Technical Evaluation Report

TER 1402-02

Xci Foil, Xci CG & Xci Ply
Fire Performance in Exterior Walls of Buildings of Type I-IV Construction

Hunter Panels, LLC

Product:
Xci Foil
Xci CG
Xci Ply

Issue Date:
June 13, 2014

Revision Date:
November 8, 2019

Subject to Renewal:
October 1, 2020
1 PRODUCT EVALUATED

1.1 Xci Foil
1.2 Xci CG
1.3 Xci Ply

2 APPLICABLE CODES AND STANDARDS

2.1 Codes
2.1.1 IBC—12, 15, 18: International Building Code®
2.1.2 IRC—12, 15, 18: International Residential Code®

2.2 Standards and Referenced Documents
2.2.1 ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
2.2.2 ASTM E1119: Standard Test Methods for Fire Tests of Building Construction and Materials

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1 Building codes require data from valid research reports be obtained from approved sources. An approved agency, which is an approved source, is defined as “an established and recognized agency that is regularly engaged in furnishing product certification where such agency has been approved.” Being approved, defined as “acceptable to the building official,” is accomplished via accreditation using ISO/IEC 17065 evaluation procedures meeting code requirements of independence, adequate equipment, and experienced personnel. DrJ is an ISO/IEC 17065 ANSI-Accredited Product Certification Body – Accreditation #1131.

Through ANSI accreditation, DrJ certification can be used to obtain product approval in any country that is an IAF MLA Signatory and covered by an IAF MLA Evaluation per the Purpose of the MLA – “certified once, accepted everywhere.” Manufacturers can go to jurisdictions in any IAF MLA Signatory Country and have their products readily approved by authorities having jurisdiction using DrJ's ANSI accreditation.

For more information on any of these topics or our mission, product evaluation policies, product approval process, and engineering law, see drjcertification.org.

2 Unless otherwise noted, all references in this TER are from the 2018 version of the codes and the standards referenced therein (e.g., ASCE 7, NDS, ASTM). This material, design, or method of construction also complies with the 2000-2015 versions of the referenced codes and the standards referenced therein. As required by code, where this TER is not approved, the building official shall respond in writing stating the reasons this TER was not approved. For any variations in state and local codes, see Section 8.

3 All terms defined in the applicable building codes are italicized.
2.2.3 ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter

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

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

2.2.6 FM 4880: Approval Standard for Class 1 Fire Rating of Building Panels or Interior Finish Materials

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

2.2.8 NFPA 268: Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source


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

2.2.11 UL 1040: Fire Test of Insulated Wall Construction

2.2.12 UL 1715: Fire Test of Interior Finish Material

3 PERFORMANCE EVALUATION

3.1 Xci Foil, Xci CG and Xci Ply were evaluated to determine:

3.1.1 Performance for use in exterior walls of buildings of any height and of Type I-IV construction in accordance with IBC Section 2603.5.

3.1.2 Performance in accordance with UL 723 for flame spread and smoke-developed index ratings in accordance with IBC Section 2603.5.4.

3.1.3 Performance for use without a thermal barrier in accordance with IBC Section 2603.5.2.

3.1.4 Performance with regard to the potential heat generated by the foam plastic insulating sheathing (FPIS) in accordance with IBC Section 2603.5.3.

3.1.5 Performance with regard to vertical and lateral fire propagation in accordance with IBC Section 2603.5.5.

3.1.6 Performance with regard to ignition in accordance with IBC Section 2603.5.7.

3.2 Wind pressure resistance in accordance with IBC Section 2603.10 is outside the scope of this evaluation.

3.3 Fire resistance rated wall assemblies in accordance with IBC Section 2603.5.1 are outside the scope of this evaluation.

3.4 Any code compliance issues not specifically addressed in this section are outside the scope of this TER.

3.5 Any engineering evaluation conducted for this TER was performed on the dates provided in this TER and within DrJ’s professional scope of work.

4 PRODUCT DESCRIPTION AND MATERIALS

4.1 Xci Foil, Xci CG and Xci Ply, shown in Figure 1, are proprietary FPIS products.

4.1.1 Xci Foil is a polyisocyanurate insulation board adhered to foil facers.

4.1.2 Xci CG is a polyisocyanurate insulation board adhered to coated glass facers.

4.1.3 Xci Ply is a polyisocyanurate insulation board bonded to APA-TECO rated exposure fire treated plywood.

4.2 The foam core of Xci Foil, Xci CG and Xci Ply is manufactured in accordance with ASTM C1289.
4.3 Material Availability

4.3.1 Thickness:

4.3.1.1 Xci Foil and Xci CG: 1" (25 mm) through 3.5" (89 mm)

4.3.1.2 Xci Ply: available with either a ⅝" or ¾" fire treated plywood and 1" through 3.5" coated glass polyiso

4.3.1.2.1 Total thickness with ⅝" substrate: 1.6" through 4.1"

4.3.1.2.2 Total thickness with ¾" substrate: 1.7" through 4.3"

4.3.1.3 Standard product width: 48" (1220 mm)

4.3.1.4 Standard lengths:

4.3.1.4.1 Xci Foil and Xci CG: 96" (2438 mm), 120" (3048 mm) and 144" (3657 mm)

4.3.1.4.2 Xci Ply: 96" (2438 mm)

4.3.1.5 Custom widths, lengths and thicknesses for Xci Foil and Xci CG are available upon request.

5 APPLICATIONS

5.1 General

5.1.1 Xci Foil, Xci CG and Xci Ply are FPIS complying with IBC Section 2603.

5.1.2 Xci Foil, Xci CG and Xci Ply are used in exterior walls of buildings of any height and of Type I-IV construction in accordance with IBC Section 2603.5.

5.2 Structural Applications

5.2.1 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.
5.3 Fire Safety Performance

5.3.1 Surface Burn Characteristics:

5.3.1.1 Xci Foil, Xci CG and Xci Ply were evaluated to assess performance with regard to flame spread and smoke-developed index in accordance with ASTM E84 as shown in Table 1.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Flame Spread Index</th>
<th>Smoke Developed Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xci Foil, Xci CG &amp; Xci Ply</td>
<td>≤ 75</td>
<td>≤ 450</td>
</tr>
</tbody>
</table>

1. Foam core tested in accordance with ASTM E84. Flame spread and smoke-developed indexes are shown for comparison purposes only and are not intended to represent the performance under actual fire conditions.

