Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

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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 Evaluated[1]

1.1 ECOMAXci FR Air Barrier and EVOMAXci

2 Product Description and Materials

2.1 An example of the innovative products evaluated in this report is shown in **Figure 1**.

ECOMAXci FR Air Barrier | **R-SEAL 3000** | **R-SEAL 6000** | **R-SEAL 2000 LF**

Figure 1. Rmax Wall Solution

2.1.1 ECOMAXci FR Air Barrier and 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 1/4" (114 mm)

2.2.2 *Standard Product Width:*

2.2.2.1 48" (1,219 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 the regulatory evaluation in **Section 8**.

3 Definitions[2]

3.1 New Materials[3] are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secretes under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[12]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[13] ISO/IEC 17025 and ISO/IEC 17020 accredited.

3.6 The regulatory authority shall enforce[14] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[15] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[16]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[17] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[18] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/

3.9 Approval equity is a fundamental commercial and legal principle.[19]

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, Texas Department of Insurance, and Wichita.[21]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Standards*

4.2.1 *AATCC TM127: Test Method 127 Water Resistance: Hydrostatic Pressure Test*

4.2.2 *ASTM C209: Standard Test Methods for Cellulosic Fiber Insulating Board*

4.2.3 *ASTM C272: Standard Test Method for Water Absorption of Core Materials for Sandwich Constructions*

4.2.4 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

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

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

4.2.7 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*

4.2.8 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*

4.2.9 *ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*

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

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

4.2.12 *ASTM E2178: Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials*

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

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

4.2.15 *NFPA 259: Standard Test Method for Potential Heat of Building Materials*

4.2.16 *NFPA 285-12: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*

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

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

4.3 *Regulations*

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

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

4.3.3 *IECC – 18, 21, 24: International Energy Conservation Code®*

4.3.4 *CBC—19, 22: California Building Code[25] (Title 24, Part 2)*

4.3.5 *CRC—19, 22: California Residential Code[25] (Title 24, Part 2.5)*

4.3.6 *FBC-B—20, 23: Florida Building Code[26] – Building*

4.3.7 *FBC-R—20, 23: Florida Building Code[26] – Residential*

4.3.8 *BCNYS – 22: Building Code of New York State[27]*

4.3.9 *RCNYS – 20: Residential Code of New York State[27]*

4.3.10 *ECCNYS – 20: Energy Conservation Code of New York State[27]*

5 Listed[28]

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

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 ECOMAXci FR Air Barrier and 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 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 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 EVOMAXci are available at www.polyiso.org/page/EPDs.

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 EVOMAXci meet the continuous insulated sheathing requirements complying with the provisions of IECC Section C402.

6.2.2 ECOMAXci FR Air Barrier and EVOMAXci have the thermal properties shown in **Table 1**.

Table 1. Thermal Properties

Nominal Thickness (in)	Thermal R-Value[1] (°F·ft²·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° F 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 EVOMAXci may be used as a WRB as prescribed in IBC Section 1403.2 when installed on exterior walls as described in this section and the manufacturer installation instructions.

6.3.2 ECOMAXci FR Air Barrier and 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 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 EVOMAXci are Class I Vapor Retarders in accordance with IBC Table 1404.3(1)[29] and IRC Section R702.7.

6.4 *Air Barrier*

6.4.1 ECOMAXci FR Air Barrier and EVOMAXci meet the requirements of IRC Section N1101.10.5, IECC Section R303.1.5, and IECC Section C402.6.2.3.1[30] 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, being sealed.

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

Table 3. Air Barrier Material Properties[1]

Air Permeance
< 0.005 L/(s·m²)
IP: 1 L/(s·m²) = 0.2 cfm/ft² 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, and IECC Section C402.6.2.3.1,[31] 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 EVOMAXci meet the requirements IECC Section C402.6.2.3.2[32] 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 Properties[1]

Air Leakage
< 0.05 L/(s·m²)
IP: 1 L/s²m² = 0.2 cfm/ft² 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 C402.6.2.3.2[33] and ABAA as being no greater than 0.2 L/(s·m^2) at 75 Pa pressure difference when tested in accordance with ASTM E2357.

