



Listing and Technical Evaluation Report™

Report No: 1212-03



Issue Date: July 2, 2013

Revision Date: September 23, 2024

Subject to Renewal: October 1, 2025

Rmax® ECOMAXci® FR Air Barrier and Rmax® EVOMAXci™

Trade Secret Report Holder:

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CSI Designations:

DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

Section: 06 16 00 - Sheathing

Section: 06 16 13 - Insulated Sheathing

Section: 06 16 53 - Moisture-Resistant Sheathing Board

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 20 00 - Thermal Protection

Section: 07 21 00 - Thermal Insulation

Section: 07 21 13 - Foam Board Insulation

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

Section: 07 26 00 - Vapor Retarders

Section: 07 27 00 - Air Barriers

Section: 07 27 23 - Board Product Air Barriers

1 Innovative Products Evaluated¹

1.1 Rmax ECOMAXci FR Air Barrier

1.2 Rmax EVOMAXci

2 Product Description and Materials

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

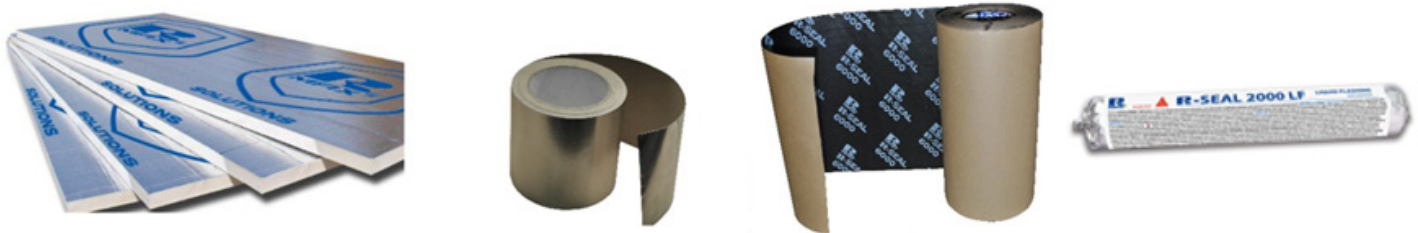


Figure 1. Rmax Wall Solution
(ECOMAXci FR Air Barrier, R-SEAL 3000, R-SEAL 6000 and R-SEAL 2000 LF)

- 2.1.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci consist of a closed-cell rigid polyisocyanurate (polyiso) foam core bonded to a glass fiber reinforced aluminum facer material on both sides (ASTM C1289 Type I, Class 1 and Class 2). The exposed side has a clear modified acrylic coating.
- 2.1.2 R-SEAL 3000 is a joint sealing tape with a nominal 2-mil aluminum foil backing and acrylic pressure-sensitive adhesive.



- 2.1.3 R-SEAL 6000 is a through-wall flashing tape with a nominal 35-mil black woven polyethylene membrane backing and butyl rubber adhesive.
- 2.1.4 R-SEAL 2000 LF is a durable one-component, hybrid technology, non-sag, flexible, flashing and water barrier sealant.
- 2.2 *Material Availability*
 - 2.2.1 *Thickness:*
 - 2.2.1.1 1/2" (13 mm) through 4 1/2" (114 mm)
 - 2.2.2 *Standard Product Width:*
 - 2.2.2.1 48" (1219 mm)
 - 2.2.3 *Standard Product Lengths:*
 - 2.2.3.1 96" (2,438 mm)
 - 2.2.3.2 108" (2,743 mm)
 - 2.2.3.3 120" (3,048 mm)
 - 2.2.3.4 144" (3,658 mm)
 - 2.2.4 Custom lengths, widths, and thicknesses are available upon request.
- 2.3 As needed, review material properties for design in **Section 6** and to regulatory evaluation in **Section 8**.

3 Definitions

- 3.1 New Materials² 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.³ The design strengths and permissible stresses shall be established by tests⁴ and/or engineering analysis.⁵
- 3.2 Duly authenticated reports⁶ and research reports⁷ are test reports and related engineering evaluations, which are written by an approved agency⁸ and/or an approved source.⁹
 - 3.2.1 These reports contain intellectual property and/or trade secrets, which are protected by the Defend Trade Secrets Act (DTSA).¹⁰
- 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.¹¹
- 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 ANAB¹² ISO/IEC 17025 and ISO/IEC 17020 accredited.
- 3.6 The regulatory authority shall enforce¹³ 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 writing¹⁴ 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.¹⁵



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.¹⁶ Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.¹⁷

3.9 Approval equity is a fundamental commercial and legal principle.¹⁸

4 Applicable Standards for the Listing; Regulations for the Regulatory Evaluation¹⁹

4.1 Standards

- 4.1.1 AATCC TM127: Test Method 127 Water Resistance: Hydrostatic Pressure Test
- 4.1.2 ASTM C209: Standard Test Methods for Cellulosic Fiber Insulating Board
- 4.1.3 ASTM C272: Standard Test Method for Water Absorption of Core Materials for Sandwich Constructions
- 4.1.4 ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- 4.1.5 ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- 4.1.6 ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
- 4.1.7 ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials
- 4.1.8 ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials
- 4.1.9 ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C
- 4.1.10 ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- 4.1.11 ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter
- 4.1.12 ASTM E2178: Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials
- 4.1.13 ASTM E2357: Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies
- 4.1.14 CAN/ULC-S742: Standard for Air Barrier Assemblies – Specification
- 4.1.15 NFPA 259: Standard Test Method for Potential Heat of Building Materials
- 4.1.16 NFPA 285-12: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components²⁰
- 4.1.17 NFPA 286: Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth
- 4.1.18 UL 263: Standard for Fire Tests of Building Construction and 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 CBC—19, 22: California Building Code²¹ (Title 24, Part 2)
- 4.2.5 CRC—19, 22: California Residential Code²¹ (Title 24, Part 2.5)
- 4.2.6 CEC—19, 22: California Residential Code (Title 24, Part 6)
- 4.2.7 FBC-B—20, 23: Florida Building Code – Building²²
- 4.2.8 FBC-R—20, 23: Florida Building Code – Residential²²



- 4.2.9 BCNYS – 20: Building Code of New York State²³
- 4.2.10 RCNYS – 20: Residential Code of New York State²³
- 4.2.11 ECCNYS – 20: Energy Conservation Code of New York State²³

5 Listed²⁴

- 5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), approved agency (i.e., CBI and DrJ), and/or approved source (i.e., DrJ) or other organization concerned with product evaluation (i.e., DrJ) that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 General

- 6.1.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci are used as wall sheathing and continuous insulation in buildings constructed in accordance with the IBC.
- 6.1.2 ECOMAXci FR Air Barrier and Rmax EVOMAXci shall not be used as a nail base for other building products.
- 6.1.3 Stud walls insulated with ECOMAXci FR Air Barrier and Rmax EVOMAXci must be properly braced for lateral loads according to the requirements of local building codes.
- 6.1.4 The wall system shall be designed to handle cladding load and wind load per the applicable code.
- 6.1.5 Environmental Product Declarations (EPD) for ECOMAXci FR Air Barrier and Rmax EVOMAXci are available at polyiso.org.
- 6.1.6 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience and good technical judgment.

