



CERTIFICATION



**Approved. Sealed. Code Compliant.
Technical Evaluation Report**

TER 1811-02

Rmax® ECOMAXci® FR Ply

Rmax®

Product:

Rmax® ECOMAXci® FR Ply

Issue Date:

January 25, 2019

Revision Date:

August 4, 2022

Subject to Renewal:

July 1, 2023



COMPANY
INFORMATION:

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DIVISION: 06 00 00 - WOOD, PLASTICS AND COMPOSITES

SECTION: 06 10 00 - Rough Carpentry

SECTION: 06 16 00 - Sheathing

SECTION: 06 16 13 - Insulated Sheathing

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 27 00 - Air Barriers

SECTION: 07 27 23 - Board Product Air Barriers

1 PRODUCT EVALUATED¹

1.1 Rmax® ECOMAXci® FR Ply

2 APPLICABLE CODES AND STANDARDS^{2,3}

2.1 Codes

2.1.1 *IBC—15, 18, 21: International Building Code®*

2.1.2 *IRC—15, 18, 21: International Residential Code®*

2.1.3 *IECC—15, 18, 21: International Energy Conservation Code®*

2.1.4 *CBC—16, 19: California Building Code (Title 24, Part 2)⁴*

2.1.5 *CRC—16, 19: California Residential Code (Title 24, Part 2.5)⁴*

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

² Unless otherwise noted, all references in this TER are from the 2018 version of the codes and the standards referenced therein. This material, design, or method of construction also complies with the 2000-2015 versions of the referenced codes and the standards referenced therein.

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

⁴ All references to the *CBC* and *CRC* are the same as the 2018 *IBC* and 2018 *IRC* unless otherwise noted in the California Supplement at the end of this TER.

- 2.1.6 *FBC-B—17, 20: Florida Building Code – Building⁵*
- 2.1.7 *FBC-R—17, 20: Florida Building Code – Residential⁵*

2.2 Standards and Referenced Documents

- 2.2.1 *AISI S100: North American Specification for the Design of Cold-formed Steel Structural Members*
- 2.2.2 *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*
- 2.2.3 *ASTM C90: Standard Specification for Loadbearing Concrete Masonry Units*
- 2.2.4 *ASTM C1019: Standard Test Method for Sampling and Testing Grout for Masonry*
- 2.2.5 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 2.2.6 *ASTM D1929: Standard Test Method for Determining Ignition Temperature of Plastics*
- 2.2.7 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*
- 2.2.8 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*
- 2.2.9 *ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*
- 2.2.10 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*
- 2.2.11 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*
- 2.2.12 *AWC TR 12: General Dowel Equations for Calculating Lateral Connection Values*
- 2.2.13 *DOC PS 2: Performance Standard for Wood-based Structural-use Panels*
- 2.2.14 *NFPA 259: Standard Test Method for Potential Heat of Building Materials*
- 2.2.15 *NFPA 285-12: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components⁶*
- 2.2.16 *UL 263: Standard for Fire Tests of Building Construction and Materials*

3 PERFORMANCE EVALUATION

- 3.1 Rmax® ECOMAXci® FR Ply was evaluated to determine the following:
 - 3.1.1 Performance in accordance with foam plastic requirements of [IBC Section 2603](#)
 - 3.1.2 Performance for use as a continuous air barrier in accordance with [IECC Section C402.5.1](#)
 - 3.1.3 Performance for use in exterior walls of buildings of Type I-IV construction in accordance with [2018 IBC Section 2603.5](#)
 - 3.1.3.1 Fire resistance rated assembly in accordance with [IBC Section 2603.5.1](#)
 - 3.1.3.2 Potential heat in accordance with [IBC Section 2603.5.3](#)
 - 3.1.3.3 Flame spread and smoke developed ratings in accordance with [IBC Section 2603.5.4](#) and [IRC Section R316.3](#)
 - 3.1.3.4 Vertical and lateral fire propagation in accordance with [IBC Section 2603.5.5](#)
 - 3.1.3.5 Ignition characteristics in accordance with [2018 IBC Section 2603.5.7](#)
 - 3.1.4 Connection to light-frame cold-formed steel framing to support cladding weight in accordance with [IBC Section 1609.1.1](#)
 - 3.1.5 Connection to light-frame fire-retardant treated wood construction framing to support cladding weight in accordance with [IBC Section 1604.2](#) and [IRC Section R301.1.3](#)
 - 3.1.6 Connection to concrete substrate to support cladding weight in accordance with [IBC Section 1901.3](#)

⁵ All references to the *FBC-B* and *FBC-R* are the same as the 2018 *IBC* and 2018 *IRC* unless otherwise noted in the Florida Supplement at the end of this TER.

⁶ References to *NFPA 285-12* in this TER are code compliant through the 2018 version of the *IBC*.

- 3.2 Design of cladding fastening to ECOMAXci® FR Ply is outside the scope of this TER.
- 3.3 ECOMAXci® FR Ply is not designed as a structural bracing material. Adequate building bracing shall be provided through other means and methods.
- 3.4 Use of ECOMAXci® FR Ply in structures where the exterior wall covering is unable to resist 100% of the transverse wind load is outside the scope of this TER.
- 3.5 Any code compliance issues not specifically addressed in this section are outside the scope of this TER.
- 3.6 Any engineering evaluation conducted for this TER was performed within DrJ's ANAB accredited ICS code scope and/or the defined professional engineering scope of work on the dates provided herein.

4 PRODUCT DESCRIPTION AND MATERIALS

- 4.1 ECOMAXci® FR Ply, shown in Figure 1, is a non-structural, composite product consisting of a foam plastic insulating sheathing (FPIS) layer bonded to fire-retardant treated (FRT) plywood on one side (ASTM C1289 Type V).



FIGURE 1. ECOMAXci® FR PLY

- 4.1.1 The FPIS layer consists of Rmax® rigid, closed-cell polyisocyanurate (polyiso) foamed plastic insulation board bonded to glass fiber reinforced aluminum facers on each side (ASTM C1289 Type I, Class 1 and Class 2).
 - 4.1.2 The FRT plywood is manufactured in accordance with *DOC PS 2* and treated for compliance with *IBC Section 2303.2*.
- 4.2 *Material Availability*
- 4.2.1 Thickness
 - 4.2.1.1 FPIS insulation layer: 0.75 inches (19 mm) through 4.5inches (114 mm).
 - 4.2.1.2 FRT plywood: 0.625 and 0.75 inches (16 and 19 mm)
 - 4.2.2 Standard product width: 48 inches (1219 mm)
 - 4.2.3 Standard product length: 96 inches (2438 mm)

5 APPLICATIONS

5.1 General

- 5.1.1 ECOMAXci® FR Ply is used as wall sheathing, continuous insulation and as a nail base for cladding materials on buildings constructed in accordance with the *IBC* for light-frame cold-formed steel construction, metal buildings, FRT wood framed buildings, concrete masonry buildings, or concrete buildings.
- 5.1.2 Stud walls insulated with ECOMAXci® FR Ply must be properly braced for lateral loads according to the requirements of local building codes.
- 5.1.3 The wall system shall be designed to handle wind load per the applicable code.
- 5.1.4 The Environmental Product Declaration (EPD) for the insulation layer is available at polyiso.org.
- 5.1.5 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and good technical judgment

5.2 Thermal Resistance (R-Value)

- 5.2.1 ECOMAXci® FR Ply meets the continuous insulating sheathing requirements complying with the provisions of *IECC Section C402*, *IRC Section N1102*, and *IECC Section R402* and is intended to be used as exterior continuous insulation under any type of permitted cladding

5.3 Air Barrier

- 5.3.1 ECOMAXci® FR Ply meets the requirements of *IECC Section C402* for use as a component of the air barrier, when installed in accordance with the manufacturer’s installation instructions and this TER
- 5.3.2 The air barrier material properties of ECOMAXci® FR Ply are shown in Table 1.