5.3.2 Ignition:

5.3.2.1 Xci Foil, Xci CG and Xci Ply were evaluated to assess performance with regard to ignition (NFPA 268) in accordance with IBC Section 2603.5.7. Xci Foil, Xci CG and Xci Ply comply with this section when the exterior side of the sheathing is protected with one of the following materials:

- A thermal barrier complying with IBC Section 2603.4.
- A minimum 1" (25 mm) thickness of concrete or masonry.
- Glass-fiber-reinforced concrete panels of a minimum thickness of ⅜" (9.5 mm).
- Metal-faced panels having minimum 0.019"-thick (0.48 mm) aluminum or 0.016"-thick (0.41 mm) corrosion-resistant steel outer facings.
- A minimum ¾" (22.2 mm) thickness of stucco complying with IBC Section 2510.

5.3.3 Potential Heat:

5.3.3.1 Xci Foil, Xci CG and Xci Ply were tested in accordance with NFPA 259 to assess the potential heat generated by the FPIS in accordance with IBC Section 2603.5.3 as shown in Table 2.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Potential Heat (Btu/lb.)¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xci Foil</td>
<td>11,503</td>
</tr>
<tr>
<td>Xci CG</td>
<td>11,503</td>
</tr>
<tr>
<td>Xci Ply</td>
<td>11,503</td>
</tr>
</tbody>
</table>

SI: 1 lb = 4.45 N
¹. Tested in accordance with NFPA 259, foam core only.

5.3.4 Vertical and Lateral Fire Propagation:

5.3.4.1 Xci Foil, Xci CG and Xci Ply were tested to assess their performance with regard to vertical and lateral fire propagation in accordance with NFPA 285 and IBC Section 2603.5.5.

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

5.3.4.3 The wall assemblies listed in Table 3, Table 4, Table 5, and Table 6 are approved for use in buildings of Type I-IV construction by demonstrating equivalency to similar assemblies tested in accordance with NFPA 285 and meeting the prescriptive requirement for <25 Flame Spread Index (FSI) material as required in IBC Section 2603.5.4.
### Table 3. NFPA 285 Approved Wall Assemblies with Xci CG as Exterior Insulation

<table>
<thead>
<tr>
<th>Wall Component</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Wall System</strong>&lt;br&gt;Use either 1, 2, 3 or 4</td>
<td>1. Cast concrete walls&lt;br&gt;2. CMU concrete walls&lt;br&gt;3. 25-gauge min. 3/8” (min.) steel studs spaced 24” o.c. (max.)&lt;br&gt;   a. 5/16” Type X gypsum wallboard interior&lt;br&gt;   b. Lateral bracing every 4’&lt;br&gt;4. FRTW (fire-retardant-treated wood) studs: min. nominal 2x4 dimension, spaced 24” o.c. (max.)&lt;br&gt;   a. 5/16” Type X gypsum wallboard interior&lt;br&gt;   b. Bracing as required by building code</td>
</tr>
<tr>
<td><strong>Fire-Stopping at Floor Lines</strong></td>
<td>1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth.&lt;br&gt;2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction.</td>
</tr>
<tr>
<td><strong>Cavity Insulation</strong>&lt;br&gt;Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11</td>
<td>1. None&lt;br&gt;2. 1 1/2” min. Carlisle SPI SealTite PRO (up to full cavity thickness)&lt;br&gt;3. 1/2” min. BASF Walltite SPF (up to full cavity thickness)&lt;br&gt;4. Any noncombustible insulation per ASTM E136&lt;br&gt;5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced)&lt;br&gt;6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced)&lt;br&gt;7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T&lt;sub&gt;ign&lt;/sub&gt;, Pk, HRR) than Covestro EcoBay CC or BASF Walltite&lt;br&gt;8. NCFI InsulBloc SPF (up to full cavity thickness)&lt;br&gt;9. Icynene MD-C-200v3 (Proseal) up to 5 ½ inches (only with ½ in. [min.] exterior gypsum sheathing)&lt;br&gt;10. SWD Urethane Quik-Shield 112 up to 6 inches in s inch (max.) stud cavities with an air gap not exceeding 2½ inches.&lt;br&gt;11. 1½” (min.) ThermoSeal 2000 (up to full cavity thickness).</td>
</tr>
<tr>
<td><strong>Exterior Sheathing</strong>&lt;br&gt;Use either 1, 2 or 3</td>
<td>1. None (only with claddings 1-6 and cavity insulation 1, 2, 4, 5, 6, or 11)&lt;br&gt;2. ½” or thicker exterior gypsum sheathing&lt;br&gt;3. ½” (min.) FRTW structural panels in Type III construction</td>
</tr>
<tr>
<td><strong>Multi-Function Sheathing &amp; WRB Products</strong>&lt;br&gt;Use 1 or 2</td>
<td>1. USG Securock® Exoair® 430 System – See note and Table 6&lt;br&gt;2. ½” Georgia Pacific DensElement, flashed with Prosoco R-Guard FastFlash on sheathing joints&lt;br&gt;Note: Item 1 or 2 replaces the exterior sheathings above. When either of these items are used, do not use exterior sheathings or WRB’s on base wall surface in Table 6</td>
</tr>
<tr>
<td><strong>WRB Over Base Wall Surface</strong></td>
<td>See Table 6</td>
</tr>
<tr>
<td><strong>Exterior Insulation</strong>&lt;br&gt;Use 1 or 2 depending on cladding</td>
<td>1. 3½” (max.) Xci CG for all claddings.&lt;br&gt;2. 4” thick (max.) Xci CG for Claddings 1-6.</td>
</tr>
<tr>
<td><strong>WRB Over Exterior Insulation</strong></td>
<td>See Table 6</td>
</tr>
<tr>
<td><strong>Exterior Cladding</strong>&lt;br&gt;Use 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17&lt;br&gt;Item 7 may use any tested/approved installation technique.</td>
<td>1. Brick – Nominal 4”-thick, clay or concrete brick or veneer with maximum 2” air gap behind the brick. Brick ties/Anchors 24” o.c. (max.).&lt;br&gt;2. Stucco – Minimum ½”-thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt that meets requirement #11 in WRB Over Exterior Insulation (Table 6) can be used as a slip sheet between the WRB/exterior insulation and the lath.&lt;br&gt;3. Limestone – Minimum 2” thick using any standard non-open joint installation technique such as shiplap.&lt;br&gt;4. Natural stone veneer – Minimum 2” thick using any standard non-open joint installation technique such as grouted/mortared stone.&lt;br&gt;5. Cast artificial stone – Minimum 1½” thick complying with ICC-ES AC 51 using any standard non-open joint installation technique such as shiplap.</td>
</tr>
<tr>
<td>Wall Component</td>
<td>Materials</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
</tbody>
</table>
| Items 8, 9 or 12 may use any standard installation technique. | 6. Terra Cotta Cladding – Minimum 1 1/4” thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap.  
7. Any MCM that has successfully passed NFPA 285.  
8. Uninsulated sheet metal building panels including steel, copper, aluminum.  
9. 1/4” (min.) uninsulated fiber-cement siding or porcelain or ceramic tile mechanically attached.  
10. Stone, porcelain, ceramic/aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria.  
11. Autoclaved-aerated-concrete (AAC) panels that have successfully passed NFPA 285 criteria.  
12. Terra Cotta Cladding – Any rain-screen Terra Cotta (min. 1/4” thick) with ventilated shiplap.  
13. 1½” stucco – any one coat stucco (1½” min.) which meets AC11 acceptance criteria or is approved for use in Type I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes.  
14. Thin brick/cultured stone set in thin set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum 3/4”. For these systems that require a more durable WRB system, any building wrap or 15# felt that meets requirement #11 in WRB Over Exterior Insulation (Table 6) can be used as a slip sheet between the WRB/AVP and the lath.  
15. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2”-thick bricks using TABS Wall Adhesive.  
16. Natural Stone Veneer – minimum 1 1/4” thick using any standard installation technique.  
17. FunderMax M.Look Grey Core – minimum 3/4” thick using any standard installation technique. |