6.2 Thermal Resistance (R-Value)

- 6.2.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci meet the continuous insulated sheathing requirements complying with the provisions of [IECC Section C402](#).
- 6.2.2 ECOMAXci FR Air Barrier and Rmax EVOMAXci have the thermal properties shown in **Table 1**.



Table 1. Thermal Properties

Nominal Thickness (in)	Thermal R-Value ¹ (°F·ft ² ·hr/Btu)
0.5	3.2
1.0	6.5
1.5	10.0
2.0	13.1
2.5	16.7
3.0	20.3
3.5	23.9
4.0	27.4
4.5	31.0

SI: 1 in = 25.4 mm; 1 °F·ft²·hr/Btu = 0.1761 K·m²/W

1. Thermal values are determined using the ASTM C518 test method at 75° mean temperature on material conditioned according to ASTM C1289 Section 11.1.

6.3 Water-Resistive Barrier (WRB)

- 6.3.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci may be used as a WRB as prescribed in [IBC Section 1403.2](#)²⁵ when installed on exterior walls as described in this section and the [manufacturer installation instructions](#).
- 6.3.2 ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be installed horizontally or vertically with vertical board joints centered directly over exterior framing spaced a maximum of 24" (610 mm) o.c. The fasteners used to attach the board shall be installed in accordance with **Section 9**.
- 6.3.3 All joints between boards shall be sealed with R-SEAL 3000 Tape or R-SEAL 2000 LF Liquid Flashing per the manufacturer installation instructions.
- 6.3.4 All corners, windows, doors and other large through-wall penetrations shall be sealed with R-SEAL 6000 flashing or R-SEAL 2000 LF per the manufacturer installation instructions.
- 6.3.5 Small through-wall penetrations shall be sealed using R-SEAL 2000 LF or a one-part moisture cure sealant per the manufacturer installation instructions.
- 6.3.6 All ceiling and floor transitions shall be sealed with R-SEAL 6000 flashing per the manufacturer installation instructions.
- 6.3.7 ECOMAXci FR Air Barrier and Rmax EVOMAXci have the water-resistive properties shown in **Table 2**.

Table 2. Water-Resistance Properties

Property	Test Method	Results
Water Vapor Transmission	ASTM E96	< 0.03 U.S. Perm
Water Absorption	ASTM C209	< 0.2% by Volume
	ASTM C272	< 0.3% by Volume

SI: 1 U.S. Perm [grains/(hr·ft²·inHg)] = 57.2135 ng/(Pa·s·m²)



6.3.8 ECOMAXci FR Air Barrier and Rmax EVOMAXci are Class I Vapor Retarders in accordance with IBC Table 1404.3(1)²⁶ and IRC Section R702.7.

6.4 Air Barrier

6.4.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci meet the requirements of IRC Section N1101.10.5, IECC Section R303.1.5, and IECC Section C402.5.1.3 for use as an air barrier material, when installed in accordance with the manufacturer installation instructions and this report, with all joints and transitions including the top and bottom, sealed.

6.4.1.1 The air barrier material properties of ECOMAXci FR Air Barrier and Rmax EVOMAXci are shown in **Table 3**.

Table 3. Air Barrier Material Properties¹

Air Permeance	
< 0.005 L/(s·m ²)	
IP: 1 L/(s·m ²) = 0.2 cfm/ft ²	
1.	Tested in accordance with ASTM E2178

6.4.1.2 The air permeance of an air barrier material is defined by the IRC Section N1101.10.5, IECC Section R303.1.5, IECC Section C402.5.1.3, and the Air Barrier Association of America (ABAA) as being no greater than 0.02 liter per second per square meter [L/(s·m²)] at 75 Pa pressure difference when tested in accordance with ASTM E2178.

6.4.2 ECOMAXci FR Air Barrier and Rmax EVOMAXci meet the requirements IECC Section C402.5.1.4 for use as an air barrier assembly when installed in accordance with the manufacturer installation instructions and this report with all joints and transitions including the top and bottom, sealed.

6.4.2.1 The air barrier assembly properties are shown in **Table 4**.

Table 4. Air Barrier System Properties¹

Air Leakage	
< 0.05 L/(s·m ²)	
IP: 1 L/s ² m ² = 0.2 cfm/ft ²	
1.	Tested in accordance with ASTM E2357 and CAN/ULC-S742

6.4.2.2 The air leakage of an air barrier assembly is defined by the IECC Section C402.5.1.4 and ABAA as being no greater than 0.2 L/(s·m²) at 75 Pa pressure difference when tested in accordance with ASTM E2357.

6.4.2.3 ECOMAXci FR Air Barrier and Rmax EVOMAXci are classified as an A1 air barrier assembly per CAN/ULC S742. The air leakage of an A1 classified air barrier assembly is defined as being no greater than 0.05 L/(s·m²) at 75 Pa pressure difference when tested in accordance with CAN/ULC-S742.

6.4.2.4 ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be installed horizontally or vertically with vertical board joints centered directly over exterior framing spaced a maximum of 24" (610 mm) o.c. The fasteners used to attach the board shall be installed in accordance with **Section 9**.

6.4.2.5 All joints between boards shall be sealed with R-SEAL 3000 tape or R-SEAL 2000 LF per the manufacturer installation instructions.

6.4.2.6 All corners, windows, doors and other large through-wall penetrations shall be sealed with R-SEAL 6000 flashing or R-SEAL 2000 LF liquid flashing per the manufacturer installation instructions.



- 6.4.2.7 Small through-wall penetrations shall be sealed using R-SEAL 2000 LF liquid flashing or a one-part moisture cure sealant per the manufacturer installation instructions.
- 6.4.2.8 All ceiling and floor transitions shall be sealed with R-SEAL 6000 flashing per the manufacturer installation instructions.

6.5 Draftstop

- 6.5.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci may be used as a draftstop material in accordance with [IBC Section 708.4.2](#), [IBC Section 718.3](#), [IBC Section 718.4](#) and [IRC Section R302.12](#).
- 6.5.2 When installed as a draftstop, ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be installed in accordance with **Section 9**.