TABLE 1. AIR BARRIER MATERIAL PROPERTIES

| Property |
|---|
| < 0.005 L/(s.m ²) ¹ |
| IP: 1 L/(s.m ²) = 0.2 cfm/ft ² |
| 1. Tested in accordance with ASTM E2178. |

- 5.3.3 The air permeance of an air barrier material is defined by the *IECC* and the Air Barrier Association of America (ABAA) as being no greater than 0.02 L/(s·m²) at 75 Pa pressure difference when tested in accordance with *ASTM E2178*.
- 5.3.4 When used as part of an air barrier assembly, all sheathing panel joints, the top and bottom of walls, and all penetrations shall be sealed in accordance with the manufacturer’s installation instructions and this TER.

5.4 Draftstop

- 5.4.1 ECOMAXci® FR Ply may be used as a draftstop material in accordance with *IBC Section 708.4.2*, *Section 718.3*, and *Section 718.4* and *IRC Section R302.12*.
- 5.4.2 When installed as a draftstop, ECOMAXci® FR Ply shall be installed in accordance with Section 6.

5.5 Fire Safety Performance

5.5.1 Surface Burning Characteristics

- 5.5.1.1 The components of ECOMAXci® FR Ply have the flame spread and smoke developed ratings shown in Table 2 when tested in accordance with *ASTM E84* per *IBC Section 2603.5.4* and *IRC Section R316.3*.

TABLE 2. SURFACE BURNING CHARACTERISTICS

| Product | Flame Spread Index | Smoke Developed Index |
|--|--------------------|-----------------------|
| FPIS | < 25 | < 250 |
| FRT Plywood | < 25 | < 450 |
| 1. Tested in accordance with ASTM E84. | | Sl: 1 in = 25.4 mm |



5.5.2 Thermal Barrier (IBC and IRC Buildings)

5.5.2.1 ECOMAXci® FR Ply shall be separated from the building interior by a thermal barrier meeting the provisions of IBC Section 2603.4, 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 4.5 inches, is covered by one of the following:

- 5.5.2.1.1 Minimum 0.032 inch thick aluminum
- 5.5.2.1.2 Minimum 0.016 inch thick corrosion resistance steel

5.5.3 Fire Resistance Ratings (Fire-Rated Assemblies):

5.5.3.1 ECOMAXci® FR Ply has been tested and meets 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’s installation instructions and this TER:

- 5.5.3.1.1 45 minutes: U424, U425, V321, V499, W456
- 5.5.3.1.2 1 hour: U026, U326, U330, U354, U355, U364, U424, U425, U460, V302, V303, V454, V499, W307, W417, W456
- 5.5.3.1.3 1.5 hour: U424, U425, V499, W456
- 5.5.3.1.4 2 hour: U349, U424, U425, U905, U906, V332, V499, W456
- 5.5.3.1.5 3 hour: U904, U907
- 5.5.3.1.6 4 hour: U902, U907

5.5.4 Potential Heat

5.5.4.1 The FPIS layer of ECOMAXci® FR Ply has been tested to assess its performance as shown in Table 3 with regard to potential heat in accordance with NFPA 259 and IBC Section 2603.5.3.

TABLE 3. POTENTIAL HEAT¹

| Potential Heat (Btu/lb) | |
|---|--|
| 11,054 | |
| SI: 1 Btu/lb = 2.326 kJ/kg | |
| 1. FPIS layer tested in accordance with NFPA 259. | |

5.5.5 Vertical and Lateral Fire Propagation (NFPA 285 Applications)

5.5.5.1 ECOMAXci® FR Ply has been tested to assess its performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 and 2018 IBC Section 2603.5.5.

5.5.5.2 Engineering analysis has also been conducted to assess substitution of other products within the approved wall assemblies.

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

TABLE 4. FIRE PERFORMANCE - VERTICAL & LATERAL FIRE PROPAGATION¹

| Wall Component | Materials |
|---|---|
| Base Wall System Select option 1, 2, 3 or 4 | 1. Cast concrete walls 2. CMU Concrete walls 3. 20 GA (min.) 3.625" (min.) steel studs spaced 24" o.c. (max.) a. 0.5" (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 <i>IBC</i> Section 2303.2, minimum nominal 2x4 dimension, spaced 24" o.c. (max.) a. 0.625" 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 <i>NFPA 285</i> assemblies requiring SPF in stud cavities | 1. None 2. Any noncombustible insulation per <i>ASTM E136</i> 3. Any Mineral Fiber (board type Class A, <i>ASTM E84</i> faced or un-faced) 4. Any Fiberglass (batt type Class A <i>ASTM E84</i> faced or unfaced) 5. 5.5" (max.) Icynene LD-C-50 SPF in 6" deep studs (max.). Use with 0.625" exterior sheathing. 6. 5.5" (max.) Icynene MD-C-200 2 pcf SPF in 6" deep studs (max.) full fill without an air gap. Use with 0.625" exterior sheathing. 7. 5.5" (max.) Icynene MD-R-210 2 pcf SPF in 6" deep studs (max.) full fill without an air gap. Use with 0.625" exterior sheathing 8. SWD Urethane QS 112 2 pcf SPF in 6" deep studs (max.) partial fill with a maximum 2.5" air gap or full fill. Use with 0.625" exterior sheathing. 9. Gaco Western 183M SPF (3.5" max). Use with 0.625" exterior sheathing. 10. Gaco Western F 1850 SPF (3.5" max.). Use with 0.625" exterior sheathing. 11. Demilec Sealection 500 SPF (3.625" max). Use with 0.625" exterior sheathing. 12. Demilec HeatLok Soy 200 Plus SPF (3.4" max). Use with 0.625" exterior sheathing. 13. Bayer Bayseal SPF (3" max). Use with 0.625" exterior sheathing. 14. Lapolla FoamLok FL 2000 SPF (3" max). Use with 0.625" exterior sheathing. 15. BASF SprayTite 81206 or WallTite (US & US-N) SPF (3.625" max). Use with 0.625" exterior sheathing. |
| Exterior Sheathing Select option 1, 2, 3, 4, 5, 6, 7 or 8 Note: When SPF is used, 0.625" exterior gypsum sheathing must be used. | 1. None (when using Base Wall 1 or 2) 2. None (3" max. exterior insulation with claddings 7-15) 3. None (4.5" max. exterior insulation with claddings 1-6) 4. 0.5" (min.), exterior gypsum board sheathing 5. 0.5" (min.) FRTW structural panels complying with <i>IBC Section 2303.2</i> and installed in accordance with code allowances for Types I, II, III or IV construction. 6. 0.625" 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's installation instructions. Note: WRB over Exterior Sheathing items 6-8 may not be used since they already incorporate a pre-installed WRB. | 1. None 2. Any WRB tested in accordance with <i>ASTM E1354</i> (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: a. Carlisle CCW Fire Resist 705FR-A b. Carlisle CCW Fire Resist Barritech NP™ c. Carlisle CCW Fire Resist Barritech VP d. Dörken Systems Inc, Delta Stratus SA e. Dörken Systems Inc, Delta®-Fassade S |

| 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> | <ul style="list-style-type: none"> 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) 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® Metal Clad® 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. MBCC MasterSeal® AWB 660 (Formerly BASF Enershield® HP) ll. MBCC MasterSeal® AWB 660 I (Formerly BASF Enershield® I) mm. NaturaSeal AirSeal NS A-250LP™ nn. NaturaSeal NS-A-250HP™ 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®-530 zz. Sika Sikagard®-535 aaa. Soprema Sopraseal® LM 204 VP bbb. Soprema Sopraseal® Stick 1100T ccc. Soprema Sopraseal® Stick VP ddd. Soprema Soprasolin HD eee. Tremco ExoAir 110AT fff. Tremco ExoAir 230 ggg. Vaproshield RevealShield SA® hhh. Vaproshield WrapShield SA® |