6.4.2.3 ECOMAXci FR Air Barrier and 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·m^2) at 75 Pa pressure difference when tested in accordance with CAN/ULC-S742.

6.4.2.4 ECOMAXci FR Air Barrier and 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 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 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 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 Characteristics[1]

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 EVOMAXci shall be separated from the building interior by a thermal barrier meeting the provisions of IBC Section 2603.4 and IRC Section R303.4,[34] except in one story buildings, where 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 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 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 Heat[1]

Potential Heat (Btu/lb)
11,054

SI: 1 Btu/lb = 2.326 kJ/kg

1. Tested in accordance with NFPA 259

6.6.5 *Vertical and Lateral Fire Propagation (NFPA 285 Applications):*

6.6.5.1 ECOMAXci FR Air Barrier and 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 and 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 (minimum) $3^5/_8$" (minimum) steel studs spaced 24" o.c. (maximum) a. $^1/_2$" (minimum) Type X Special Fire Resistant Gypsum Wallboard Interior b. Bracing as required by code 4. Where allowed by code in Types I, II, III, or IV construction, FRTW (Fire-Retardant-Treated Wood) studs complying with IBC Section 2303.2, minimum nominal 2 x 4 dimension, spaced 24" o.c. (maximum) a. $^5/_8$" Type X Gypsum Wallboard Interior b. Bracing as required by code
Floorline Firestopping Select 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)

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Cavity Insulation Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 EZ FLO may be used inside the box headers and jamb studs for NFPA 285 assemblies requiring SPF in stud cavities	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (board type Class A, ASTM E84 faced or unfaced) 4. Any Fiberglass (batt type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (maximum) Icynene LD-C-50 SPF in 6" deep studs (maximum). Use with 5/8" exterior sheathing. 6. 5 1/2" (maximum) Icynene MD-C-200 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 7. 5 1/2" (maximum) Icynene MD-R-210 2 pcf SPF in 6" deep studs (maximum) full fill without an air gap. Use with 5/8" exterior sheathing. 8. SWD Urethane QS 112 2 pcf SPF in 6" deep studs (maximum) partial fill with a maximum 2 1/2" air gap or full fill. Use with 5/8" exterior sheathing. 9. Gaco Western 183M SPF (3 1/2" maximum). Use with 5/8" exterior sheathing. 10. Gaco Western F1850 SPF (3 1/2" maximum). Use with 5/8" exterior sheathing. 11. Demilec Sealection 500 SPF (3 5/8" maximum). Use with 5/8" exterior sheathing. 12. Demilec HeatLok Soy 200 Plus SPF (3.4" maximum). Use with 5/8" exterior sheathing. 13. Bayer Bayseal SPF (3" maximum). Use with 5/8" exterior sheathing. 14. Lapolla FoamLok FL 2000 SPF (3" maximum). Use with 5/8" exterior sheathing. 15. BASF SprayTite 81206 or WallTite SPF (US & US-N) (3 5/8" maximum). Use with 5/8" exterior sheathing.
Exterior Sheathing Select option 1, 2, 3, 4, 5, 6, 7, or 8 ***Note:*** When SPF is used, 5/8" exterior gypsum sheathing must be used.	1. None (when using Base Wall 1 or 2) 2. None (3" maximum exterior insulation with claddings 7-17) 3. None (4 1/2" maximum exterior insulation with claddings 1-6) 4. 1/2" thick or thicker exterior gypsum board sheathing 5. 1/2" (minimum) FRTW structural panels complying with IBC Section 2303.2 and installed in accordance with code allowances for Types I, II, III, or IV construction 6. 5/8" DensElement with DensDefy or Prosoco FastFlash flashing at joints/fasteners 7. Soprema Sopraseal Xpress G 8. Tremco/USG Securock® ExoAir® 430
Weather-Resistive Barrier Applied to Exterior Sheathing Select option 1 or 2 installed per manufacturer installation instructions. ***Note:*** WRB over Exterior Sheathing Items 6-8 may not be used since they already incorporate a pre-installed WRB. ***Note:*** When using no exterior sheathing, sheet building wraps may be applied directly to studs. NLA = No Longer Available	1. None 2. Any WRB tested in accordance with ASTM E1354 (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than 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): a. Carlisle Coatings & Waterproofing (CCW) Fire Resist 705FR-A b. CCW Fire Resist Barritech NP™ c. CCW Fire Resist Barritech VP d. Dörken Systems Inc. Delta® Stratus SA e. Dörken Systems Inc. Delta®-Fassade S f. Dörken Systems Inc. Delta®-Foxx/Plus g. Dörken Systems Inc. Delta®-Maxx/Plus h. Dörken Systems Inc. Delta®-Vent S/Plus i. Dörken Systems Inc. Delta®-Vent SA j. Dow Corning Dowsil™ DefendAir 200 (or LT version)