SI: 1 in = 25.4 mm

1. The assemblies' combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. T<sub>ign</sub> is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.
### Table 4. NFPA 285 Approved Wall Assemblies with XCI Foil as Exterior Insulation

<table>
<thead>
<tr>
<th>Wall Component</th>
<th>Materials</th>
</tr>
</thead>
</table>
| **Base Wall System**            | 1. Cast concrete walls  
2. CMU concrete walls  
3. 25-gauge min. 3/8” (min.) steel studs spaced 24” o.c. (max.)  
   a. 5/8” Type X gypsum wallboard interior  
   b. Lateral bracing every 4’  
4. FRTW (fire-retardant-treated wood) studs: min. nominal 2x4 dimension, spaced 24” o.c. (max.)  
   a. 5/8” Type X gypsum wallboard interior  
   b. Bracing as required by code |
| **Fire-Stopping at Floor Lines**| 1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth.  
2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction. |
| **Cavity Insulation**           | 1. None  
2. 1 1/2” min. Carlisle SPI SealTite PRO (up to full cavity thickness)  
3. 1 1/2” min. BASF Walltite SPF (up to full cavity thickness)  
4. Any noncombustible insulation per ASTM E136  
5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced)  
6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced)  
7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (Improved T ign, Pk. HRR) than Covestro EcoBay CC or BASF Walltite  
8. NCFI InsulBloc SPF (up to full cavity thickness)  
9. Icynene MD-C-200v3 (Proseal) up to 5 ½ inches (only with ½ in. [min.] exterior gypsum sheathing)  
10. SWD Urethane Quik-Shield 112 up to 6 inches in s inch (max.) stud cavities with an air gap not exceeding 2½ inches.  
11. 1 1/2” (min.) ThermoSeal 2000 (up to full cavity thickness). |
| **Exterior Sheathing**          | 1. None (only with cavity insulation 1, 4, 5 or 6)  
2. ½” or thicker exterior gypsum sheathing  
3. ½” (min.) FRTW structural panels in Type III construction allowed in place of gypsum sheathing when combustible cavity insulation is not used. |
| **Multi-Function Sheathing & WRB Products** | 1. USG Securock® Exoair® 430 System – See note and Table 6  
2. 5/8” Georgia Pacific DensElement, flashed with Prosoco R-Guard FastFlash on sheathing joints  
   Note: Item 1 or 2 replaces the exterior sheathings above. When either of these items are used, do not use exterior sheathings or WRB’s on base wall surface in Table 6 |
| **WRB Over Base Wall Surface**  | See Table 6                                                                                                                                                                                                  |
| **Exterior Insulation**         | 1. 4” (max.) Xci Foil                                                                                                                                                                                          |
| **WRB Over Exterior Insulation**| See Table 6                                                                                                                                                                                                  |
| **Exterior Cladding**           | 1. Brick – Nominal 4”-thick, clay or concrete brick or veneer with maximum 2” air gap behind the brick. Brick ties/Anchors 24” o.c. (max.).  
2. Stucco – Minimum 3/4”-thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt that meets requirement #11 in WRB Over Exterior Insulation (Table 6) can be used as a slip sheet between the WRB/external insulation and the lath.  
3. Limestone – Minimum 2” thickness using any standard non-open joint installation technique such as shiplap.  
4. Natural Stone Veneer – Minimum 2” thickness using any standard non-open joint installation technique such as grouted/mortared stone.  
5. Cast Artificial Stone – Minimum 1 1/2” thickness complying with ICC-ES ACS1 using any standard non-open joint installation technique such as shiplap. |

*Table 4. NFPA 285 Approved Wall Assemblies with XCI Foil as Exterior Insulation (continued)***
### Wall Component | Materials
--- | ---
6. | Terra Cotta Cladding – Minimum 1 1/4" thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap.