| Wall Component | Materials |
|---|--|
| | <ul style="list-style-type: none"> iii. W.R. Meadows® Air-Shield™ LMP (Black) jjj. W kkk. W.R. Meadows® Air-Shield™ LMP (Gray) lll. W.R. Meadows® Air-Shield™ LSR mmm. W.R. Meadows® Air-Shield™ SMP nnn. W.R. Meadows® Air-Shield™ TMP |
| <p>Exterior Insulation Installation may include FRT plywood layer on exterior side or interior side. Use with plywood on interior side negates use of exterior sheathing since the FRT ply acts as the sheathing.</p> | <p>1. ECOMAXci® FR Ply – 4.5" (max.) foam thickness, 0.625" (min.) FRT plywood thickness.</p> |
| <p>FRTW Structural Panels over Exterior Insulation (Optional)</p> | <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> |
| <p>Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW) Use any in item 1 or 2 depending on the cladding used</p> <p>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.</p> <p>NLA = No longer available.</p> | <p>1. For use with all claddings</p> <ul style="list-style-type: none"> 1.01 None 1.02 6" (max) tape or flashing over insulation joints <ul 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 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 <p>2. For use with cladding options 1-6 (heavy masonry) with non-open joint installation techniques (ex. shiplap, etc.)</p> <ul 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®-Foxy/Plus 2.05 Dörken Systems Inc. Delta®-Maxx/Plus 2.06 Dörken Systems Inc. Delta®-Vent S/Plus 2.07 Dow Corning DOWSIL™ DefendAir 200 2.08 Dow Corning DOWSIL™ DefendAir 200C 2.09 Dryvit Backstop® NT™ 2.10 GCP PERM-A-BARRIER® VPS 2.11 GCP PERM-A-BARRIER® VPL 2.12 GCP PERM-A-BARRIER® VPL Low Temperature 2.13 Henry Air-Bloc All Weather STPE |

| Wall Component | Materials |
|---|---|
| | <p>2.14 Henry Super Jumbo Tex 60 minutes (only with ¾" stucco cladding) (Fortifiber)</p> <p>2.15 Henry WeatherSmart Drainable (Fortifiber)</p> <p>2.16 Henry® Air-Bloc® 16 MR</p> <p>2.17 Henry® Air-Bloc® 17 MR</p> <p>2.18 Henry® Air-Bloc® 21 FR</p> <p>2.19 Henry® Air-Bloc® 31MR</p> <p>2.20 Henry® Air-Bloc® 33MR</p> <p>2.21 Henry® Blueskin® VP160</p> <p>2.22 Henry® Envirocap</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™ TMPHenry® Air-Bloc® 31MR</p> |
| <p>Exterior Cladding 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><u>Heavy Masonry</u></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 0.75" 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, Precast Concrete Panels, or CMU -- Minimum 1.5" thick, using any standard installation technique. Cast stone complying with ICC-ES AC 51. 6. Terra Cotta Cladding – Minimum 1.25" thick using any standard installation technique. <p><u>Other</u></p> <ol style="list-style-type: none"> 7. Any MCM or ACM (aluminum, steel, copper, zinc) (w/2.5" maximum air gap) that has successfully passed <i>NFPA 285</i> 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 <i>NFPA 285</i> 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 <i>NFPA 285</i> or equivalent. <ol style="list-style-type: none"> a. Stone Panels Inc. Stone Lite Panel system has been analyzed using manufacturer's standard installation technique 11. Autoclaved-aerated- concrete (AAC) panels that have successfully passed <i>NFPA 285</i> using any standard installation technique. 12. Thin Set Brick |

| Wall Component | Materials |
|---|---|
| | <p>a. Glen-Gary Thin Tech™ Elite Series has been analyzed using manufacturer’s standard installation technique.</p> <p>b. Tabs II Panel System with 0.5” bricks using Tabs Wall Adhesive</p> <p>13. Natural Stone Veneer – minimum 1.25” (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 1.5”.</p> <p>15. Glen-Gery Tru-Brix (only with optional non-combustible mortar)</p> <p>16. Thin brick (minimum 0.75” thick clay brick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 0.5” 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 (minimum 0.75” thick) fully adhered with cementitious mortar (standard or polymer-modified) to minimum 0.5” 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"> 1. 0.08” (min.) aluminum (examples include window frame, flashing, lintel, C-channel) 2. 20 GA. (min.) sheet steel (examples include window frame, flashing, lintel, C-channel) 3. 0.5” (min.) 4pcf (min.) mineral wool 4. 0.75” (min.) FRT wood buck 5. 0.75” (min.) FRT plywood 6. 0.625” (min.) type X GWB 7. 0.25” (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> |
| Sl: 1 in = 25.4 mm | |
| 1. All WRBs shall be installed at recommended application rates and per the manufacturer’s installation instructions. | |

5.5.6 Ignition Properties

5.5.6.1 ECOMAXci® FR Ply was evaluated to assess performance with regard to ignition in accordance with 2018 IBC Section 2603.5.7.

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

5.5.6.1.1.1 A thermal barrier in accordance with IBC Section 2603.4.

5.5.6.1.1.2 Masonry or concrete: minimum 1 inch (25.4 mm) thick.

5.5.6.1.1.3 Glass-fiber-reinforced concrete panels: minimum 0.375 inch (9.5 mm) thick.

5.5.6.1.1.4 Metal-faced panels having a minimum 0.019 inch (0.5 mm) thick aluminum or 0.016 inch (0.4 mm) thick corrosion-resistant steel outer facings.

5.5.6.1.1.5 Stucco: minimum 0.875 inch (22.2 mm) thick complying with IBC Section 2510.

5.6 Attachment to Steel Framing to Support Cladding Weight

- 5.6.1 Allowable cladding loads are shown in Table 5 and Table 6 in Appendix A for attaching ECOMAXci® FR Ply to light-frame cold-formed steel to light-frame cold-formed steel with various fastener types and sheathing thicknesses.
- 5.6.1.1 The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing. The tables in Appendix A only consider the gravity (dead) loads corresponding to the tabulated cladding weights.
 - 5.6.1.2 The fasteners shall have a minimum size and maximum spacing as shown.
 - 5.6.1.3 All panel edges shall be supported by framing or blocking.
 - 5.6.1.4 Minimum allowable penetration into steel framing is the steel thickness plus three threads plus the tip.
- 5.6.2 Use one of the following (fasteners with equal or greater design properties shall be permitted):
- 5.6.2.1 #8 screw: 0.164 inch shank diameter, 0.3125 inch head diameter
 - 5.6.2.2 #10 screw: 0.190 inch shank diameter, 0.363 inch head diameter
 - 5.6.2.3 #12 screw: 0.216 inch shank diameter, 0.414 inch head diameter
 - 5.6.2.4 Rmax® Nail Board Fastener SIP LD: 0.189 inch shank diameter, 0.625 inch head diameter
 - 5.6.2.5 Rmax® Nail Board Fastener SIP HD: 0.189 inch shank diameter, 0.625 inch head diameter
 - 5.6.2.6 TRUFAST® SIP LD: 0.189 inch shank diameter, 0.625 inch head diameter
 - 5.6.2.7 TRUFAST® SIP HD: 0.189 inch shank diameter, 0.625 inch head diameter
 - 5.6.2.8 FastenMaster HeadLOK®: 0.191 inch shank diameter, 0.625 inch head diameter

5.7 Attachment to Fire-Rated Treated (FRT) Wood Framing to Support Cladding Weight

- 5.7.1 Allowable cladding loads are shown in Table 7 and Table 8 in Appendix A for attaching ECOMAXci® FR Ply to FRT wood stud framing with various fastener types and sheathing thicknesses.
- 5.7.1.1 The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing. The tables in Appendix A only consider the gravity (dead) loads corresponding to the tabulated cladding weights.
 - 5.7.1.2 The fasteners shall have a minimum size and maximum spacing as shown.
 - 5.7.1.3 All panel edges shall be supported by framing or blocking.
 - 5.7.1.4 Minimum allowable penetration into FRT wood wall framing is 1.25 inch.
- 5.7.2 Use one of the following (fasteners with equal or greater design properties shall be permitted):
- 5.7.2.1 Rmax® Nail Board Fastener SIP TP: 0.189 inch shank diameter, 0.625 inch head diameter
 - 5.7.2.2 12d nail (0.148 inch x 3.25 inch): 0.312 inch head diameter
 - 5.7.2.3 Simpson Strong-Drive SDWS22: 0.22 inch shank diameter, 0.435 inch head diameter
 - 5.7.2.4 FastenMaster HeadLOK®: 0.191 inch shank diameter, 0.625 inch head diameter
 - 5.7.2.5 TRUFAST® SIP TP: 0.189 inch shank diameter, 0.625 inch head diameter
- 5.7.3 Fasteners in contact with FRT wood shall be coated to protect against corrosion per IBC Section 2304.10.6⁷.