6.6 Fire Safety Performance

6.6.1 Surface Burning Characteristics

- 6.6.1.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci have the flame spread and smoke developed ratings shown in **Table 5**, when tested in accordance with ASTM E84 per [IBC Section 2603.3](#).

Table 5. Surface Burning Characteristics¹

Flame Spread Index	Smoke Developed Index	Classification
< 25	< 250	Class A
1. Tested in accordance with ASTM E84.		

6.6.2 Thermal Barrier:

- 6.6.2.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be separated from the building interior by a thermal barrier meeting the provisions of [IBC Section 2603.4](#) and [IRC Section R316.4](#), except in one-story buildings when the building is equipped throughout with an automatic sprinkler system and the foam sheathing, in a thickness of not more than 4¹/₂", is covered by one of the following:

- 6.6.2.1.1 Minimum 0.032" thick aluminum
- 6.6.2.1.2 Minimum 0.016" thick corrosion resistance steel

6.6.3 Fire Resistance Ratings (Fire-Rated Assemblies)

- 6.6.3.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci have been tested and meet the requirements of UL 263 (ASTM E119) in accordance with [IBC Section 2603.5.1](#) for use in the following assembly designs when installed in accordance with the manufacturer installation instructions and this report:

- 6.6.3.1.1 45 Minutes: [V321](#)
- 6.6.3.1.2 1-hour: [U026](#), [U326](#), [U330](#), [U349](#), [U354](#), [U355](#), [U364](#), [U424](#), [U425](#), [U460](#), [V454](#), [W417](#), [W429](#), [W448](#), [W451](#), [W452](#), [W456](#)
- 6.6.3.1.3 2-hour: [U905](#), [U906](#), [U939](#), [V332](#), [V499](#), [W449](#), [W456](#)
- 6.6.3.1.4 3-hour: [U904](#), [U912](#), [U939](#), [W429](#), [W451](#)
- 6.6.3.1.5 4-hour: [U902](#), [U907](#), [U939](#)



6.6.4 Potential Heat:

- 6.6.4.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci have been tested to assess their performance as shown in **Table 6** with regard to potential heat in accordance with NFPA 259 and IBC Section 2603.5.4.

Table 6. Potential Heat¹

Potential Heat (Btu/lb)
11,054
1. Tested in accordance with NFPA 259

SI: 1 Btu/lb = 2.326 kJ/kg

6.6.5 Vertical and Lateral Fire Propagation (NFPA 285 Applications)

- 6.6.5.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci were tested to assess their performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 and 2018 IBC Section 2603.5.5.
- 6.6.5.2 Engineering analysis has also been conducted to assess substitution of other products within the approved wall assemblies.
- 6.6.5.3 The wall assemblies listed in **Table 7** are approved for use in buildings of Type I-IV construction.

Table 7. Fire Performance – Vertical & Lateral Fire Propagation

Wall Component	Materials
Base Wall System Select option 1, 2, 3, or 4	1. Cast concrete walls 2. CMU Concrete walls 3. 20-gauge (min) 3 ⁵ / ₈ " (min.) steel studs spaced 24" o.c. (max) a. 1/2" (min.) type X Special Fire Resistant Gypsum Wallboard Interior b. Bracing as required by code 4. Where allowed by code in Types I, II, III or IV construction, FRTW (Fire-Retardant-Treated Wood) studs complying with <u>IBC Section 2303.2</u> , min. nominal 2x4 dimension, spaced 24" o.c. (max.) a. 5/8" type X Gypsum Wallboard Interior b. Bracing as required by code
Floorline Firestopping Select option 1 or 2	1. 4 pcf mineral wool installed with Z-clips 2. FRTW fire blocking at floor line in accordance with applicable code requirements (use with FRTW framing)
Cavity Insulation Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 EZ FLO may be used inside the box headers and jamb studs for NFPA 285 assemblies requiring SPF in stud cavities	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (board type Class A, ASTM E84 faced or unfaced) 4. Any Fiberglass (batt type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (max.) Icynene LD-C-50 SPF in 6-inch-deep studs (max). Use with 5/8" exterior sheathing. 6. 5 1/2" (max.) Icynene MD-C-200 2 pcf SPF in 6" deep studs (max) full fill without an air gap. Use with 5/8" exterior sheathing. 7. 5 1/2" (max.) Icynene MD-R-210 2 pcf SPF in 6"-deep studs (max) full fill without an air gap. Use with 5/8" exterior sheathing. 8. SWD Urethane QS 112 2 pcf SPF in 6"-deep studs (max) partial fill with a maximum 2 1/2" air gap or full fill. Use with 5/8" exterior sheathing.