SI: 1 in = 25.4 mm

1. The assemblies’ combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. $T_{ig}$ is the time to ignition from the start of the test until the sheathing ignites. Pk. HRR is the peak heat release rate during the test.
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<th>Wall Component</th>
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| **Base Wall System**<br>Use either 1, 2, 3 or 4 | 1. Cast concrete walls  
2. CMU concrete walls  
3. 25-gauge min. 3/8" (min.) steel studs spaced 24" o.c. (max.)  
   a. 5/8" Type X gypsum wallboard interior  
   b. Lateral bracing every 4'  
4. FRTW (fire-retardant-treated wood) studs: min. nominal 2x4 dimension, spaced 24" o.c. (max.)  
   a. 5/8" Type X gypsum wallboard interior  
   b. Bracing as required by code |
| **Fire-Stopping at Floor Lines** | 1. Any approved mineral-fiber-based safing insulation in each stud cavity at floor line. Safing thickness must match stud cavity depth.  
2. Solid FRTW fire blocking at floor line in accordance with building code requirements for Type III construction |
| **Cavity Insulation**<br>Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11 | 1. None  
2. 1 1/2" min. Carlisle SPI SealTite PRO (up to full cavity thickness)  
3. 1 1/2" min. BASF Walltite SPF (up to full cavity thickness)  
4. Any noncombustible insulation per ASTM E136  
5. Any mineral fiber (Board type Class A ASTM E84 faced or unfaced)  
6. Any fiberglass (Batt type Class A ASTM E84 faced or unfaced)  
7. Any foam plastic insulation (SPF or board type) that has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved Tign, PK, HRR) than Covestro EcoBay CC or BASF Walltite  
8. NCFI InsulBloc SPF (up to full cavity thickness)  
9. Icynene MD-C-200v3 (Proseal) up to 5 1/2 inches (only with 1/2 in. [min.] exterior gypsum sheathing)  
10. SWD Urethane Quik-Shield 112 up to 6 inches in 6 inch (max.) stud cavities with an air gap not exceeding 2 1/2'  
11. 1 1/2" (min.) Thermoseal 2000 (up to full cavity thickness) |
| **Exterior Sheathing**<br>Use either 1, 2 or 3 | 1. None (only with cavity insulation 1, 2, 4, 5 or 6)  
2. 1/2" or thicker exterior gypsum sheathing  
3. 1/2" (min.) FRTW structural panels in Type III construction |
| **Multi-Function Sheathing & WRB Products**<br>Use 1 or 2 | 1. USG Securock® Exoair® 430 System – See note and Table 6  
2. 5/8" Georgia Pacific DensElement, flashed with Prosoco R-Guard FastFlash on sheathing joints.  
   Note: Item 1 or 2 replaces the exterior sheathings above. When either of these items are used, do not use exterior sheathings or WRB's on base wall surface in Table 6 |
| **WRB Over Base Wall Surface** | See Table 6 |
| **Exterior Insulation**<br>Use either 1 or 2 depending on cladding. | 1. 4 1/2"-thick (max.) Xci Ply (3 1/2" foam max., 3/4" FR Plywood max.) with all claddings.  
2. 4 1/2"-thick (max.) Xci Ply (4" foam max., 3/4" FR Plywood max.) may be used with claddings 1-6 |
| **WRB Over Exterior Insulation** | See Table 6 |
## Wall Component

<table>
<thead>
<tr>
<th>Exterior Cladding Use 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Materials</strong></td>
</tr>
<tr>
<td>1. Brick – Nominal 4&quot;-thick, clay or concrete brick or veneer with maximum 2&quot; air gap behind the brick. Brick ties/Anchors 24&quot; o.c. (max.).</td>
</tr>
<tr>
<td>2. Stucco – Minimum 3/4&quot;-thick, exterior cement plaster and lath. For systems that require a more durable WRB system, any building wrap or 15# felt that meets requirement #11 in WRB Over Exterior Insulation (Table 6) can be used as a slip sheet between the WRB/exterior insulation and the lath.</td>
</tr>
<tr>
<td>3. Limestone – Minimum 2&quot; thick using any standard non-open joint installation technique such as shiplap.</td>
</tr>
<tr>
<td>4. Natural Stone Veneer – Minimum 2&quot; thick using any standard non-open joint installation technique such as grouted/mortared stone.</td>
</tr>
<tr>
<td>5. Cast Artificial Stone – Minimum 1 1/2&quot; thick complying with ICC-ES AC51 using any standard non-open joint installation technique such as shiplap.</td>
</tr>
<tr>
<td>6. Terra Cotta Cladding – Minimum 1 1/2&quot; thick (solid or equivalent by weight) using any standard non-open joint installation technique such as shiplap.</td>
</tr>
<tr>
<td>7. Thin brick/cultured stone set in thin set adhesive and metal lath that has been tested to ASTM E119 (brick exposed to furnace) and remains in place for a minimum of 30 minutes, or has passed an NFPA 285 test. Minimum 3/4&quot;. For these systems which require a more durable WRB system, any building wrap or 15# felt that meets requirement #11 in WRB Over Exterior Insulation (Table 6) can be used as a slip sheet between the WRB/AVP and the lath.</td>
</tr>
<tr>
<td>8. Glen Gery Thin Tech Elite Series Masonry Veneer or TABS II Panel System with 1/2&quot;-thick bricks using TABS Wall Adhesive.</td>
</tr>
<tr>
<td>9. Any MCM that has passed NFPA 285.</td>
</tr>
<tr>
<td>10. Uninsulated sheet metal building panels including steel, copper, aluminum or zinc</td>
</tr>
<tr>
<td>11. 1/4&quot; (min.) uninsulated fiber-cement siding, or porcelain or ceramic tile mechanically attached.</td>
</tr>
<tr>
<td>12. Stone, porcelain, ceramic/aluminum honeycomb composite building panels that have successfully passed NFPA 285 criteria.</td>
</tr>
<tr>
<td>13. Autoclaved-aerated-concrete (AAC) panels that have successfully passed NFPA 285 criteria.</td>
</tr>
<tr>
<td>14. Terra Cotta Cladding – Any Rain-screen Terra Cotta (min. 1/2&quot; thick) with ventilated shiplap.</td>
</tr>
<tr>
<td>15. 1/2&quot; Stucco – Any one coat stucco (1/2&quot; min.) that meets AC11 acceptance criteria or is approved for use in Type I-IV construction or has been tested per NFPA 285 or stays in place when tested per ASTM E119 (stucco exposed to fire) for at least 30 minutes.</td>
</tr>
<tr>
<td>17. FunderMax M.Look Grey Core – minimum 1/4&quot; thick using any standard installation technique.</td>
</tr>
</tbody>
</table>