⁷ 2018 IBC Section 2304.10.5

5.8 Attachment to Concrete to Support Cladding Weight

- 5.8.1 Allowable cladding loads are shown in Table 9, Table 10, and Table 11 in Appendix A for attaching ECOMAXci® FR ply to minimum 2,500 psi concrete (at 28 days) with various fastener types and sheathing thicknesses.
- 5.8.1.1 The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing. The tables in Appendix A only consider the gravity (dead) loads corresponding to the tabulated cladding weights.
- 5.8.1.2 The fasteners shall have a minimum size and maximum spacing as shown.
- 5.8.1.3 Minimum allowable embedment into concrete is dependent on the fastener as noted in Table 9, Table 10, and Table 11 in Appendix A.
- 5.8.2 Use one of the following (fasteners with equal or greater design properties shall be permitted):
- 5.8.2.1 ITW Buildex Tapcon® Hex: 0.1875 inch nominal shank diameter
- 5.8.2.2 Hilti KH-EZ C: 0.25 inch nominal diameter
- 5.8.2.3 Simpson Strong-Tie® Titen HD®: 0.25 inch nominal diameter
- 5.8.2.4 TRUFAST® SIP LD: 0.189 inch shank diameter

5.9 Attachment to Concrete Masonry Units (CMU) to Support Cladding Weight

- 5.9.1 Allowable cladding loads are shown in Table 12, Table 13, and Table 14 in Appendix A for attaching ECOMAXci® FR ply to CMU block with various fastener types and sheathing thicknesses.
- 5.9.1.1 The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing. The tables in Appendix A only consider the gravity (dead) loads corresponding to the tabulated cladding weights.
- 5.9.1.2 The fasteners shall have a minimum size and maximum spacing as shown.
- 5.9.1.3 Minimum allowable embedment into CMU is dependent on the fastener as noted in Table 12, Table 13, and Table 14 in Appendix A.
- 5.9.2 All fasteners shall be installed into the face of CMU block.
- 5.9.3 Use one of the following (fasteners with equal or greater design properties shall be permitted):
- 5.9.3.1 Rmax® Nail Board Fastener SIP LD: 0.189 inch shank diameter
- 5.9.3.2 ITW Buildex Tapcon® Hex: 0.1875 inch nominal shank diameter
- 5.9.3.3 Hilti KH-EZ C: 0.25 inch nominal diameter
- 5.9.3.4 Simpson Strong-Tie® Titen HD®: 0.25 inch nominal diameter
- 5.9.3.5 TRUFAST® SIP LD: 0.189 inch shank diameter
- 5.10 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.

6 INSTALLATION

- 6.1 Installation shall comply with the manufacturer's installation instructions and this TER. In the event of a conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern.
- 6.2 *Orientation*
- 6.2.1 ECOMAXci® FR Ply may be installed vertically or horizontally over cold-formed steel studs or FRT wood studs, with framing that has a nominal thickness of not less than 2 inches (51 mm) and spaced a maximum of 24 inches (610 mm) o.c.
- 6.2.2 ECOMAXci® FR Ply may be installed vertically or horizontally over concrete or CMU block in accordance with Table 9, Table 10, Table 11, Table 12, Table 13, and Table 14 in Appendix A.

6.3 Attachment

- 6.3.1 For steel and FRT wood framing, fasteners shall be installed with a nominal edge distance of 0.375 inch (9.5 mm) in the ECOMAXci® FR Ply.
- 6.3.2 For concrete and CMU, fastener edge distance is dependent on the fastener as noted in Table 9 through Table 14 in Appendix A.
- 6.3.3 Fasteners, including nuts and washers, for FRT wood used in exterior applications or wet or damp locations shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper in accordance with IBC Section 2304.10.6⁸ for FRT wood.
- 6.3.4 Fasteners shall be installed with the maximum on-center spacing as indicated in Table 5 through Table 14 in Appendix A.
- 6.3.5 Bending yield strength of commodity fasteners shall be as shown in NDS Table 12N, and footnote 2. Bending yield of proprietary fasteners are as published by the fastener manufacturer.
- 6.3.6 See footnotes of through for more installation information into concrete and masonry substrates.
 - 6.3.6.1 All fasteners installed in masonry shall be in the face of CMU block.

7 SUBSTANTIATING DATA

- 7.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:
 - 7.1.1 Material properties testing in accordance with *ASTM C1289*
 - 7.1.2 Air permeance testing in accordance with *ASTM E2178*
 - 7.1.3 Flame spread rating and smoke developed ratings testing in accordance with *ASTM E84*
 - 7.1.4 Fire resistance rating testing in accordance with *UL 263*
 - 7.1.5 Heat propagation (potential heat) testing in accordance with *NFPA 259*
 - 7.1.6 Vertical and lateral fire propagation testing in accordance with *NFPA 285-12*, with analysis by Priest and Associates Consulting, LLC and Hughes Associates
- 7.2 Foam Sheathing Committee Tech Matters, *Guide to Attaching Exterior Wall Coverings through Foam Sheathing to Wood or Steel Framing*.
- 7.3 New York State Energy Research and Development Authority, *Fastening Systems for Continuous Insulation*.
- 7.4 Information contained herein is the result of testing and/or data analysis by sources which conform to IBC Section 1703 and/or professional engineering regulations. DrJ relies upon accurate data to perform its ISO/IEC 17065 evaluations.
- 7.5 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through state or local adoption of codes and standards. The providers of the codes and standards are legally responsible for their content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a product as being equivalent to that prescribed in this code in quality, *strength*, effectiveness, *fire resistance*, durability, and safety. Where the accuracy of the provisions provided herein is reliant upon the published properties of materials, DrJ relies upon the grade mark, grade stamp, mill certificate, and/or test data provided by material suppliers to be minimum properties. DrJ analysis relies upon these properties to be accurate.

⁸ 2018 IBC Section 2304.10.5

8 FINDINGS

- 8.1 When used and installed in accordance with this TER and the manufacturer's installation instructions, the product(s) listed in Section 1.1 are approved for the following:
- 8.1.1 Buildings constructed in accordance with the *IBC* and the *IRC*
 - 8.1.2 Performance of foam plastics in accordance with *IBC* Section 2603 and *IRC* Section R316
 - 8.1.3 Use as insulating sheathing in accordance with *IECC* Section C402
 - 8.1.4 Use as a continuous as an air barrier in accordance with *IECC* Section C402.5.1
 - 8.1.5 Use in exterior walls of Type I-IV construction in accordance with the *IBC* Section 2603.5
 - 8.1.6 Use in a fire resistance rated assembly in accordance with *IBC* Section 2603.5.1
 - 8.1.7 Flame spread and smoke developed indices in accordance with *IBC* Section 2603.5.4
 - 8.1.8 Potential heat in accordance with *IBC* Section 2603.5.3
 - 8.1.9 Vertical and lateral fire propagation in accordance with *IBC* Section 2603.5.5
 - 8.1.10 Ignition characteristics in accordance with *IBC* Section 2603.5.7
 - 8.1.11 Use as a nailbase for cladding materials.
- 8.2 Agencies who are accredited through ISO/IEC 17065 have met the code requirements for approval by the building official. DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131 and employs RDPs.
- 8.3 Through ANAB accreditation and the IAF MLA, DrJ certification can be used to obtain product approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – “certified once, accepted everywhere.”
- 8.4 *IBC* Section 104.11 (*IRC* Section R104.11 and *IFC* Section 104.10⁹ are similar) states:

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

9 CONDITIONS OF USE

- 9.1 Installation shall comply with this TER and the manufacturer's installation instructions. In the event of a conflict between this TER and the manufacturer's installation instructions, the more restrictive shall govern.
- 9.2 Exterior wall coverings capable of resisting the full design wind pressure shall be installed over this product and shall provide a direct load path to the structural frame.
- 9.3 When ECOMAXci® FR Ply is used as a nailbase for the cladding, fastening of the cladding to the ECOMAXci® FR Ply shall be designed to resist the weight of the cladding and the imposed wind pressure.
- 9.4 Walls shall be fully braced with other materials in accordance with *IBC* Section 2308.6.4 or *IRC* Section R602.10.
- 9.5 A separate WRB shall be installed in accordance with *IBC* Section 1403.2¹⁰ and *IRC* Section R703.2.
- 9.6 Walls shall not be used to resist horizontal loads from concrete and masonry walls.
- 9.7 ECOMAXci® FR Ply may be used as a nail base for cladding. Fastener size and spacing shall be in accordance with Table 5 through Table 14 in Appendix A.
- 9.8 Where required by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of permit application.

⁹ 2018 *IFC* Section 104.9

¹⁰ 2015 *IBC* Section 1404.2



- 9.9 Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the AHJ for review and approval.
- 9.10 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (e.g., owner or RDP).
- 9.11 At a minimum, this product shall be installed per Section 5.5.6 and Section 5.6 through 5.9 of this TER.
- 9.12 This product (manufactured in Dallas, Texas; Greer, South Carolina and Fernley, Nevada) has an internal quality control program and a third-party quality assurance program in accordance with IBC Section 104.4 and Section 110.4 and IRC Section R104.4 and Section R109.2.
- 9.13 The actual design, suitability, and use of this TER, for any particular building, is the responsibility of the owner or the owner's authorized agent.
- 9.14 This TER shall be reviewed for code compliance by the AHJ in concert with IBC Section 104.
- 9.15 The implementation of this TER for this product is dependent on the design, quality control, third-party quality assurance, proper implementation of installation instructions, inspections required by IBC Section 110.3, and any other code or regulatory requirements that may apply.

10 IDENTIFICATION

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

11 REVIEW SCHEDULE

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



APPENDIX A

| Base Wall | Stud/Horizontal Spacing | Reference |
|----------------|-------------------------|-------------------|
| Steel Studs | 16" o.c. | Table 5, Page 18 |
| | 24" o.c. | Table 6, Page 22 |
| FRT Wood Studs | 16" o.c. | Table 7, Page 26 |
| | 24" o.c. | Table 8, Page 28 |
| Concrete | 16" o.c. | Table 9, Page 30 |
| | 24" o.c. | Table 10, Page 31 |
| | 48" o.c. | Table 11, Page 32 |
| CMU | 16" o.c. | Table 12, Page 33 |
| | 24" o.c. | Table 13, Page 35 |
| | 48" o.c. | Table 14, Page 37 |



TABLE 5. ECOMAXci® FR PLY WITH 5/8" OR 3/4" FIRE TREATED PLYWOOD – VERTICAL STEEL STUDS 16" O.C.^{4,5,6}

| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| 20 ga. structural (33 mil) | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 3.00 | 16 | 8 | 6 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 6 | - | - | - | - | - |
| | HeadLOK® | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 16 | 8 | 6 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | #12 common | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | #10 common or TRUFAST® SIP LD | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | 4 | - |
| | TRUFAST® SIP LD | 3.00 | 16 | 8 | 6 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 6 | - | - | - | - | - |
| | #8 common | 0.75 | 24 | 16 | 12 | 8 | 6 | 6 |
| 1.00 | | 24 | 16 | 8 | 8 | 6 | 4 | |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 1.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | - | - |
| 18 ga. structural (43 mil) | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | HeadLOK® | 0.75 | 24 | 24 | 16 | 12 | 12 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | #12 common | 0.75 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.50 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 3.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | #10 common or TRUFAST® SIP LD | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | TRUFAST® SIP LD | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | #8 common | 0.75 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 1.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | - | - |
| 16 ga. structural (54 mil) | Rmax® Nail Board Fastener SIP HD | 0.75 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.00 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.50 | 24 | 24 | 24 | 16 | 16 | 12 |
| | | 2.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 3.50 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 4.00 | 16 | 8 | 6 | 4 | - | - |
| | | 4.50 | 4 | - | - | - | - | - |
| | TRUFAST® SIP HD | 0.75 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.00 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.50 | 24 | 24 | 24 | 16 | 16 | 12 |
| | | 2.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 3.50 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 4.00 | 16 | 8 | 6 | 4 | - | - |
| | | 4.50 | 4 | - | - | - | - | - |
| | HeadLOK® | 0.75 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.00 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 1.50 | 24 | 24 | 24 | 16 | 16 | 12 |
| | | 2.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 3.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 4.00 | 16 | 8 | 6 | 4 | 4 | - |
| | | 4.50 | 6 | - | - | - | - | - |
| | #12 common | 0.75 | 24 | 24 | 16 | 16 | 12 | 8 |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 1.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.50 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 3.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | #10 common | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | #8 common | 0.75 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 1.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | - | - |

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

1. The maximum vertical fastener spacing along each stud spaced 16" o.c. to support the specified cladding weight (psf)
2. Minimum fastener penetration into stud is steel thickness plus three threads plus the tip.
3. The specified cladding weight shall include all supported materials, including the ECOMAXci® FR Ply.
4. ECOMAXci® FR Ply is installed with foam directly to the studs.
5. Screw values determined using NDS Yield Limit Equations and TR-12 for evaluating the foam as a gap.
6. Proprietary fastener properties are per published data or testing.



TABLE 6. ECOMAXci® FR PLY WITH 5/8" OR 3/4" FIRE TREATED PLYWOOD – VERTICAL STEEL STUDS 24" O.C. 4,5,6

| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| 20 ga. structural (33 mil) | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 6 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 4 | - | - | - | - | - |
| | HeadLOK® | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 6 | 4 | - | - |
| | | 2.50 | 16 | 8 | 4 | 4 | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 4 | - | - | - | - | - |
| | #12 common | 0.75 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.00 | 16 | 8 | 6 | 4 | 4 | - |
| | | 2.50 | 16 | 8 | 6 | 4 | - | - |
| | | 3.00 | 16 | 8 | 4 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | #10 common or TRUFAST® SIP LD | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 6 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | TRUFAST® SIP LD | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 4 | - | - | - | - | - |
| | #8 common | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| 1.00 | | 16 | 8 | 6 | 4 | 4 | - | |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 1.50 | 16 | 8 | 6 | 4 | - | - |
| | | 2.00 | 16 | 8 | 4 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| 18 ga. structural (43 mil) | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 3.00 | 16 | 8 | 6 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 6 | - | - | - | - | - |
| | HeadLOK® | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 16 | 8 | 6 | 4 | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | #12 common | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | #10 common or TRUFAST® SIP LD | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | 4 | - |
| TRUFAST® SIP LD | 3.00 | 16 | 8 | 6 | 4 | - | - | |
| | 3.50 | 12 | 6 | 4 | - | - | - | |
| | 4.00 | 6 | - | - | - | - | - | |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | #8 common | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 16 | 8 | 6 | 4 | 4 | - |
| | | 1.50 | 16 | 8 | 6 | 4 | - | - |
| | | 2.00 | 16 | 8 | 4 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| 16 ga. structural (54 mil) | Rmax® Nail Board Fastener SIP HD | 0.75 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | TRUFAST® SIP HD | 0.75 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | HeadLOK® | 0.75 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.00 | 24 | 24 | 16 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | #12 common | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| 2.50 | | 24 | 12 | 8 | 6 | 4 | 4 | |



| Framing Member | Fastener Type and Min. Size ² | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Vertical Fastener Spacing ¹ (in) | | | | | |
|----------------|--|--|--|----|----|----|----|----|
| | | | Cladding Weight ³ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | #10 common | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 16 | 8 | 6 | 4 | 4 | - |
| | #8 common | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 16 | 8 | 6 | 4 | 4 | - |
| | | 1.50 | 16 | 8 | 6 | 4 | - | - |
| | | 2.00 | 16 | 8 | 4 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |

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

1. The maximum vertical fastener spacing along each stud spaced 24" o.c. to support the specified cladding weight (psf)
2. Minimum fastener penetration into stud is steel thickness plus three threads plus the tip.
3. The specified cladding weight shall include all supported materials, including the ECOMAXci® FR Ply.
4. ECOMAXci® FR Ply is installed with foam directly to the studs.
5. Screw values determined using NDS Yield Limit Equations and TR-12 for evaluating the foam as a gap.
6. Proprietary fastener properties are per published data or testing.



TABLE 7. ECOMAXci® FR PLY WITH 5/8" OR 3/4" FIRE TREATED PLYWOOD – VERTICAL FRT WOOD STUDS 16" O.C. 1,3,4,5,6,7

| Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Fastener Spacing (in) | | | | | |
|----------------------------------|--|--|----|----|----|----|----|
| | | Specified Cladding Weight ² (psf) | | | | | |
| | | 5 | 10 | 15 | 20 | 25 | 30 |
| Rmax® Nail Board Fastener SIP TP | 0.75 | 24 | 24 | 20 | 16 | 12 | 8 |
| | 1.00 | 24 | 20 | 16 | 12 | 8 | 8 |
| | 1.50 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 2.00 | 16 | 12 | 8 | 6 | 6 | 4 |
| | 2.50 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 3.00 | 8 | 8 | 6 | 4 | 4 | - |
| | 3.50 | 8 | 6 | 4 | 4 | - | - |
| | 4.00 | 8 | 4 | 4 | - | - | - |
| | 4.50 | 6 | 4 | 4 | - | - | - |
| 12d (0.148" x 3.25") | 0.75 | 24 | 16 | 8 | 8 | 6 | 6 |
| | 1.00 | 20 | 12 | 8 | 6 | 6 | 4 |
| TRUFAST® SIP TP | 0.75 | 24 | 24 | 20 | 16 | 12 | 8 |
| | 1.00 | 24 | 20 | 16 | 12 | 8 | 8 |
| | 1.50 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 2.00 | 16 | 12 | 8 | 6 | 6 | 4 |
| | 2.50 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 3.00 | 8 | 8 | 6 | 4 | 4 | - |
| | 3.50 | 8 | 6 | 4 | 4 | - | - |
| | 4.00 | 8 | 4 | 4 | - | - | - |
| | 4.50 | 6 | 4 | 4 | - | - | - |
| FastenMaster HeadLOK® | 0.75 | 24 | 24 | 24 | 16 | 12 | 12 |
| | 1.00 | 24 | 24 | 20 | 16 | 12 | 8 |
| | 1.50 | 24 | 16 | 12 | 8 | 8 | 8 |
| | 2.00 | 20 | 12 | 8 | 8 | 6 | 6 |
| | 2.50 | 16 | 12 | 8 | 6 | 6 | 4 |
| | 3.00 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 3.50 | 8 | 8 | 6 | 4 | 4 | - |
| | 4.00 | 8 | 6 | 4 | 4 | - | - |
| | 4.50 | 8 | 4 | 4 | - | - | - |
| Simpson Strong-Drive SDWS22 | 0.75 | 24 | 24 | 24 | 20 | 16 | 16 |
| | 1.00 | 24 | 24 | 24 | 20 | 16 | 12 |
| | 1.50 | 24 | 24 | 16 | 12 | 12 | 8 |
| | 2.00 | 24 | 16 | 12 | 8 | 8 | 8 |



| Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Fastener Spacing (in) | | | | | |
|------------------------------|--|--|----|----|----|----|----|
| | | Specified Cladding Weight ² (psf) | | | | | |
| | | 5 | 10 | 15 | 20 | 25 | 30 |
| | 2.50 | 20 | 12 | 8 | 8 | 6 | 6 |
| | 3.00 | 16 | 12 | 8 | 6 | 6 | 4 |
| | 3.50 | 12 | 8 | 8 | 6 | 6 | 4 |
| | 4.00 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 4.50 | 8 | 8 | 6 | 4 | 4 | 4 |

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

1. Minimum fastener penetration into the stud is 1 ¼".
2. The weight of ECOMAXci® FR Ply is included in the fastener spacing calculations. The specified cladding weight shall include all other supported materials besides the ECOMAXci® FR Ply.
3. ECOMAXci® FR Ply is installed directly to the studs with the plywood to the exterior of the structure.
4. FRT wood studs shall be a minimum of 2x4 and have a minimum specific gravity of 0.42.
5. The tabulated calculations are based on a strength design reduction factor of 0.90 for fasteners in FRT wood. Verify strength reduction based on FRT manufacturer's installation instructions.
6. Nail and screw values determined using *NDS* Yield Limit Equations and *TR-12* for evaluating the foam as a gap.
7. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths. Minimum bending yield strength for nails with a diameter up to 0.148", 0.162", and 0.225" shall be 90,000 psi, 90,000 psi, and 80,000 psi respectively. Proprietary fastener properties are per published data or testing.



TABLE 8. ECOMAXci® FR PLY WITH 5/8" OR 3/4" FIRE TREATED PLYWOOD – VERTICAL FRT WOOD STUDS 24" O.C. 1,3,4,5,6,7

| Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Fastener Spacing (in) | | | | | |
|----------------------------------|--|--|----|----|----|----|----|
| | | Specified Cladding Weight ² (psf) | | | | | |
| | | 5 | 10 | 15 | 20 | 25 | 30 |
| Rmax® Nail Board Fastener SIP TP | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 1.00 | 24 | 12 | 8 | 8 | 6 | 6 |
| | 1.50 | 16 | 8 | 8 | 6 | 4 | 4 |
| | 2.00 | 12 | 8 | 6 | 4 | 4 | - |
| | 2.50 | 8 | 6 | 4 | 4 | - | - |
| | 3.00 | 6 | 4 | 4 | - | - | - |
| | 3.50 | 6 | 4 | - | - | - | - |
| | 4.00 | 4 | - | - | - | - | - |
| | 4.50 | 4 | - | - | - | - | - |
| 12d (0.148" x 3.25") | 0.75 | 16 | 8 | 6 | 6 | 4 | 4 |
| | 1.00 | 12 | 8 | 6 | 4 | 4 | - |
| TRUFAST® SIP TP | 0.75 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 1.00 | 24 | 12 | 8 | 8 | 6 | 6 |
| | 1.50 | 16 | 8 | 8 | 6 | 4 | 4 |
| | 2.00 | 12 | 8 | 6 | 4 | 4 | - |
| | 2.50 | 8 | 6 | 4 | 4 | - | - |
| | 3.00 | 6 | 4 | 4 | - | - | - |
| | 3.50 | 6 | 4 | - | - | - | - |
| | 4.00 | 4 | - | - | - | - | - |
| | 4.50 | 4 | - | - | - | - | - |
| FastenMaster HeadLOK® | 0.75 | 24 | 20 | 16 | 12 | 8 | 8 |
| | 1.00 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 1.50 | 16 | 12 | 8 | 6 | 6 | 4 |
| | 2.00 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 2.50 | 8 | 8 | 6 | 4 | 4 | - |
| | 3.00 | 8 | 6 | 4 | 4 | - | - |
| | 3.50 | 6 | 4 | 4 | - | - | - |
| | 4.00 | 6 | 4 | - | - | - | - |
| | 4.50 | 4 | - | - | - | - | - |
| Simpson Strong-Drive SDWS22 | 0.75 | 24 | 24 | 20 | 12 | 12 | 8 |
| | 1.00 | 24 | 20 | 16 | 12 | 8 | 8 |
| | 1.50 | 24 | 16 | 12 | 8 | 8 | 6 |
| | 2.00 | 16 | 12 | 8 | 6 | 6 | 4 |



| Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Max. Fastener Spacing (in) | | | | | |
|------------------------------|--|--|----|----|----|----|----|
| | | Specified Cladding Weight ² (psf) | | | | | |
| | | 5 | 10 | 15 | 20 | 25 | 30 |
| | 2.50 | 12 | 8 | 6 | 6 | 4 | 4 |
| | 3.00 | 8 | 8 | 6 | 4 | 4 | - |
| | 3.50 | 8 | 6 | 4 | 4 | 4 | - |
| | 4.00 | 8 | 6 | 4 | 4 | - | - |
| | 4.50 | 6 | 4 | 4 | - | - | - |

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

1. Minimum fastener penetration into the stud is 1 ¼".
2. The weight of ECOMAXci® FR Ply is included in the fastener spacing calculations. The specified cladding weight shall include all other supported materials besides the ECOMAXci® FR Ply.
3. ECOMAXci® FR Ply is installed directly to the studs with the plywood to the exterior of the structure.
4. FRT wood studs shall be a minimum of 2x4 and have a minimum specific gravity of 0.42.
5. The tabulated calculations are based on a strength design reduction factor of 0.90 for fasteners in FRT wood. Verify strength reduction based on FRT manufacturer's installation instructions.
6. Nail and screw values determined using *NDS* Yield Limit Equations and *TR-12* for evaluating the foam as a gap.
7. Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths. Minimum bending yield strength for nails with a diameter up to 0.148", 0.162", and 0.225" shall be 90,000 psi, 90,000 psi, and 80,000 psi respectively. Proprietary fastener properties are per published data or testing.

TABLE 9. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CONCRETE (HORIZONTALLY SPACED AT 16" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--|---|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁴ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| Concrete (f _c ' = 2,500 psi) | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 24 | 24 | 24 | 16 | 12 | 12 |
| | | 1.00 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 1.50 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 2.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 3.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 3.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.00 | 16 | 8 | 4 | 4 | - | - |
| | | 4.50 | 8 | 4 | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.00 | 24 | 24 | 24 | 16 | 12 | 12 |
| | | 1.50 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 2.00 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 3.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 4.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 4.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | 1/4" Simpson Strong-Tie® Titen HD® ³ | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 3.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 4.50 | 16 | 8 | 4 | 4 | - | - |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Minimum nominal embedment depth of 2" and minimum edge distance of 2".
2. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
3. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
4. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.

TABLE 10. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CONCRETE (HORIZONTALLY SPACED AT 24" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--|---|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁴ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| Concrete (f _c ' = 2,500 psi) | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 3.50 | 16 | 8 | 4 | 4 | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | | 4.50 | 4 | - | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 1.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 4.50 | 16 | 8 | 4 | 4 | - | - |
| | 1/4" Simpson Strong-Tie® Titen HD® ³ | 0.75 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 1.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 1.50 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 2.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | | 4.50 | 8 | 4 | - | - | - | - |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Minimum nominal embedment depth of 2" and minimum edge distance of 2".
2. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
3. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
4. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.

TABLE 11. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CONCRETE
(HORIZONTALLY SPACED AT 48" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--|--|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁴ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| Concrete (f _c ' = 2,500 psi) | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 1.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 4 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | | 3.00 | 8 | 4 | - | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 4 | - | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.50 | 16 | 8 | 6 | 4 | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 12 | 6 | 4 | - | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | 1/4" Simpson Strong-Tie® Titen HD ³ | 0.75 | 16 | 8 | 6 | 4 | - | - |
| | | 1.00 | 16 | 8 | 4 | 4 | - | - |
| | | 1.50 | 12 | 6 | 4 | - | - | - |
| | | 2.00 | 12 | 6 | 4 | - | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | | 3.00 | 8 | 4 | - | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 6 | - | - | - | - | - |
| | | 4.50 | 4 | - | - | - | - | - |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Minimum nominal embedment depth of 2" and minimum edge distance of 2".
2. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
3. Minimum nominal embedment depth of 1 5/8" and minimum edge distance of 1.5".
4. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.

TABLE 12. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CMU BLOCK (HORIZONTALLY SPACED AT 16" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--------------------|---|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| CMU Block | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.00 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.50 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 2.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 3.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 4.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 1.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 2.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.50 | 16 | 8 | 4 | 4 | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 4 | - | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 24 | 24 | 24 | 24 | 20 |
| | | 1.00 | 24 | 24 | 24 | 24 | 24 | 20 |
| | | 1.50 | 24 | 24 | 24 | 24 | 20 | 16 |
| | | 2.00 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 2.50 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 3.00 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 3.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 4.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 4.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | 1/4" Simpson Strong-Tie® Titen HD® ³ | 0.75 | 24 | 24 | 24 | 24 | 24 | 20 |
| | | 1.00 | 24 | 24 | 24 | 24 | 24 | 20 |
| | | 1.50 | 24 | 24 | 24 | 24 | 20 | 16 |
| | | 2.00 | 24 | 24 | 24 | 24 | 16 | 16 |
| | | 2.50 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 3.00 | 24 | 24 | 24 | 16 | 12 | 12 |
| | | 3.50 | 24 | 24 | 20 | 12 | 12 | 8 |



| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--------------------|------------------------------------|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | | 4.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 4.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | TRUFAST® SIP LD ⁴ | 0.75 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.00 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.50 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 2.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 2.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 3.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 3.50 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 4.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.50 | 24 | 12 | 8 | 6 | 4 | 4 |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Allowable connection design strength is based on attachment to minimum Grade N, Type II, medium- or normal-weight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 1", edge distance of 4", and spacing of 3".
2. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 1 5/8" edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
3. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 2 1/2", edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
4. Tabulated values do not consider the masonry strength in holding the fastener as a post-installed embedment. Minimum nominal embedment depth shall be determined in accordance with accepted practice.
5. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.



TABLE 13. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CMU BLOCK
(HORIZONTALLY SPACED AT 24" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--------------------|---|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| CMU Block | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 1.00 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 1.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.50 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 16 | 8 | 6 | 4 | - | - |
| | | 4.50 | 16 | 8 | 4 | 4 | - | - |
| | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 20 | 8 | 6 | 4 | 4 | - |
| | | 1.00 | 16 | 8 | 6 | 4 | - | - |
| | | 1.50 | 16 | 8 | 4 | 4 | - | - |
| | | 2.00 | 12 | 6 | 4 | - | - | - |
| | | 2.50 | 8 | 4 | - | - | - | - |
| | | 3.00 | 8 | 4 | - | - | - | - |
| | | 3.50 | 6 | - | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.00 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.50 | 24 | 24 | 24 | 16 | 12 | 12 |
| | | 2.00 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 3.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 4.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 4.50 | 16 | 8 | 4 | 4 | - | - |
| | 1/4" Simpson Strong-Tie® Titen HD® ³ | 0.75 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.00 | 24 | 24 | 24 | 20 | 16 | 12 |
| | | 1.50 | 24 | 24 | 24 | 16 | 12 | 12 |
| | | 2.00 | 24 | 24 | 20 | 16 | 12 | 8 |
| | | 2.50 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.00 | 24 | 24 | 16 | 12 | 8 | 8 |
| | | 3.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| 4.00 | | 24 | 16 | 8 | 8 | 6 | 4 | |



| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--------------------|------------------------------------|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| | TRUFAST® SIP LD ⁴ | 4.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 0.75 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 1.00 | 24 | 24 | 20 | 12 | 12 | 8 |
| | | 1.50 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 2.00 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.50 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 16 | 8 | 6 | 4 | - | - |
| | | 4.50 | 16 | 8 | 4 | 4 | - | - |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Allowable connection design strength is based on attachment to minimum Grade N, Type II, medium- or normal-weight CMU (conforming to *ASTM C90*) filled with 2,000 psi grout (conforming to *ASTM C1019*) and a minimum embedment of 1", edge distance of 4", and spacing of 3".
2. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to *ASTM C90*) filled with 2,000 psi grout (conforming to *ASTM C1019*) and a minimum embedment of 1 5/8" edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
3. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to *ASTM C90*) filled with 2,000 psi grout (conforming to *ASTM C1019*) and a minimum embedment of 2 1/2", edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
4. Tabulated values do not consider the masonry strength in holding the fastener as a post-installed embedment. Minimum nominal embedment depth shall be determined in accordance with accepted practice.
5. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.