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Weather-Resistive Barrier Applied to Exterior Sheathing Continued	k. Dow Corning Dowsil™ DefendAir 200C (Charcoal) l. Dryvit Backstop® NT™ m. DuPont™ Tyvek® (Various per ESR 2375) n. DuPont™ WeatherMate™ Housewrap o. DuPont™ WeatherMate™ Plus Housewrap p. GCP PERM-A-BARRIER® Aluminum Wall Membrane q. GCP PERM-A-BARRIER® NPL 10 r. GCP PERM-A-BARRIER® VPL s. GCP PERM-A-BARRIER® VPL 50 Membrane t. GCP PERM-A-BARRIER® VPL Low Temperature u. GCP PERM-A-BARRIER® VPS v. Henry® Air-Bloc All Weather STPE w. Henry® Air-Bloc® 16 MR x. Henry® Air-Bloc® 17 MR y. Henry® Air-Bloc® 21 FR z. Henry® Air-Bloc® 31MR (NLA) aa. Henry® Air-Bloc® 32MR (NLA) bb. Henry® Air-Bloc® 33MR (NLA) cc. Henry® Blueskin® MetalClad dd. Henry® Blueskin® SA ee. Henry® Blueskin® VP 160 ff. Henry® EnviroCap gg. Henry® FoilSkin hh. Henry® Super Jumbo Tex 60 Minute® (Fortifiber) ii. Henry® WeatherSmart® Drainable Housewrap (Fortifiber) jj. Kingspan (Pactiv) GreenGuard® MAX™ Building Wrap kk. MasterSeal® AWB 660 (Formerly BASF Enershield® HP) ll. MasterSeal® AWB 660 I (Formerly BASF Enershield® I) mm. NaturaSeal Airseal NS-A-250HP™ nn. NaturaSeal Airseal NS-A-250LP™ oo. Parex WeatherSeal Spray & Roll-On pp. Pecora ProPerm VP qq. Pecora XL-PermULTRA NP rr. Pecora XL-PermULTRA VP (10 mil DFT) ss. Prosoco R-Guard® Cat 5™ tt. Prosoco R-Guard® MVP (NLA) uu. Prosoco R-Guard® Spray Wrap (NLA) vv. Prosoco R-Guard® Spray Wrap MVP ww. Prosoco R-Guard® VB xx. Siga Majvest® 500 SA yy. Sika SikaGard® 535 zz. Sika SikaGard®-530 aaa. Soprema Sopraseal® LM 204 VP