Table 7. Fire Performance – Vertical & Lateral Fire Propagation

Wall Component	Materials
	<ol style="list-style-type: none"> Gaco Western 183M SPF (3½" max). Use with ⅝ exterior sheathing. Gaco Western F1850 SPF (3½" max). Use with ⅝ exterior sheathing. Demilec Sealection 500 SPF (3⅝" max). Use with ⅝ exterior sheathing. Demilec HeatLok Soy 200 Plus SPF (3.4" max). Use with ⅝ exterior sheathing. Bayer Bayseal SPF (3" max). Use with ⅝ exterior sheathing. Lapolla FoamLok FL 2000 SPF (3" max). Use with ⅝ exterior sheathing. BASF SprayTite 81206 or WallTite SPF (US & US-N) (3⅝" max). Use with ⅝ exterior sheathing.
<p>Exterior Sheathing Select option 1, 2, 3, 4, 5, 6, 7 or 8</p> <p>Note: When SPF is used, ⅝" exterior gypsum sheathing must be used.</p>	<ol style="list-style-type: none"> None (when using Base Wall 1 or 2) None (3" max exterior insulation with claddings 7-17) None (4½" max exterior insulation with claddings 1-6) ½" thick or thicker, exterior gypsum board sheathing ½" (min) FRTW structural panels complying with IBC Section 2303.2 and installed in accordance with code allowances for Types I, II, III, or IV construction ⅝" DensElement with DensDefy or Prosoco FastFlash flashing at joints/fasteners Soprema Sopraseal Xpress G Tremco/USG Securock® ExoAir® 430
<p>Weather-Resistive Barrier Applied to Exterior Sheathing Select option 1 or 2 installed per manufacturer installation instructions.</p> <p>Note: WRB over Exterior Sheathing Items 6-8 may not be used since they already incorporate a pre-installed WRB.</p> <p>Note: When using no exterior sheathing, sheet building wraps may be applied directly to studs.</p> <p>NLA = No Longer Available</p> <p>Weather-Resistive Barrier Applied to Exterior Sheathing Select option 1 or 2 installed per manufacturer installation instructions.</p> <p>Note: WRB over Exterior Sheathing Items 6-8 may not be used since they already incorporate a pre-installed WRB.</p>	<ol style="list-style-type: none"> None Any WRB tested in accordance with 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 the baseline WRB or exterior insulation foam core. The following WRB products are allowed (Soprema Stick VP, Soprasolin HD or LM 204 VP based on NFPA 285): <ol style="list-style-type: none"> Carlisle (CCW) Fire Resist 705FR-A Carlisle (CCW) Fire Resist Barritech NP™ Carlisle (CCW) Fire Resist Barritech VP Dörken Systems Inc. Delta® Stratus SA Dörken Systems Inc. Delta®-Fassade S Dörken Systems Inc. Delta®-Foxy/Plus Dörken Systems Inc. Delta®-Maxx/Plus Dörken Systems Inc. Delta®-Vent S/Plus Dörken Systems Inc. Delta®-Vent SA Dow Corning Dowsil™ DefendAir 200 (or LT version) Dow Corning Dowsil™ DefendAir 200C (Charcoal) Dryvit Backstop® NT™ DuPont™ Tyvek® (Various per ESR 2375) DuPont™ WeatherMate™ Housewrap DuPont™ WeatherMate™ Plus Housewrap GCP PERM-A-BARRIER® Aluminum Wall Membrane GCP PERM-A-BARRIER® NPL 10 GCP PERM-A-BARRIER® VPL GCP PERM-A-BARRIER® VPL 50 Membrane GCP PERM-A-BARRIER® VPL Low Temperature GCP PERM-A-BARRIER® VPS Henry® Air-Bloc All Weather STPE Henry® Air-Bloc® 16 MR Henry® Air-Bloc® 17 MR Henry® Air-Bloc® 21 FR Henry® Air-Bloc® 31MR [NLA] Henry® Air-Bloc® 32MR [NLA]

**Table 7. Fire Performance – Vertical & Lateral Fire Propagation**

Wall Component	Materials
<p>Note: When using no exterior sheathing, sheet building wraps may be applied directly to studs.</p> <p>NLA = No Longer Available</p>	<p>2.28 Henry® Air-Bloc® 33MR [NLA] 2.29 Henry® Blueskin® MetalClad 2.30 Henry® Blueskin® SA 2.31 Henry® Blueskin® VP 160 2.32 Henry® EnviroCap 2.33 Henry® FoilSkin 2.34 Henry® Super Jumbo Tex 60 Minute® (Fortifiber) 2.35 Henry® WeatherSmart® Drainable Housewrap (Fortifiber) 2.36 Kingspan (Pactiv) GreenGuard® MAX™ Building Wrap 2.37 MasterSeal® AWB 660 (Formerly BASF Enershield® HP) 2.38 MasterSeal® AWB 660 I (Formerly BASF Enershield® I) 2.39 NaturaSeal Airseal NS-A-250HP™ 2.40 NaturaSeal Airseal NS-A-250LP™ 2.41 Parex WeatherSeal Spray & Roll-On 2.42 Pecora ProPerm VP 2.43 Pecora XL-PermULTRA NP 2.44 Pecora XL-PermULTRA VP (10 mil DFT) 2.45 Prosoco R-Guard® Cat 5™ 2.46 Prosoco R-Guard® MVP (NLA) 2.47 Prosoco R-Guard® Spray Wrap (NLA) 2.48 Prosoco R-Guard® Spray Wrap MVP 2.49 Prosoco R-Guard® VB 2.50 SIGA Majvest® 500 SA 2.51 Sika SikaGard® 535 2.52 Sika SikaGard®-530 2.53 Soprema Sopraseal® LM 204 VP 2.54 Soprema Sopraseal® Stick 1100T 2.55 Soprema Sopraseal® Stick VP 2.56 Soprema Soprasolin® HD 2.57 Tremco /USG Securock® ExoAir® 110AT 2.58 Tremco/USG Securock® ExoAir® 230 2.59 Vaproshield Revealshield SA® 2.60 Vaproshield Wrapshield SA® 2.61 W.R. Meadows® Air-Shield™ LMP (Black) 2.62 W.R. Meadows® Air-Shield™ LMP (Gray) 2.63 W.R. Meadows® Air-Shield™ LSR 2.64 W.R. Meadows® Air-Shield™ SMP 2.65 W.R. Meadows® Air-Shield™ TMP</p>
<p>Exterior Insulation Use either 1 or 2</p> <p>Note: See Exterior sheathing options for thickness limitations when no exterior sheathing is used.</p>	<p>1. 4 1/2" (max consisting of a single panel or multiple thinner panels) Rmax® ECOMAXci® FR Air Barrier 2. 4 1/2" (max consisting of a single panel or multiple thinner panels) Rmax® EVOMAXci™</p>