SI: 1 in = 25.4 mm

1. The assemblies’ combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis by Priest and Associates.
2. Acceptance criteria for ASTM E1354 testing have not been well established in the referenced building codes and foam sheathing related sections. The criteria stated here for substitution of products is based on testing and professional thermal engineering analysis by Priest and Associates.
3. $T_{ig}$ is the time to ignition from the start of the test until the sheathing ignites. $P_k$. HRR is the peak heat release rate during the test.
### Table 6. NFPA 285 Allowable WRB Materials with Xci CG, Xci Foil, & Xci Ply

<table>
<thead>
<tr>
<th>Wall Component</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WRB Over Base Wall Surface</strong>&lt;br&gt;Use either 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, or 27&lt;br&gt;Note: Some WRBs are only allowed with specific systems.</td>
<td>1. None&lt;br&gt;2. Carlisle Fire Resist 705RS, Fire Resist 705 VP, Fire Resist 705 FR-A, Fire Resist Barrithane VP, Fire Resist Barritech VP, Fire Resist Barritech VP (or VP LT), Fire Resist 705 VP may be used with 702 WB, Cav-Grip, or Low VOC Travel-Tack adhesives. Fire Resist 705 FR-A may be used with CCW 702, 702LV, 702 WB, CAV-Grip, and Low VOC Travel-Tack adhesives.&lt;br&gt;3. GE Momentive SEC 2500 SilShield, Elemax 2600&lt;br&gt;4. Vaproshield Wrapshield SA, Revealshield SA&lt;br&gt;5. WR Grace Perm-A-Barrier® VPS, Perm-A-Barrier® NPL (AKA: PAB NP20), Perm-A-Barrier® VPL, Perm-A-Barrier® Aluminum Wall Membrane, Perm-A-Barrier® VPL LT. The following may only be used with claddings 1-6: Perm-A-Barrier® NPL 10, Perm-A-Barrier® VPL 50&lt;br&gt;6. StoGuard Vaporseal&lt;br&gt;7. 3M 3015 (with Hold Fast 70 adhesive @ 6 mils)&lt;br&gt;8. Henry Air-Bloc® 17MR, 21S, 31MR, 32 MR (only with Xci Ply), 33MR, Air-Bloc® 16MR, Blueskin VP 160.&lt;br&gt;9. Tyvek CommercialWrap or CommercialWrap D or Stuccowrap&lt;br&gt;10. PolyGuard Spray-N-Roll (STPE), Air Lok Sheet UV400 NP, Air Lok Flex VP, Flex Guard, Air Lok Flex, Air Lok Sheet 400NP (Only with Cladding 1-6)&lt;br&gt;11. Prosoco R-Guard Cat 5, R-Guard Cat 5 Rainscreen, R-Guard VB or R-Guard Spray Wrap MVP&lt;br&gt;12. Dryvit Backstop NT&lt;br&gt;13. WR Meadows Air Shield LMP (Gray), Air Shield LMP (Black), Air Shield TMR, Air Shield LSR&lt;br&gt;14. Dörken Systems, Inc., Delta-Vent SA, Delta-Vent S, Delta-Fassade S, Delta Maxx, Delta Stratus SA&lt;br&gt;15. Any WRB that has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved Tign, Pk. HRR) than those listed above.&lt;br&gt;16. BASF Enershield HP or Enershield I&lt;br&gt;17. Soprema Sopraseal Stick VP, Soprasolin HD, LM 204 VP, Stick 1100T with Elastacool 600c Primer (for use with Xci-CG, or Xci-Ply)&lt;br&gt;18. Pecora XL Perm Ultra VP&lt;br&gt;19. Siga Majvest or Majvest 500 SA&lt;br&gt;20. Sto Gold Coat or Emerald Coat&lt;br&gt;21. Tremco ExoAir 230 and ExoAir 130&lt;br&gt;22. Fortifiber Building Systems Group WeatherSmart Housewrap, WeatherSmart Drainable, WeatherSmart Commercial or Super Jumbo Tex 60&lt;br&gt;23. USG Securock® Exoair® 430 System – see note on left and Air/Vapor System sections in Tables 5-8.&lt;br&gt;24. &quot;% Georgia Pacific DenElement, flashed with Prosoco R-Guard FastFlash on sheathing joints.&lt;br&gt;25. Dow Chemical Dowsil DefendAir 200 (or LT version) or DefendAir 200C (Charcoal)&lt;br&gt;26. Hohmann &amp; Barnard Enviro Barrier and Enviro Barrier VP&lt;br&gt;27. STS FW100 or FW100A</td>
</tr>
<tr>
<td><strong>WRB Over Exterior Insulation</strong>&lt;br&gt;Use 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, or 22&lt;br&gt;Note: Some WRB’s are only allowed with specific systems&lt;br&gt;Insulation Joints may be taped with Foil-Grip 1402, 4&quot; width (max.)</td>
<td>1. None&lt;br&gt;2. Carlisle Fire Resist 705 RS, Fire Resist Barrithane VP, Fire Resist 705 VP (with 702 WB, Cav-Grip, or Low VOC Travel-Tack adhesives), Fire Resist 705 FR-A (with CCW 702, 702LV, 702 WB, CAV-Grip, and Low VOC Travel Adhesives), Fire Resist Barritech VP (or VP LT), Fire Resist Barritech NP&lt;br&gt;3. GE Momentive SEC 2500 SilShield, Elemax 2600&lt;br&gt;4. Vaproshield Wrapshield SA, Revealshield SA&lt;br&gt;5. WR Grace Perm-A-Barrier® NPL (AKA: PAB NP20), Perm-A-Barrier® VPL, Perm-A-Barrier® Aluminum Wall Membrane, Perm-A-Barrier® VPL LT, Perm-A-Barrier VPS&lt;br&gt;6. Henry Air-Bloc® 17MR, 21S, 31MR, 33MR, 16MP, and Blueskin VP160 (only with Xci Ply)&lt;br&gt;7. Tyvek CommercialWrap or Stuccowrap&lt;br&gt;8. PolyGuard Air Lok Sheet UV400 NP, Air Lok Flex (only with Xci Ply with any claddings 1-6), Air Lok Flex VP (over Xci Ply with any claddings 1-6), FlexGuard (over Xci-Ply with any cladding listed or over the other Xci foams listed with claddings 1-6)&lt;br&gt;9. Prosoco R-Guard Cat 5, R-Guard Cat 5 Rainscreen, R-Guard VB or R-Guard Spray Wrap MVP&lt;br&gt;10. Sto Gold coat or Emerald Coat (only with Xci Ply)&lt;br&gt;11. Dryvit Backstop NT</td>
</tr>
</tbody>
</table>
### Wall Component | Materials
--- | ---
12. Any WRB that has been tested per ASTM E1354 (at a minimum of 20 kW/m² heat flux) and shown by analysis to be less flammable (improved T<sub>ign</sub>, Pk, HRR) than those listed above | CCW LM 800 XL or other approved (less flammable than LM 800 XL) polyurethane or latex sealant. Sealant fills sheathing joint, and has a maximum 1" width x 3/8" thickness profile over sheathing joint. Caulking shall be covered with 40 mil dry thickness of Fire Resist Barritech NP/VP (or VP LT).
13. 3" Aluma-GRIP 701 or 4" FG-1402 joint tape may be interchanged (Hardcast AFT is a rebrand of Aluma-GRIP 701) | CCW DCH Reinforcing Fabric imbedded in Fire Resist Barritech NP/VP.
14. WR Meadows Air Shield LMP (Gray), Air Shield LMP (Black), Air Shield TMP, Air Shield LSR | CCW LiquiFiber-W imbedded in Fire Resist Barritech NP/VP (or VP LT).
15. Dörken Systems, Inc., Delta-Vent SA, Delta-Vent S, Delta-Fassade S, Delta Maxx | CCW DCH Reinforcing Fabric imbedded in Fire Resist Barritech NP/VP.
16. Soprema Sopraseal Stick VP (with claddings 1-6, not with Xci Foil), Soprasolin HD | The following flashings tapes are allowed: CCW-702, CCW-702 LV, CCW-702 WB, CAV-Grip, Low VOC Travel Tack.
17. Pecora XL Perm Ultra VP | a. Alum-GRIP 701 or Fire Resist 705 FR-A with any of these contact adhesives as surface prep: CCW-702, CCW-702 LV, CCW-702 WB, CAV-Grip, Low VOC Travel Tack.
b. CCW LiquiFiber-W imbedded in Fire Resist Barritech NP/VP (or VP LT)
c. CCW DCH Reinforcing Fabric imbedded in Fire Resist Barritech NP/VP.
18. Siga Majvest (for all claddings) or Majvest 500 SA (only with Claddings 1-6) | The following may be used as gap filler between insulation panels: FOMO HandiFoam FireBlock and TVM FireBlock.
19. Fortifiber Building Systems Group WeatherSmart Housewrap, WeatherSmart Drainable or WeatherSmart Commercial | 4" width maximum CCW DCH Reinforcing Fabric centered over joint and imbedded in Fire Resist Barritech NP/VP (or VP LT).
20. Dow Chemical DefendAir 200 (or LT version) or DefendAir 200C (Charcoal) | a. CCW LM 800 XL or other approved (less flammable than LM 800 XL) polyurethane or latex sealant. Sealant fills sheathing joint, and has a maximum 1" width x 3/8" thickness profile over sheathing joint. Caulking shall be covered with 40 mil dry thickness of Fire Resist Barritech NP/VP (or VP LT).
b. 4" width maximum CCW DCH Reinforcing Fabric centered over joint and imbedded in Fire Resist Barritech NP/VP (or VP LT)
c. Maximum 4" wide, self-adhered flashing tape centered over joint. Gypsum sheathing surface may be prepared with any of these contact adhesives to improve bond of the flashing tape: CCW-702, CCW-702 LV, CCW-702 WB, CAV-Grip, Low VOC Travel Tack.
21. Hohmann & Barnard Enviro Barrier VP | The following flashings tapes are allowed:
a. Alum-GRIP-701
b. Fire Resist 705 FR-A
ii. Foil-GRIP 1402
iii. Barritape
22. STS FW100A