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Weather-Resistive Barrier Applied to Exterior Sheathing Continued	bbb. Soprema Sopraseal® Stick 1100T ccc. Soprema Sopraseal® Stick VP ddd. Soprema Soprasolin® HD eee. Tremco /USG Securock® ExoAir® 110AT fff. Tremco/USG Securock® ExoAir® 230 ggg. Vaproshield Revealshield SA® hhh. Vaproshield Wrapshield SA® iii. W.R. Meadows® Air-Shield™ LMP (Black) jjj. W.R. Meadows® Air-Shield™ LMP (Gray) kkk. W.R. Meadows® Air-Shield™ LSR lll. W.R. Meadows® Air-Shield™ SMP mmm. W.R. Meadows® Air-Shield™ TMP
Exterior Insulation Use either 1 or 2 ***Note:*** See exterior sheathing options for thickness limitations when no exterior sheathing is used.	1. 4 1/2" (maximum consisting of a single panel or multiple thinner panels) Rmax® ECOMAXci® FR Air Barrier 2. 4 1/2" (maximum consisting of a single panel or multiple thinner panels) Rmax® EVOMAXci™
FRTW Structural Panels over Exterior Insulation (Optional)	1. For use with all cladding options, installed in accordance with applicable code requirements. Must be applied with joints staggered. Fasteners used for securing FRTW panels must penetrate through the foam plastic into FRTW or steel framing. The system must be designed to handle the cladding load and wind load per the applicable code. ***Note:*** May be applied in the field or factory applied. Adhesive must not be full coverage.
Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW) Use any items 1 or 2 depending on cladding used ***Note:*** Exterior WRB items in item 1b are not traditional WRB products but are insulation panel joint tapes. The insulation panel joints shall be staggered. NLA = No Longer Available	1. For use with all claddings: a. None b. 6" (maximum) tape or flashing over insulation joints: i. Rmax® R-SEAL 3000 ii. Rmax® R-SEAL 6000 iii. Rmax® R-SEAL 2000 LF iv. Venture Tape CW v. Asphalt or butyl based tape vi. Liquid flashing c. Carlisle (CCW) Fire Resist 705FR-A d. DuPont™ Tyvek® (Various per ESR 2375) e. DuPont™ WeatherMate™ Housewrap f. DuPont™ WeatherMate™ Plus Housewrap g. GCP PERM-A-BARRIER® Aluminum Wall Membrane h. Henry® Blueskin® Metal Clad® i. Henry® FoilSkin j. Kingspan (Pactiv) GreenGuard® MAX™ Building Wrap k. Prosoco R-Guard® Spray Wrap MVP l. Soprema Soprasolin® HD

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW) Continued	2. For use with cladding options 1-6 (heavy masonry) with non-open joint installation techniques (ex. shiplap, etc.) a. Carlisle (CCW) Fire Resist Barritech NP™ b. Carlisle (CCW) Fire Resist Barritech VP c. Dörken Systems Inc. Delta®-Fassade S d. Dörken Systems Inc. Delta®-Foxx/Plus e. Dörken Systems Inc. Delta®-Maxx/Plus f. Dörken Systems Inc. Delta®-Vent S/Plus g. Dow Corning DefendAir 200C (Charcoal) h. Dow Corning Dowsil™ DefendAir 200 (or LT version) i. Dryvit Backstop® NT™ j. GCP PERM-A-BARRIER® VPL k. GCP PERM-A-BARRIER® VPL Low Temperature l. GCP PERM-A-BARRIER® VPS m. Henry® Air-Bloc All Weather STPE n. Henry® Air-Bloc® 16MR o. Henry® Air-Bloc® 17MR p. Henry® Air-Bloc® 21 FR q. Henry® Air-Bloc® 31MR (NLA) r. Henry® Air-Bloc® 33MR (NLA) s. Henry® Blueskin® VP 160 t. Henry® Envirocap u. Henry® Super Jumbo Tex 60 minutes (only with 3/4" stucco cladding) (Fortifiber) v. Henry® WeatherSmart Drainable (Fortifiber) w. Parex WeatherSeal Spray & Roll-On x. Pecora ProPerm VP y. Pecora XL-PermULTRA NP z. Pecora XL-PermULTRA VP (10 mil DFT) aa. Prosoco R-Guard® Cat 5™ bb. Prosoco R-Guard® MVP (NLA) cc. Prosoco R-Guard® Spray Wrap (NLA) dd. Prosoco R-Guard® VB ee. Siga Majvest® 500 SA ff. Sika SikaGard® 535 gg. Soprema Sopraseal® Stick VP hh. Vaproshield Revealshield SA® ii. Vaproshield Wrapshield SA® jj. W.R. Meadows® Air-Shield™ LMP (Black) kk. W.R. Meadows® Air-Shield™ LMP (Gray) ll. W.R. Meadows® Air-Shield™ LSR mm. W.R. Meadows® Air-Shield™ SMP nn. W.R. Meadows® Air-Shield™ TMP