Table 7. Fire Performance – Vertical & Lateral Fire Propagation

Wall Component	Materials
FRTW Structural Panels over Exterior Insulation (Optional)	<p>For use with all cladding options, installed in accordance with applicable code requirements. Must be applied with joints staggered. Fasteners used for securing FRTW panels must penetrate through the foam plastic into FRTW or steel framing. The system must be designed to handle the cladding load and wind load per the applicable code.</p> <p>Note: May be applied in the field or factory applied. Adhesive must not be full coverage.</p>
Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW) Use any item 1 or 2 depending on cladding used Note: Exterior WRB items in 1.02 are not traditional WRB products but are insulation panel joint tapes. The insulation panel joints shall be staggered. NLA = No longer available	<ol style="list-style-type: none"> 1. For use with all claddings <ol style="list-style-type: none"> 1.01 None 1.02 6" (max) tape or flashing over insulation joints: <ol style="list-style-type: none"> (a) Rmax® R-SEAL 3000 (b) Rmax® R-SEAL 6000 (c) Rmax® R-SEAL 2000 LF (d) Venture Tape CW (e) Asphalt or butyl based tape (f) Liquid flashing 1.03 Carlisle (CCW) Fire Resist 705FR-A 1.04 DuPont™ Tyvek® (Various per ESR 2375) 1.05 DuPont™ WeatherMate™ Housewrap 1.06 DuPont™ WeatherMate™ Plus Housewrap 1.07 GCP PERM-A-BARRIER® Aluminum Wall Membrane 1.08 Henry® Blueskin® Metal Clad® 1.09 Henry® FoilSkin 1.10 Kingspan (Pactiv) GreenGuard® MAX™ Building Wrap 1.11 Prosoco R-Guard® Spray Wrap MVP 1.12 Soprema Soprasolin® HD 2. For use with cladding options 1-6 (heavy masonry) with non-open joint installation techniques (ex. shi lap, etc.) <ol style="list-style-type: none"> 2.01 Carlisle (CCW) Fire Resist Barritech NP™ 2.02 Carlisle (CCW) Fire Resist Barritech VP 2.03 Dörken Systems Inc. Delta®-Fassade S 2.04 Dörken Systems Inc. Delta®-Foxx/Plus 2.05 Dörken Systems Inc. Delta®-Maxx/Plus 2.06 Dörken Systems Inc. Delta®-Vent S/Plus 2.07 Dow Corning DefendAir 200C (Charcoal) 2.08 Dow Corning Dowsil™ DefendAir 200 (or LT version) 2.09 Dryvit Backstop® NT™ 2.10 GCP PERM-A-BARRIER® VPL 2.11 GCP PERM-A-BARRIER® VPL Low Temperature 2.12 GCP PERM-A-BARRIER® VPS 2.13 Henry® Air-Bloc All Weather STPE 2.14 Henry® Air-Bloc® 16MR 2.15 Henry® Air-Bloc® 17MR 2.16 Henry® Air-Bloc® 21 FR 2.17 Henry® Air-Bloc® 31MR (NLA) 2.18 Henry® Air-Bloc® 33MR (NLA) 2.19 Henry® Blueskin® VP 160
Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW) Use any item 1 or 2 depending on cladding used	



Table 7. Fire Performance – Vertical & Lateral Fire Propagation

Wall Component	Materials
<p>Demilec Sealection 500 SPF</p> <p>Exterior WRB items in 1.02 are not traditional WRB products but are insulation panel joint tapes. The insulation panel joints shall be staggered.</p> <p>NLA = No longer available</p>	<p>2.20 Henry® Envirocap</p> <p>2.21 Henry® Super Jumbo Tex 60 minutes (only with 3/4" stucco cladding) (Fortifiber)</p> <p>2.22 Henry® WeatherSmart Drainable (Fortifiber)</p> <p>2.23 Parex WeatherSeal Spray & Roll-On</p> <p>2.24 Pecora ProPerm VP</p> <p>2.25 Pecora XL-Perm^{ULTRA} NP</p> <p>2.26 Pecora XL-Perm^{ULTRA} VP (10 mil DFT)</p> <p>2.27 Prosoco R-Guard® Cat 5™</p> <p>2.28 Prosoco R-Guard® MVP (NLA)</p> <p>2.29 Prosoco R-Guard® Spray Wrap (NLA)</p> <p>2.30 Prosoco R-Guard® VB</p> <p>2.31 Siga Majvest® 500 SA</p> <p>2.32 Sika SikaGard® 535</p> <p>2.33 Soprema Sopraseal® Stick VP</p> <p>2.34 Vaproshield Revealshield SA®</p> <p>2.35 Vaproshield Wrapshield SA®</p> <p>2.36 W.R. Meadows® Air-Shield™ LMP (Black)</p> <p>2.37 W.R. Meadows® Air-Shield™ LMP (Gray)</p> <p>2.38 W.R. Meadows® Air-Shield™ LSR</p> <p>2.39 W.R. Meadows® Air-Shield™ SMP</p> <p>2.40 W.R. Meadows® Air-Shield™ TMP</p>
<p>Exterior Cladding</p> <p>Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17</p> <p>Note: For WRB over exterior insulation option 2 above, heavy masonry claddings 1-6 shall incorporate non-open joints.</p>	<p>Heavy Masonry</p> <ol style="list-style-type: none"> 1. Brick – nominal 4" clay brick or veneer with a maximum 2" air gap behind brick. Brick ties/anchors – 24" o.c. (max). 2. Stucco – Minimum 3/4"-thick, exterior cement plaster and lath with an optional secondary water resistive barrier between the exterior insulation and lath.* 3. Limestone – minimum 2" thick any using standard installation technique. 4. Natural Stone Veneer – Minimum 2" thick using any standard installation technique. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard installation technique. 6. Terra Cotta Cladding – Minimum 1 1/4" thick using any standard installation technique. <p>Other</p> <ol style="list-style-type: none"> 7. Any MCM or ACM (aluminum, steel, copper, zinc) (w/ 2 1/2" max air gap) that has successfully passed NFPA 285 using any standard installation technique, such as <ol style="list-style-type: none"> a. Carter Companies EVO Architectural Panel Systems for use with any FR ACM/MCM NFPA 285 material 8. Uninsulated sheet metal building panels including aluminum, zinc, steel, or copper using any standard installation technique. 9. Uninsulated fiber-cement board siding using any standard installation technique. 10. Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 or equivalent. <ol style="list-style-type: none"> a. Stone Panels Inc. Stone Lite Panel system has been analyzed using manufacturer standard installation technique 11. Autoclaved-aerated- concrete (AAC) panels that have successfully passed NFPA 285 using any standard installation technique.

Table 7. Fire Performance – Vertical & Lateral Fire Propagation

Wall Component	Materials
	<p>12. Thin Set Brick</p> <ol style="list-style-type: none"> Glen-Gary Thin Tech™ Elite Series has been analyzed using manufacturer standard installation technique. Tabs II Panel System with 1/2" bricks using Tabs Wall Adhesive <p>13. Natural Stone Veneer – minimum 1 1/4" (adhered with mortar or concrete/cement based adhesive).</p> <p>14. FunderMax M.Look using the manufacturer standard installation technique. The air gap between cladding and insulation or WRB must not exceed 1 1/2".</p> <p>15. Glen-Gary Tru-Brix (only with optional non-combustible mortar)</p> <p>16. Thin brick (min 3/4" thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.*</p> <p>17. Natural stone or artificial stone (min 3/4" thick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 1/2" thick cement backer board or gypsum sheathing. A secondary water resistive barrier can be installed between the exterior sheathing and the brick.*</p> <p>*NOTE: The secondary barriers shall not be full-coverage asphalt or butyl-based self-adhered membranes.</p>
<p>Rough Openings</p> <p>Note: Must cover both the air gap between the cladding and the exterior insulation and the exposed edge of the exterior insulation.</p>	<p>Rough opening perimeters shall incorporate one of the following, spanning at a minimum from the interior edge of the cladding to the interior edge of the exterior insulation at the rough opening.</p> <ol style="list-style-type: none"> 0.08" (min) aluminum (examples include window frame, flashing, lintel, c-channel) 20-gauge (min) sheet steel (examples include window frame, flashing, lintel, c-channel) 1/2" (min) 4pcf (min) mineral wool 3/4" (min) FRT wood buck 3/4" (min) FRT plywood 5/8" (min) type X GWB 1/4" (min) fiber cement board <p>All fenestrations and penetrations shall be flashed in accordance with the applicable code using asphalt, acrylic or butyl flashing tape, liquid flashing, R-SEAL 6000, or R-SEAL 2000 LF up to 12" maximum width.</p>
<p>1. All WRBs shall be installed at recommended application rates and per the manufacturer installation instructions.</p> <p style="text-align: right;">SI: 1 in = 25.4 mm</p>	



6.6.6 Ignition Properties

6.6.6.1 Thermasheath®, TSX-8500, TSX-8510, ECOMAXci FR, and ECOMAXci FR WHITE were evaluated to assess performance with regard to ignition in accordance with 2018 IBC Section 2603.5.7.

