 For information on the current status of this TER, contact DrJ Certification.

Issue Date: March 7, 2022

Subject to Renewal: April 1, 2023

FBC Supplement to TER 1306-03

REPORT HOLDER: Atlas® Roofing Corporation

1 EVALUATION SUBJECT

1.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, EnergyShield® Ply Pro

2 PURPOSE AND SCOPE

2.1 Purpose

2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, EnergyShield® Ply Pro, recognized in TER 1306-03, has 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—17, 20: Florida Building Code – Building*

2.2.2 *FBC-R—17, 20: Florida Building Code – Residential*

3 CONCLUSIONS

3.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, EnergyShield® Ply Pro, described in TER 1306-03, complies with the *FBC-B* and *FBC-R* and is 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 TER, 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-R* Section R703.3.2 replaces *IRC* Section 703.3.3.

4 CONDITIONS OF USE

4.1 EnergyShield® Pro, EnergyShield® Pro2, EnergyShield® CGF Pro, EnergyShield® Ply Pro, described in TER 1306-03, must comply with all of the following conditions:

4.1.1 All applicable sections in TER 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.