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Exterior Cladding Select option 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, or 17 ***Note:*** For WRB over exterior insulation option 2 above, heavy masonry claddings 1-6 shall incorporate non-open joints.	**Heavy Masonry:** 1. Brick – nominal 4" clay brick or veneer with a maximum 2" air gap behind brick. Brick ties/anchors – 24" o.c. (maximum). 2. Stucco – Minimum 3/4" thick, exterior cement plaster and lath with an optional secondary water resistive barrier between the exterior insulation and lath.* 3. Limestone – minimum 2" thick any using standard installation technique. 4. Natural Stone Veneer – Minimum 2" thick using any standard installation technique. 5. Cast Artificial Stone – Minimum 1 1/2" thick complying with ICC-ES AC 51 using any standard installation technique. 6. Terra Cotta Cladding – Minimum 1 1/4" thick using any standard installation technique. **Other:** 7. Any MCM or ACM (aluminum, steel, copper, zinc) (with 2 1/2" maximum air gap) that has successfully passed NFPA 285 using any standard installation technique, such as Carter Companies EVO Architectural Panel Systems for use with any FR ACM/MCM NFPA 285 material 8. Uninsulated sheet metal building panels including aluminum, zinc, steel, or copper using any standard installation technique. 9. Uninsulated fiber-cement board siding using any standard installation technique. 10. Stone/Aluminum honeycomb composite building panels that have passed NFPA 285 or equivalent. a. Stone Panels Inc. Stone Lite Panel system has been analyzed using manufacturer standard installation technique 11. Autoclaved-Aerated-Concrete (AAC) panels that have successfully passed NFPA 285 using any standard installation technique. 12. Thin Set Brick: a. Glen-Gary Thin Tech™ Elite Series has been analyzed using manufacturer standard installation technique. b. Tabs II Panel System with 1/2" bricks using Tabs Wall Adhesive 13. Natural Stone Veneer – minimum 1 1/4" (adhered with mortar or concrete/cement based adhesive). 14. Fundermax m.look using the manufacturer standard installation technique. The air gap between cladding and insulation or WRB must not exceed 1 1/2". 15. Glen-Gary Tru-Brix (only with optional non-combustible mortar) 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.* 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.* * The secondary barriers shall not be full-coverage asphalt or butyl-based self-adhered membranes.

Table 7. Fire Performance – Vertical and Lateral Fire Propagation

Wall Component	Materials
Rough Openings ***Note:*** Must cover both the air gap between the cladding and the exterior insulation and the exposed edge of the exterior insulation.	1. 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: a. 0.08" (minimum) aluminum (e.g., window frame, flashing, lintel, c-channel) b. 20-gauge (minimum) sheet steel (e.g., window frame, flashing, lintel, c-channel) c. 1/2" (minimum) 4pcf (min) mineral wool d. 3/4" (minimum) FRT wood buck e. 3/4" (minimum) FRT plywood f. 5/8" (minimum) type X GWB g. 1/4" (minimum) fiber cement board All fenestrations and penetrations shall be flashed in accordance with the applicable code using asphalt, acrylic or butyl flashing tape, liquid flashing, R-SEAL 6000, or R-SEAL 2000 LF up to 12" maximum width.
SI: 1 in = 25.4 mm 1. All WRB shall be installed at recommended application rates and per the manufacturer installation instructions.	

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 Performance[35]

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.[36]

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.[37]

8 Regulatory Evaluation and Accepted Engineering Practice

8.1 ECOMAXci FR Air Barrier and 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 EVOMAXci were evaluated to determine:

8.1.1.1 Performance in accordance with foam plastic requirements of IBC Section 2603 and IRC Section R303.[38]

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 1403.2 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, 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 C402.6.2.3.1,[39] and as part of an air barrier assembly in accordance with IECC Section C402.6.2.3.2.[40]

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 R303.3.[41]

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 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, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[42] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[43] respectively.