6.6.6.1.1 The insulation boards comply with this section when the exterior side of the sheathing is protected with one of the following materials:

6.6.6.1.1.1 A thermal barrier in accordance with 2018 IBC Section 2603.4

6.6.6.1.1.2 Masonry or concrete – minimum 1" (25 mm) thick

6.6.6.1.1.3 Glass-fiber-reinforced concrete panels – minimum 3/8" (9.5 mm) thick

6.6.6.1.1.4 Metal-faced panels having a minimum 0.019" (0.48 mm) thick aluminum or 0.016" (0.41 mm) thick corrosion-resistant steel outer facings

6.7 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 Performance²⁷

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.²⁸

7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.²⁹

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci comply with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci were evaluated to determine:

8.1.1.1 Performance in accordance with foam plastic requirements of IBC Section 2603 and IRC Section R316.

8.1.1.2 Performance for use as Insulating Sheathing (R-Value) in accordance with IRC Section N1102, IECC Section R402, and IECC Section C402.

8.1.1.3 Performance for use as a Water-Resistive Barrier in accordance with IBC Section 1403.2³⁰ and IRC Section R703.2.

8.1.1.4 Performance for use as a vapor retarder, as defined in IBC Section 202 and IRC Section R202, in accordance with IBC Section 1404.3,³¹ IRC Section R702.7, and IECC Section R402.1.1.

8.1.1.5 Performance for use as an air barrier material in accordance with IRC Section N1101.10.5, IECC Section R303.1.5, and IECC Section C402.5.1.3, and as part of an air barrier assembly in accordance with IECC Section C402.5.1.4.

8.1.1.6 Performance for use in exterior walls of buildings of Type I-IV construction in accordance with 2018 IBC Section 2603.5.



- 8.1.1.6.1 Fire resistance rated assembly in accordance with IBC Section 2603.5.1.
- 8.1.1.6.2 Potential heat in accordance with IBC Section 2603.5.3.
- 8.1.1.6.3 Flame spread and smoke development ratings in accordance with IBC Section 2603.3, IBC Section 2603.5.4, and IRC Section R316.3.
- 8.1.1.6.4 Vertical and lateral fire propagation in accordance with 2018 IBC Section 2603.5.5.
- 8.1.1.6.5 Ignition characteristics in accordance with 2018 IBC Section 2603.5.7.
- 8.2 Use of ECOMAXci FR Air Barrier and Rmax EVOMAXci in structures where the exterior wall covering is unable to resist 100% of the transverse wind load is outside the scope of this report.
- 8.3 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 qualified³² to practice product and regulatory compliance services within its scope of accreditation and engineering expertise, respectively.
- 8.4 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which are also its areas of professional engineering competence.
- 8.5 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 ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be applied to the base wall as follows:
 - 9.3.1 The insulation boards shall be oriented with the "*Rmax Solutions*" shield facing the exterior side of the building.
 - 9.3.2 Each row of insulation shall be staggered a minimum of 6" (or one stud space) to the row below. All boards must be tightly abutted together.
 - 9.3.3 At changes in wall directions (corners), the boards shall fit snugly in an overlap.
- 9.4 ECOMAXci FR Air Barrier and Rmax EVOMAXci fastener application shall be as follows:
 - 9.4.1 Insulation fastener components shall include a minimum 2" diameter plastic washer and corrosion resistant self-taping steel screw, wood screw or concrete fastener.
 - 9.4.2 Washers shall be snug and flush with the board surface. Washers should never break the foil facing of the boards, nor should the washer crown be countersunk.
 - 9.4.2.1 Each insulation board shall be secured with a fastening pattern as shown in **Table 8**.

Table 8. Fastening Pattern of ECOMAXci FR Air Barrier and Rmax EVOMAXci

Nominal Thickness (in)	Steel or FRTW Stud		Masonry
	Wall Perimeter (in)	Wall Field (in)	Wall Perimeter & Field (in)
≥ 1.5	24 o.c.	24 o.c.	24 o.c.
≥ 0.5	12 o.c.	16 o.c.	24 o.c.
SI: 1 in = 25.4 mm			



9.5 R-SEAL 3000 application shall be as follows:

- 9.5.1 4" wide R-SEAL 3000 shall be used to seal all joints of adjacent insulation boards.
- 9.5.2 R-SEAL 3000 can also be used to repair minor damages to the aluminum facer of the ECOMAXci FR Air Barrier and Rmax EVOMAXci.
- 9.5.3 Refer to the R-SEAL 3000 data sheet for specific details on appropriate installation conditions.

9.6 R-SEAL 6000 application shall be as follows:

- 9.6.1 9" or 12" wide R-SEAL 6000 shall be used to seal at corners, ceiling and floor transitions, windows, doors, and other large through-wall penetrations.
- 9.6.2 Refer to the R-SEAL 6000 data sheet for specific details on appropriate installation conditions.

9.7 R-SEAL 2000 LF application shall be as follows:

- 9.7.1 1" wide at 30 mil shall be used to seal all joints of adjacent insulation boards.
- 9.7.2 50 mil extended 3" beyond each last surface shall be used to seal at corners, windows, doors, and other large through-wall penetrations.
- 9.7.3 R-SEAL 2000 LF can also be used to repair minor damages to the aluminum facer of the ECOMAXci FR Air Barrier and Rmax EVOMAXci.
- 9.7.4 Refer to the R-SEAL 2000 LF data sheet for specific details on appropriate installation conditions.