#### 5.3.5 Special Approval – 2012 IBC (or earlier):

5.3.5.1 Xci Foil, Xci CG and Xci Ply have been tested in accordance with NFPA 285, which is a full-scale fire test that evaluates the use of foam plastics in exterior wall assemblies using actual end-use configurations. See Section 5.3.4 and the evaluations listed in Section 7.

5.3.5.2 Special approval by large-scale testing is allowed by IBC Section 2603.10, which states:

2603.10 Special approval.

Foam plastic shall not be required to comply with the requirements of Sections 2603.4 through 2603.8 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.1.2.1), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as exterior finish on the basis of special tests shall also conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.
5.3.5.2.1 The testing listed in this section (NFPA 286, FM 4880, UL 1040 or UL 1715) are all tests that evaluate the potential for fire growth of combustible interior finishes.

5.3.5.2.2 Since Xci Foil, Xci CG and Xci Ply are not intended for use as interior finishes, these are not the appropriate end-use tests for these applications.

5.3.5.2.3 This section allows the use of other larger-scale tests. NFPA 285 is a large-scale test that evaluates the wall assembly in fire conditions after flashover occurs, and it is indicative of the end-use conditions.

5.3.5.2.4 This special approval exempts a product from the need to comply with IBC Section 2603.4 through Section 2603.8. This includes exemption from IBC Section 2603.5.4, which requires a flame spread index of 25 or less.

5.3.5.2.5 Xci Foil and Xci CG are not interior finish materials and shall be covered with a minimum ½" gypsum wallboard, which meets the requirements of IBC Section 2603.5.2 for thermal barriers.