8.4 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is 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, contact the manufacturer for counsel on the proper installation method.

9.3 ECOMAXci FR Air Barrier and 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 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 EVOMAXci

Nominal Thickness (in)	Steel or FRTW Stud		Masonry
	Wall Perimeter (in)	Wall Field (in)	Wall Perimeter and 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*

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 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*

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*

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 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 an RDP. Accuracy of external test data and resulting analysis is relied upon.

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

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

10.5 *Testing and Engineering Analysis*

10.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[44]

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

11 Findings

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

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, ECOMAXci FR Air Barrier and 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 R303.[45]

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 1403.2 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 C402.6.2.3.1,[46] and as part of an air barrier assembly in accordance with IECC Section C402.6.2.3.2.[47]

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 R303.3.[48]

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 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 or Sika Corporation.

11.5 IBC Section 104.2.3[49] (IRC Section R104.2.2[50] and IFC Section 104.2.3[51] are similar) in pertinent part state:

> **104.2.3 Alternative Materials, Design and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.6 **Approved:**[52] Building regulations require that the building official shall accept duly authenticated reports.[53]

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

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

11.6.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

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

11.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[54]

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 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 R303.7,[55] 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**.

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

12.9.6 These innovative products have an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.9.7 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 make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

12.11 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 ECOMAXci FR Air Barrier and EVOMAXci, as listed in **Section 1.1**, are identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

13.2 Additional technical information can be found at www.rmax.com.

14 Review Schedule

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

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

Issue Date: November 3, 2021
Subject to Renewal: October 1, 2026

CBC and CRC Supplement to Report Number 1212-03

REPORT HOLDER: Rmax® a Business Unit of Sika Corporation

1 Evaluation Subject

1.1 Rmax ECOMAXci FR Air Barrier and 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 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)*

3 Conclusions

3.1 ECOMAXci FR Air Barrier and 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 104.6 replaces IBC Section 104.4.

3.2.2 CBC Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.3 CBC Section 708.4.1 replaces IBC Section 708.4.2.

3.2.4 CBC Section 718.3 replaces IBC Section 718.3.

3.2.5 CBC Section 718.4 replaces IBC Section 718.4.

3.2.6 CBC Section 1403.2 replaces IBC Section 1403.2.

3.2.7 CBC Section 1404.3 replaces IBC Section 1404.3.

3.2.8 CBC Section 1707.1 replaces IBC Section 1707.1.

3.2.9 CBC Section 2303.2 replaces IBC Section 2303.2.

3.2.10 CBC Section 2306.3 replaces IBC Section 2306.3.

3.2.11 CBC Section 2603 replaces IBC Section 2603.

3.2.12 CBC Section 2603.3 replaces IBC Section 2603.3.

3.2.13 CBC Section 2603.4 replaces IBC Section 2603.4.

3.2.14 CBC Section 2603.5.5 replaces IBC Section 2603.5.5.

3.2.15 CRC Section R104.6 replaces IRC Section R104.4.

3.2.16 CRC Section R104.11 replaces IRC Section R104.2.2.

3.2.17 CRC Section R316 replaces IRC Section R303.

3.2.18 CRC Section R316.3 replaces IRC Section R303.3.

3.2.19 CRC Section R316.4 replaces IRC Section R303.4.

3.2.20 CRC Section R316.7 replaces IRC Section R303.7.

3.2.21 CRC Section R702.7 replaces IRC Section R702.7.

3.2.22 CRC Section R703.2 replaces IRC Section R703.2.

4 Conditions of Use

4.1 ECOMAXci FR Air Barrier and 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, 2026

FBC Supplement to Report Number 1212-03

REPORT HOLDER: Rmax® a Business Unit of Sika Corporation

1 Evaluation Subject

1.1 ECOMAXci FR Air Barrier and 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 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 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 is reserved.