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 Material properties testing in accordance with ASTM C1289
- 10.1.2 Thermal resistance properties testing in accordance with ASTM C518
- 10.1.3 Water vapor permeance testing in accordance with ASTM E96
- 10.1.4 Water-resistance properties testing in accordance with ASTM E331 and AATCC TM 127
- 10.1.5 Water absorption testing in accordance with ASTM C209 and ASTM C272
- 10.1.6 Air permeance testing in accordance with ASTM E2178
- 10.1.7 Air leakage testing in accordance with ASTM E2357 and CAN/ULC-S742
- 10.1.8 Flame spread and smoke developed ratings testing in accordance with ASTM E84
- 10.1.9 Fire resistance ratings in accordance with UL 263
- 10.1.10 Heat propagation (potential heat) testing in accordance with NFPA 259
- 10.1.11 Vertical and lateral fire propagation tests in accordance with NFPA 285-12, with analysis by Priest and Associates Consulting, LLC and Hughes Associates

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



- 10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.
- 10.5 Testing and engineering analysis: 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.³³
- 10.6 Where additional condition of use and/or regulatory compliance information is required, please search for ECOMAXci FR Air Barrier and Rmax EVOMAXci on the DrJ Certification website.

11 Findings

- 11.1 As outlined in **Section 6**, ECOMAXci FR Air Barrier and Rmax EVOMAXci 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 report and the manufacturer installation instructions, ECOMAXci FR Air Barrier and Rmax EVOMAXci shall be approved for the following applications:
- 11.2.1 Buildings constructed in accordance with the IBC, or one and two-family dwellings constructed in accordance with the IRC.
 - 11.2.2 Performance of foam plastics in accordance with IBC Section 2603 and IRC Section R316.
 - 11.2.3 Use as insulating sheathing in accordance with IRC Section N1102, IECC Section R402 and IECC Section C402.
 - 11.2.4 Use as a WRB in accordance with IBC Section 1403.2³⁴ and IRC Section R703.2.
 - 11.2.5 Use as an air barrier material in accordance with IRC Section N1101.10.5, IECC Section R303.1.5 and IECC Section C402.5.1.3, and as part of an air barrier assembly in accordance with IECC Section C402.5.1.4.
 - 11.2.6 Use in exterior walls of buildings of Type I-IV construction in accordance with 2018 IBC Section 2603.5.
 - 11.2.7 Use in a fire resistance rated assembly in accordance with IBC Section 2603.5.1.
 - 11.2.8 Flame spread and smoke developed indices in accordance with IBC Section 2603.3, IBC Section 2603.5.4 and IRC Section R316.3.
 - 11.2.9 Vertical and lateral fire propagation in accordance with 2018 IBC Section 2603.5.5.
- 11.3 Unless exempt by state statute, when ECOMAXci FR Air Barrier and Rmax EVOMAXci 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 Rmax.
- 11.5 IBC Section 104.11 (IRC Section R104.11 and IFC Section 104.10³⁵ 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:**³⁶ Building regulations require that the building official shall accept duly authenticated reports.³⁷
- 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.³⁸

12 Conditions of Use

- 12.1 Material properties shall not fall outside the boundaries defined in **Section 6**.
- 12.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 12.3 As listed herein, ECOMAXci FR Air Barrier and Rmax EVOMAXci shall not be used:
- 12.3.1 As a structural nailing base for claddings.
- 12.4 This report and the manufacturer installation instructions when required by a code official shall be submitted at the time of permit application.
- 12.5 When the insulation boards are used on exterior walls of buildings of Type I-IV construction, walls shall be constructed as described in the applicable subsections of **Section 6.6**.
- 12.6 The product shall be fully protected from the interior of the building by an approved thermal barrier or ignition barrier as required by the applicable code.
- 12.7 In areas where the probability of termite infestation is “*very heavy*”, in accordance with IBC Section 2603.8 and IRC Section R316.7, the clearance between the products installed above grade and exposed earth shall be at least 6".
- 12.7.1 *Exceptions*
- 12.7.1.1 Buildings where the structural members of the walls, floors, ceilings, and roofs are entirely of noncombustible materials or are pressure preservative treated wood.
- 12.7.1.2 An approved method of protecting the products and the structure from subterranean termite damage is used.
- 12.7.1.3 On the interior side of basement walls.
- 12.8 Use of the insulation boards to resist structural loads is outside the scope of this report. 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.
- 12.9 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** and **Section 1.2** 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.rmax.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 Rmax ECOMAXci FR Air Barrier and Rmax EVOMAXci 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
 - 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),³⁹ where providing test reports, engineering analysis and/or other related IP/TS is subject to prison of not more than ten years⁴⁰ and/or a \$5,000,000 fine or 3 times the value of⁴¹ 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 materials⁴² 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.⁴³
 - 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 104.11.⁴⁴



- 1.3 **Approved⁴⁵ 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.⁴⁶ 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 1707.1.⁴⁷
- 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 deemed⁴⁸ 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 agreement⁴⁹ (i.e., ANAB, International Accreditation Forum also known as 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](#),⁵⁰ 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)*”.⁵¹ 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](#),⁵² and [Part 3280](#),⁵³ 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.⁵⁴
 - 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.⁵⁵
 - 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.⁵⁶
 - 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.⁵⁷
- 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.⁵⁸
 - 1.11.4 Therefore, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent.⁵⁹
- 1.12 Approval equity is a fundamental commercial and legal principle.⁶⁰



Issue Date: November 3, 2021
Subject to Renewal: October 1, 2025

CBC and CRC Supplement to Report Number 1212-03

REPORT HOLDER: Rmax

1 Evaluation Subject

- 1.1 Rmax ECOMAXci FR Air Barrier and Rmax EVOMAXci

2 Purpose and Scope

2.1 Purpose

- 2.1.1 The purpose of this Report Supplement is to show ECOMAXci FR Air Barrier and Rmax EVOMAXci, recognized in Report Number 1212-03 have also been evaluated for compliance with the codes listed below.

2.2 *Applicable Code Editions*

- 2.2.1 *CBC—19, 22: California Building Code (Title 24, Part 2)*
- 2.2.2 *CRC—19, 22: California Residential Code (Title 24, Part 2.5)*
- 2.2.3 *CEC —19, 22: California Energy Code (Title 24, Part 6)*

3 Conclusions

- 3.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, comply with the CBC and CRC 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 CBC and CRC applicable to this report, they are listed here:
 - 3.2.1 CBC Section 104.11 replaces IBC Section 104.11.
 - 3.2.2 CBC Section 1707.1 replaces IBC Section 1707.1.
 - 3.2.3 CRC Section R104.11 replaces IRC Section R104.11.