TABLE 14. MAXIMUM VERTICAL FASTENER SPACING FOR ECOMAXci® FR PLY ATTACHED TO CMU BLOCK
(HORIZONTALLY SPACED AT 48" O.C.)

| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|--------------------|---|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| CMU Block | Rmax® Nail Board Fastener SIP LD | 0.75 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 6 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | | 4.50 | 8 | 4 | - | - | - | - |
| | 3/16" ITW Buildex Tapcon® Hex ¹ | 0.75 | 8 | 4 | - | - | - | - |
| | | 1.00 | 8 | 4 | - | - | - | - |
| | | 1.50 | 8 | 4 | - | - | - | - |
| | | 2.00 | 6 | - | - | - | - | - |
| | | 2.50 | 4 | - | - | - | - | - |
| | | 3.00 | 4 | - | - | - | - | - |
| | 1/4" Hilti KH-EZ C ² | 0.75 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 20 | 8 | 6 | 4 | 4 | - |
| | | 3.50 | 16 | 8 | 6 | 4 | - | - |
| | | 4.00 | 12 | 6 | 4 | - | - | - |
| | | 4.50 | 8 | 4 | - | - | - | - |
| | 1/4" Simpson Strong-Tie® Titen HD® ³ | 0.75 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 1.00 | 24 | 20 | 12 | 8 | 8 | 6 |
| | | 1.50 | 24 | 16 | 12 | 8 | 6 | 6 |
| | | 2.00 | 24 | 16 | 8 | 8 | 6 | 4 |
| | | 2.50 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.00 | 24 | 12 | 8 | 6 | 4 | 4 |
| | | 3.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 4.00 | 16 | 8 | 4 | 4 | - | - |
| | | 4.50 | 12 | 6 | 4 | - | - | - |



| Substrate Material | Screw Fastener Type & Minimum Size | Max. Nominal Thickness of the Polyiso Portion of ECOMAXci® FR Ply (in) | Maximum Vertical Fastener Spacing (in) | | | | | |
|------------------------------|------------------------------------|--|--|----|----|----|----|----|
| | | | Specified Cladding Weight ⁵ (psf) | | | | | |
| | | | 5 | 10 | 15 | 20 | 25 | 30 |
| TRUFAST® SIP LD ⁴ | | 0.75 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.00 | 24 | 12 | 8 | 6 | 6 | 4 |
| | | 1.50 | 20 | 8 | 6 | 4 | 4 | - |
| | | 2.00 | 16 | 8 | 6 | 4 | - | - |
| | | 2.50 | 12 | 6 | 4 | - | - | - |
| | | 3.00 | 12 | 6 | 4 | - | - | - |
| | | 3.50 | 8 | 4 | - | - | - | - |
| | | 4.00 | 8 | 4 | - | - | - | - |
| | 4.50 | 8 | 4 | - | - | - | - | |

SI: 1 in = 25.4 mm, 1 lb = 4.45 N, 1 psf = 47.88 N/m²

1. Allowable connection design strength is based on attachment to minimum Grade N, Type II, medium- or normal-weight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 1", edge distance of 4", and spacing of 3".
2. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 1 5/8" edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
3. Allowable connection design strength is based on attachment to minimum Grade N, Type II, lightweight CMU (conforming to ASTM C90) filled with 2,000 psi grout (conforming to ASTM C1019) and a minimum embedment of 2 1/2", edge distance of 4", and spacing of 4". At 28 days, the compressive strength of masonry, f_m , shall be a minimum of 1,500 psi.
4. Tabulated values do not consider the masonry strength in holding the fastener as a post-installed embedment. Minimum nominal embedment depth shall be determined in accordance with accepted practice.
5. The cladding weight shall include the weight of the ECOMAXci® FR Ply sheathing as well as any additional cladding attached to the sheathing.

Issue Date: August 4, 2022
Subject to Renewal: July 1, 2023

CBC and CRC Supplement to TER 1811-02

REPORT HOLDER: Rmax®

1 EVALUATION SUBJECT

1.1 Rmax® ECOMAXci® FR Ply

2 PURPOSE AND SCOPE

2.1 Purpose

2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show Rmax® ECOMAXci® FR Ply, recognized in TER 1811-02, has also been evaluated for compliance with the codes listed below.

2.2 Applicable Code Editions

2.2.1 *CBC—16, 19: California Building Code (Title 24, Part 2)*

2.2.2 *CRC—16, 19: California Residential Code (Title 24, Part 2.5)*

2.2.3 *CEC —16, 19: California Energy Code (Title 24, Part 6)*

3 CONCLUSIONS

3.1 Rmax® ECOMAXci® FR Ply, described in TER 1811-02, complies with the *CBC* and *CRC* and is subject to the conditions of use described in this supplement.

3.2 Where there are variations between the *IBC* and *IRC* and the *CBC* and *CRC* applicable to this TER, they are listed here.

3.2.1 *CEC, Title 24, Part 6* replaces *IRC* Section N1102.

3.2.2 *CEC, Title 24, Part 6* replaces *IECC* Sections C402 and C402.5.1

4 CONDITIONS OF USE

4.1 Rmax® ECOMAXci® FR Ply, described in TER 1811-02, must comply with all of the following conditions:

4.1.1 All applicable sections in TER 1811-02

4.1.2 The design, installation, and inspections are in accordance with additional requirements of the *CBC* and *CRC*, as applicable.

Issue Date: August 4, 2022
Subject to Renewal: July 1, 2023

FBC Supplement to TER 1811-02

REPORT HOLDER: Rmax®

1 EVALUATION SUBJECT

1.1 Rmax® ECOMAXci® FR Ply

2 PURPOSE AND SCOPE

2.1 Purpose

2.1.1 The purpose of this Technical Evaluation Report (TER) supplement is to show Rmax® ECOMAXci® FR Ply, recognized in TER 1811-02, has also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.

2.2 Applicable Code Editions

2.2.1 *FBC-B—17, 20: Florida Building Code – Building*

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

3 CONCLUSIONS

3.1 Rmax® ECOMAXci® FR Ply, described in TER 1811-02, complies with the *FBC-B* and *FBC-R* and is subject to the conditions of use described in this supplement.

3.2 Where there are variations between the *IBC* and *IRC* and the *FBC-B* and *FBC-R* applicable to this TER, they are listed here.

3.2.1 *FBC-B* Section 104.4 and Section 110.4 are reserved.

3.2.2 *FBC-R* Section R104 and Section R109 are reserved.

3.2.3 *FCB-R* Section N1101 replaces *IRC* Section N1102.

4 CONDITIONS OF USE

4.1 Rmax® ECOMAXci® FR Ply, described in TER 1811-02, must comply with all of the following conditions:

4.1.1 All applicable sections in TER 1811-02

4.1.2 The design, installation, and inspections are in accordance with additional requirements of *FBC-B* Chapter 16 and Chapter 17, as applicable.