3.2.2 FBC-B Section 110.4 is reserved and replaces IBC Section 110.4.

3.2.3 FBC-B Section 104.6 is reserved and replaces IBC Section 104.4.

3.2.4 FBC-B Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 FBC-B Section 105.3 replaces IBC Section 105.3.

3.2.6 FBC-B Section 105.3.1 replaces IBC Section 105.3.1.

3.2.7 FBC-B Section 110.3 replaces IBC Section 110.3.

3.2.8 FBC-B Section 708.4 replaces IBC Section 708.4.2.

3.2.9 FBC-B Section 718.3 replaces IBC Section 718.3.

3.2.10 FBC-B Section 718.4 replaces IBC Section 718.4.

3.2.11 FBC-B Section 1404.2 replaces IBC Section 1403.2.

3.2.12 FBC-B Section 1405.3 replaces IBC Section 1404.3.

3.2.13 FBC-B Table 1405.3(1) replaces IBC Table 1404.3(1).

3.2.14 FBC-B Section 1707.1 replaces IBC Section 1707.1.

3.2.15 FBC-B Section 2303.2 replaces IBC Section 2303.2.

3.2.16 FBC-B Section 2603 replaces IBC Section 2603.

3.2.17 FBC-B Section 2603.3 replaces IBC Section 2603.3.

3.2.18 FBC-B Section 2603.4 replaces IBC Section 2603.4.

3.2.19 FBC-B Section 2603.5 replaces IBC Section 2603.5.

3.2.20 FBC-B Section 2603.8 replaces IBC Section 2603.8.

3.2.21 FBC-B Section 2603.5.4 replaces IBC Section 2603.5.4.

3.2.22 FBC-B Section 2306.1 replaces IBC Section 2306.1.

3.2.23 FBC-B Section 2306.3 replaces IBC Section 2306.3.

3.2.24 FBC-R Section N1101.1 replaces IRC Section N1101.10.5 and IRC Section N1102.

3.2.25 FBC-R Section R104 and Section R109 are reserved.

3.2.26 FBC-R Section R302.12 replaces IRC Section R302.12.

3.2.27 FBC-R Section R316 replaces IRC Section R303.

3.2.28 FBC-R Section R316.3 replaces IRC Section R303.3.

3.2.29 FBC-R Section R316.4 replaces IRC Section R303.4.

3.2.30 FBC-R Section R316.7 replaces IRC Section R303.7.

3.2.31 FBC-R Section R702.7 replaces IRC Section R702.7.

3.2.32 FBC-R Section R703.2 replaces IRC Section R703.2.

4 Conditions of Use

4.1 ECOMAXci FR Air Barrier and 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: November 3, 2021
Subject to Renewal: October 1, 2026

New York Supplement to Report Number 1212-03

REPORT HOLDER: Rmax® a Business Unit of Sika Corporation

1 Evaluation Subject

1.1 ECOMAXci FR Air Barrier and 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 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 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 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

25 All references to the CBC and CRC are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the California Supplement at the end of this report.

26 All references to the FBC-B and FBC-R are the same as the 2024 IBC and 2024 IRC unless otherwise noted in the Florida Supplement at the end of this report.

27 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.

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

29 2018 IBC Section 1404.3.3

30 2021 IECC Section C402.5.1.3

31 2021 IECC Section C402.5.1.3

32 2021 IECC Section C402.5.1.4

33 2021 IECC Section C402.5.1.4

34 2021 IRC Section R316.4

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

36 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

37 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

38 2021 IRC Section R316

39 2021 IECC Section C402.5.1.3

40 2021 IECC Section C402.5.1.4

41 2021 IRC Section R316.3

42 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.

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

44 See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

45 2021 IRC Section R316

46 2021 IECC Section C402.5.1.3

47 2021 IECC Section C402.5.1.4

48 2021 IRC Section R316.3

49 2021 IBC Section 104.11

50 2021 IRC Section R104.11

51 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

52 Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

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

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

55 2021 IRC Section R316.7