4 Conditions of Use

- 4.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, must comply with all of the following conditions:
 - 4.1.1 All applicable sections in Report Number 1212-03.
 - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of CBC and CRC, as applicable.



Issue Date: November 3, 2021
Subject to Renewal: October 1, 2025

FBC Supplement to Report Number 1212-03

REPORT HOLDER: Rmax

1 Evaluation Subject

- 1.1 Rmax ECOMAXci FR Air Barrier and Rmax EVOMAXci

2 Purpose and Scope

- 2.1 Purpose
 - 2.1.1 The purpose of this Report Supplement is to show ECOMAXci FR Air Barrier and Rmax EVOMAXci, recognized in Report Number 1212-03, 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 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, 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 1404.2 replaces IBC Section 1403.2

4 Conditions of Use

- 4.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, must comply with all of the following conditions:
 - 4.1.1 All applicable sections in Report Number 1212-03.
 - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.



Issue Date: April 11, 2022

Subject to Renewal: October 1, 2025

NYC Supplement to Report Number 1212-03

REPORT HOLDER: Rmax

1 Evaluation Subject

- 1.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci

2 Purpose and Scope

2.1 Purpose

- 2.1.1 The purpose of this Report Supplement is to show ECOMAXci FR Air Barrier and Rmax EVOMAXci, recognized in Report Number 1212-03, have also been evaluated for compliance with the codes listed below as adopted by the State of New York.

2.2 Applicable Code Editions

- 2.2.1 BCNYS – 20: Building Code of New York State
- 2.2.2 RCNYS – 20: Residential Code of New York State
- 2.2.3 ECCNYS – 20: Energy Conservation Code of New York State

3 Conclusions

- 3.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, comply with the BCNYS and RCNYS, 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 BCNYS Section 104.3 replaces IBC Section 104.11
 - 3.2.2 BCNYS Section 105.3 replaces IBC Section 104.4
 - 3.2.3 BCNYS Chapter 1 removed IBC Section 110.3 and Section 110.4
 - 3.2.4 RCNYS Section R104.3 replaces IRC Section R104.11
 - 3.2.5 RCNYS Section R105.3 replaces IRC Section R104.4
 - 3.2.6 RCNYS Chapter 1 removed IRC Section R109.2

4 Conditions of Use

- 4.1 ECOMAXci FR Air Barrier and Rmax EVOMAXci, described in Report Number 1212-03, must comply with all of the following conditions:
 - 4.1.1 All applicable sections in Report Number 1212-03.
 - 4.1.2 The design, installation, and inspections are in accordance with additional requirements of BCNYS Chapter 16 and Chapter 17, as applicable.



Notes

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

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1702>

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>

<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

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

<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

<https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1703.4.2>

https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_agency

https://up.codes/viewer/wyoming/ibc-2021/chapter/2/definitions#approved_source

<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](https://www.ipandts.com/).

<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/>

<https://www.cbiteest.com/accreditation/>

<https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104>:~:text=to%20enforce%20the%20provisions%20of%20this%20code

<https://up.codes/viewer/colorado/ibc-2021/chapter/1/scope-and-administration#104.11>:~:text=Where%20the%20alternative%20material%2C%20design%20or%20method%20of%20construction%20is%20not%20approved%2C%20the%20building%20official%20shall%20respond%20in%20writing%2C%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%2C%20the%20building%20official%20shall%20reject%20such%20application%20in%20writing%2C%20stating%20the%20reasons%20therefore

<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

<https://iaf.eu/en/about-iaf-mia/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope>

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

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

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.

References to NFPA 285-12 in this report are code compliant through the 2018 version of the IBC.

All references to the CBC and CRC are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the California Supplement at the end of this report.

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.

All references to the BCNYS, RCNYS, and ECCNYS are the same as the 2018 IBC, 2018 IRC, and 2018 ECCNYS unless otherwise noted in the New York State (NYS) Supplement at the end of this report.

<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>

[2015 IBC Section 1404.2](#)

[2018 IBC Section 1404.3.3](#)

<https://up.codes/viewer/colorado/ibc-2021/chapter/17/special-inspections-and-tests#1703.4>

<https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades>

<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>
[2015 IBC Section 1404.2/](#)



31 [2015 IBC Section 1405.3](#)

32 Qualification is performed by a legislatively defined Accreditation Body. [ANSI National Accreditation Board \(ANAB\)](#) is the largest independent accreditation body in North America and provides services in more than 75 countries. [DrJ](#) is an ANAB accredited [product certification body](#).

33 See Code of Federal Regulations (CFR) [Title 24 Subtitle B Chapter XX Part 3280](#) for definition.

34 [2015 IBC Section 1404.2](#)

35 [2018 IFC Section 104.9](#)

36 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC [Section 201.4](#) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

37 <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1707.1>

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

39 <http://www.drjengineering.org/AppendixC> AND <https://www.drjcertification.org/cornell-2016-protection-trade-secrets>

40 <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=imprisoned%20not%20more%20than%2010%20years>

41 <https://www.law.cornell.edu/uscode/text/18/1832#:~:text=Any%20organization%20that,has%20thereby%20avoided>

42 <https://up.codes/viewer/wyoming/ibc-2021/chapter/17/special-inspections-and-tests#1706.2>

43 [IBC 2021, Section 1706.1 Conformance to Standards](#)

44 [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#)

45 See **Section 11** for the distilled building code definition of **Approved**.

46 [Los Angeles Municipal Code, SEC. 98.0503. TESTING AGENCIES](#)

47 <https://up.codes/viewer/california/ca-building-code-2022/chapter/17/special-inspections-and-tests#1707.1>

48 [New York City, The Rules of the City of New York, § 101-07 Approved Agencies](#)

49 [New York City, The Rules of the City of New York, § 101-07 Approved Agencies](#)

50 <https://up.codes/viewer/new-jersey/ibc-2018/chapter/17/special-inspections-and-tests#1707.1>

51 <https://www.nj.gov/dca/divisions/codes/codreg/ucc.html>

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

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

54 [IBC 2021, Section 1706 Design Strengths of Materials, 1706.2 New Materials](#). Adopted law pursuant to IBC model code language 1706.2.

55 [IBC 2021, Section 1707 Alternative Test Procedure, 1707.1 General](#). Adopted law pursuant to IBC model code language 1707.1.

56 <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/>

57 [IBC 2021, Section 1706 Design Strengths of Materials, Section 1706.1 Conformance to Standards](#) Adopted law pursuant to IBC model code language 1706.1.

58 [https://iaf.nu/en/about-iaf-](https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope)

59 [mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope](https://iaf.nu/en/about-iaf-mla/#:~:text=it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope)

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

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