5.3.5.2.6 There is no flame spread requirement in IBC Chapter 8 that applies to foam plastics used as insulation inside exterior non-load bearing wall assemblies in which foam is covered by a thermal barrier.

5.3.5.2.7 Based upon the above analysis and interpretation, Xci Foil and Xci CG meet the requirements of IBC Section 2603.10, which specifically exempts the foam from the requirement of IBC Section 2603.5.4 that requires a flame spread index of 25 or less.

5.3.5.2.8 Xci Ply integrates Fire Retardant Treated (FRT) plywood which has a flame spread rating of 25 or less, and has been tested in accordance with NFPA 285, which, per the above analysis, allows it to meet the requirements of IBC Section 2603.10.

5.3.6 Special Approval – 2015, 2018 IBC:

5.3.6.1 Xci Foil, Xci CG and Xci Ply have been tested in accordance with NFPA 285, which is a full-scale fire test that evaluates the use of foam plastics in exterior wall assemblies using actual end-use configurations. See Section 5.3.4 and the evaluations listed in Section 7.

5.3.6.2 Special approval by large-scale testing is allowed by IBC Section 2603.9, which states:

2603.9 Special approval.

Foam plastic shall not be required to comply with the requirements of Section 2603.4 or those of Section 2603.6 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.1.1.1), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.
5.3.6.2.1 The tests listed in this section (NFPA 286, FM 4880, UL 1040 or UL 1715) are all tests that evaluate the potential for fire growth of combustible interior finishes.

5.3.6.2.2 Since Xci Foil, Xci CG and Xci Ply are not intended for use as interior finishes, these are not the appropriate end-use tests for these applications.

5.3.6.2.3 This section allows the use of other larger-scale tests. NFPA 285 is a large-scale test that evaluates the wall assembly in fire conditions after flashover occurs, and it is indicative of the end-use conditions.

5.3.6.2.4 This special approval exempts a product from the need to comply with IBC Section 2603.4 and Section 2603.6. This change in the code language from the 2012 version does not include the exemption from IBC Section 2603.5.4, which requires a flame spread rating of 25 or less.

5.3.6.2.5 Xci Foil, Xci CG and Xci Ply are not interior finish materials and shall be covered with a minimum 1/2" gypsum wallboard, which meets the requirements of IBC Section 2603.5.2 for thermal barriers.

5.3.6.2.6 There is no flame spread requirement in IBC Chapter 8 that applies to foam plastics used as insulation inside exterior non-load bearing wall assemblies in which foam is covered by a thermal barrier.

5.3.6.2.7 The foam plastic materials in Xci Foil, Xci CG and Xci Ply do not have a flame spread index of 25 or less as required by IBC Section 2603.5.4. However, they have met the intent of the code by showing that in their end-use configuration, they meet the requirements of the NFPA 285 assembly test, and, for the assemblies defined herein, are equivalent to assemblies containing foam plastics with a flame spread index of 25 or less.

5.3.6.2.8 Based upon the above analysis and interpretation, Xci Foil, Xci CG and Xci Ply meet the requirements of IBC Section 2603.9 when installed in accordance with the provisions of this TER.

5.4.1 Xci CG may be used as an air barrier material as prescribed in IECC Section R402.4.1.1 and C402.5.1 in accordance with ASTM E2178. Air permeability test results are recorded in Table 7.

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Air Pressure</th>
<th>Air Permeability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xci CG</td>
<td>75 Pa</td>
<td>&lt; 0.02 L/s·m²</td>
</tr>
</tbody>
</table>

SI: 1 in = 25.4 mm

1. Foam core tested in accordance with ASTM E2178. Air pressure and permeability numbers shown represent Xci CG compliance and are not intended to represent the performance under actual conditions.

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4 2012 IBC Section 2603.10
6 2012 IECC Section C402.4.1
6 INSTALLATION

6.1 Installation shall comply with the manufacturer’s installation instructions and this TER. In the event of a conflict between the manufacturer’s installation instructions and this TER, the more restrictive shall govern.

6.2 Installation Procedure

6.2.1 Protect surrounding areas and surfaces from damage.

6.2.2 If wall assembly design calls for WRB installed over the base wall, ensure that the WRB is one of those identified in Table 6 and the WRB is installed correctly and in good condition before covering with FPIS.

6.2.3 FPIS shall not be applied over walls while they are vulnerable to water intrusion from above or behind.

6.2.4 Do not block flashing, weeps or other drainage paths with FPIS.

6.2.5 Do not span expansion joints with FPIS.

6.2.6 During installation, take precautions to minimize moisture intrusion behind insulation.

6.2.7 Beginning at the base of the wall, apply FPIS horizontally or vertically using maximum board lengths to minimize the number of joints.

6.2.8 Pre-cut FPIS to fit openings and penetrations.

6.2.9 Offset FPIS board joints a minimum of 6”. Do not form four-corner intersections.

6.2.10 Form a “corner lock” pattern by staggering vertical joints at inside and outside corners.

6.2.11 Fill gaps greater than 1/8” between FPIS boards with expanding spray foam, or approved sealant and strike flush. Expanding spray foam may also be applied onto the FPIS board edges during installation.

6.2.12 Verify all materials are installed in accordance with current Hunter Panels published literature and local code requirements.

6.2.13 Additional information on the installation and detailing of Xci foil, Xci CG and Xci Ply can be found at hunterxci.com.

6.3 This section provides additional general guidelines for the installation of Xci Foil and Xci CG only. Refer to the manufacturer’s installation instructions, in addition to this TER, for complete details and requirements.

6.3.1 Cut with a knife using a square to guide the cut or use a table saw.

6.3.2 Abut all joints tightly and ensure an overall flush, level surface.

6.3.3 Mechanically fasten using the fastening pattern as indicated.

6.3.3.1 Space fasteners 12" o.c. at the perimeter and 16" o.c. in the field.

6.3.3.2 Set back perimeter fasteners 3/8" from board edges.

6.3.3.3 Note: Where Xci Foil or Xci CG are installed by the same trade as the cladding, or in close cooperation with that trade, cladding attachment hardware can supplement or replace the insulation fasteners and insulation adhesive. Cladding fasteners fulfilling the Xci Foil or Xci CG attachment function shall be designed for this function. If the cladding attachment is 16" o.c. or closer, and it tightly secures the insulation, no additional fastening or adhesive is required.

6.3.4 When adhesive is used, periodically verify adhesion. Properly installed adhesively applied Xci Foil or Xci CG will cohesively break the adhesive while still wet and destroy the substrate when dry.

6.3.5 Consult the detailed manufacturer’s installation instructions for the proper adhesive pattern to maintain the drainage plane.

6.4 This section provides additional general guidelines for the installation of Xci Ply only. Refer to the manufacturer’s installation instructions, in addition to this TER, for complete details and requirements.

6.4.1 Provide separation of the edge of Xci Ply from concrete at grade with pressure-treated lumber sill plate, sill gasket or non-permeable flashing material.

6.4.2 Begin at base of wall from firm, permanent support.
6.4.3 Fasten Xci Ply with proper fasteners and spacing to accommodate design. Fasten Xci Ply to the structure using SIPs fasteners or similar hardware driven into steel studs, wood studs, concrete or CMU substrate. Fastening shall be approved by a structural engineer, as the fastening must be sufficient to support both the weight of the Xci Ply and the weight of the cladding for the project conditions.

6.4.4 Allow a minimum 1/8" and a maximum 1/4" gap between Xci Ply boards to accommodate hydric movement of wood. Fasten boards tightly to provide a flush, level surface.

6.4.5 Apply WRB, from approved list in Table 6, over plywood side of Xci PLY according to WRB manufacturer’s instructions.

7 TEST ENGINEERING SUBSTANTIATING DATA

7.1 Test reports and data supporting the following material properties and wall assembly performance:

7.1.1 Flame spread and smoke developed ratings in accordance with ASTM E84 by Factory Mutual.

7.1.2 Fire performance criteria in accordance with NFPA 285 by Intertek and Architectural Testing.

7.1.3 Potential heat in accordance with NFPA 259 by Intertek.

7.2 Engineering analysis comparing the fire resistance properties of Xci Foil, Xci CG and Xci Ply by Priest and Associates.

7.3 Engineering analysis assessing the substitution of products within the approved NFPA 285 tested wall assemblies by Priest and Associates.

7.4 Manufacturer technical data sheets and installation instructions.

7.5 Manufacturer quality control manual and evidence of approved agency inspections.

7.6 Some information contained herein is the result of testing and/or data analysis by other sources which conform to IBC Section 1703 and relevant professional engineering law. DrJ relies on accurate data from these sources to perform engineering analysis. DrJ has reviewed and found the data provided by other professional sources to be credible.

7.7 Where appropriate, DrJ’s analysis is based on design values that have been codified into law through codes and standards (e.g., IBC, IRC, NDS®, and SDPWS). This includes review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g., lumber, steel, and concrete), DrJ relies upon the grade mark, stamp, and/or design values provided by raw material suppliers to be accurate and conforming to the mechanical properties defined in the relevant material standard.

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 Xci Foil, Xci CG and Xci Ply are approved for use in exterior walls of buildings of Type I-IV construction in accordance with IBC Section 2603.5.

8.1.2 Xci Foil, Xci CG and Xci Ply are approved for use in wall assemblies meeting the requirements of NFPA 285 testing when constructed in accordance with Table 3, Table 4, Table 5, and Table 6.

8.1.3 Xci Foil, Xci CG and Xci Ply described in this TER comply with, or are a suitable alternative to, the applicable sections of the codes listed in Section 2.
8.2 *IBC Section 104.11* (*IRC Section R104.11* and *IFC Section 104.9* 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, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in 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.

8.3 This product has been evaluated in the context of the codes listed in Section 2 and is compliant with all known state and local building codes. Where there are known variations in state or local codes applicable to this evaluation, they are listed here.

8.3.1 No known variations

9 CONDITIONS OF USE

9.1 XCI Foil, XCI CG, and XCI Ply are subject to the following conditions:

9.1.1 XCI Foil, XCI CG, and XCI Ply are approved for use in exterior walls of buildings of any height and of Type I, II, III, or IV construction as described in Table 3, Table 4, Table 5, and Table 6.

9.1.2 XCI Ply may be used as a structural nailing base for claddings. XCI Foil and XCI CG shall not be used as a nailing base for claddings.

9.1.3 XCI Foil, XCI CG, and XCI Ply shall not be used to resist lateral loads. Walls shall be braced by other materials in accordance with the applicable code, and the exterior wall covering shall be capable of resisting the full design wind pressure.

9.1.4 When installed in areas where the probability of termite infestation is “very heavy” the installation must meet the requirements of *IBC Section 2603.8*.

9.1.5 XCI Foil, XCI CG, and XCI Ply is manufactured in Montgomery, New York; Tooele, Utah; Terrell, Texas; Smithfield, Pennsylvania; Franklin Park, Illinois; Puyallup, Washington; and Lake City, Florida, under a quality control program with quality control inspections in accordance with *IBC Section 110.3.97 and 110.3.108*.

9.1.6 The wall assemblies listed in Table 3, Table 4, Table 5, and Table 6 are based on compliance to the fire provisions of the codes listed in Section 2. Consideration of wall assembly performance with regard to other attributes, such as water vapor control, condensation, energy code requirements, etc. are outside the scope of this TER.

9.2 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.

9.3 Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the AHJ for review and approval.

9.4 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 registered design professional).

9.5 At a minimum, this product shall be installed per Section 6 of this TER.

9.6 This product is manufactured under a third-party quality control program in accordance with *IBC Section 104.4 and 110.4* and *IRC Section R104.4 and R109.2*.

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7 2015 IBC Section 110.3.8
8 2015 IBC Section 110.3.9
9.7 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. Therefore, the TER shall be reviewed for code compliance by the building official for acceptance.

9.8 The use of this TER is dependent on the manufacturer’s in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer’s instructions, the building official’s inspection, and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

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 hunterxci.com.

11 REVIEW SCHEDULE

11.1 This TER is subject to periodic review and revision. For the most recent version of this TER, visit drjcertification.org.

11.2 For information on the current status of this TER, contact DrJ Certification.