

# ICC-ES Evaluation Report

**ESR-3044**

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**DIVISION: 09 00 00—FINISHES**  
**Section: 09 29 00—Gypsum Board**

**REPORT HOLDER:**

**USG CORPORATION**

**ADDITIONAL LISTEE:**

**ATLANTIC WALLBOARD LIMITED (AWL)**

**CANADIAN GYPSUM COMPANY, INC.**

**EVALUATION SUBJECT:**

**USG 5/8-INCH SECUROCK® GLASS-MAT SHEATHING FIRECODE® X, USG 1/2-INCH SECUROCK® GLASS-MAT SHEATHING, USG 5/8-INCH SECUROCK® ULTRALIGHT GLASS-MAT SHEATHING FIRECODE® X, AND USG 1/2-INCH SECUROCK® ULTRALIGHT GLASS-MAT SHEATHING**

**1.0 EVALUATION SCOPE**

**Compliance with the following codes:**

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- \* ■ 2015, 2012, 2009 and ~~2006~~ *International Residential Code*® (IRC)
- \* ■ ~~2013 Abu Dhabi International Building Code (ADIBC)†~~

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

**Properties evaluated:**

- Structural
- Noncombustibility
- Surface burning characteristics
- Fire-resistance-rated construction
- Physical properties

**2.0 USES**

SECUROCK® Glass-Mat Sheathing FIRECODE® X, SECUROCK® Glass-Mat Sheathing, SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and SECUROCK® ULTRALIGHT Glass-Mat Sheathing are used as exterior wall sheathing and as exterior soffit board. The sheathing is intended for use as solid sheathing behind a variety of exterior wall cladding materials on

buildings of all construction types under the IBC and buildings under the IRC. The sheathing may be used to resist transverse wind loads when installed in accordance with Section 4.2.1, and racking loads due to wind and seismic forces when installed in accordance with Section 4.2.2. SECUROCK® Glass-Mat Sheathing FIRECODE® X and SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X may be used as a component of a fire-resistance-rated wall assembly when installed in accordance with Section 4.3.

**3.0 DESCRIPTION**

**3.1 General:**

SECUROCK® Glass-Mat Sheathing FIRECODE® X, SECUROCK® Glass-Mat Sheathing, SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and SECUROCK® ULTRALIGHT Glass-Mat Sheathing are water-resistant-core gypsum substrates complying with ASTM C1177 as specified in Table 2506.2 of the IBC and Section R702.3.1 of the IRC. All sheathings have a Class A interior finish classification in accordance with IBC Section 803.1, comply with 2015, 2012 and 2009 IRC Section R302.9 and 2006 IRC Section R315, and are classified as noncombustible building materials in accordance with ASTM E136.

**3.2 SECUROCK® Glass-Mat Sheathing FIRECODE® X:**

SECUROCK® Glass-Mat Sheathing FIRECODE® X is 5/8 inch (15.9 mm) thick and 48 inches (1219 mm) wide, has square edges and is available in lengths of 96, 108 and 120 inches (2438, 2743 and 3048 mm). Custom sizes are available upon request. The product is also available with a coated glass-mat.

**3.3 SECUROCK® Glass-Mat Sheathing:**

SECUROCK™ Glass-Mat Sheathing is 1/2 inch (12.7 mm) thick and 48 inches (1219 mm) wide, has square edges and is available in lengths of 96, 108 and 120 inches (2438, 2743 and 3048 mm). Custom sizes are available upon request. The product is also available with a coated glass-mat.

**3.4 SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X:**

SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X is 5/8 inch (15.9 mm) thick and 48 inches (1219 mm) wide, has square edges and is available in lengths of 96, 108 and 120 inches (2438, 2743 and 3048 mm). Custom sizes are available upon request. The product has a coated glass-mat.

### 3.5 SECUROCK® ULTRALIGHT Glass-Mat Sheathing:

SECUROCK® ULTRALIGHT Glass-Mat Sheathing is 1/2 inch (12.7 mm) thick and 48 inches (1219 mm) wide, has square edges and is available in lengths of 96, 108 and 120 inches (2438, 2743 and 3048 mm). Custom sizes are available upon request. The product has a coated glass-mat.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Installation:

SECUROCK® Glass-Mat Sheathing FIRECODE® X, SECUROCK® Glass-Mat Sheathing, SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and SECUROCK® ULTRALIGHT Glass-Mat Sheathing must be installed in accordance with ASTM C1280 (Standard Specification for Application of Gypsum Sheathing) and GA-253 (Application of Gypsum Sheathing) for IBC applications, or IRC Section R702.3.5 for IRC applications; the manufacturer's published installation instructions; and this report.

When installed on exterior walls, the sheathing must be covered with an approved water-resistive barrier and an approved exterior wall covering. The sheathing must not be used as a nailing base, and any mechanical attachments of exterior coverings must be made directly to the framing. All sheathing fasteners must be flush with the panel surface without countersinking or being deep enough to break the glass mat.

The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation.

### 4.2 Design:

**4.2.1 Transverse Wind Resistance:** The sheathings may be used to resist transverse wind loads when installed as described in Table 1. Design wind loads are determined in accordance with Section 1609 of the IBC. The design wind loads must not exceed the allowable transverse wind loads shown in Table 1.

**4.2.2 Shear Resistance:** SECUROCK® Glass-Mat Sheathing FIRECODE® X, SECUROCK® Glass-Mat Sheathing, SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and SECUROCK® ULTRALIGHT Glass-Mat Sheathing may be used as components of conventional light framed walls for resisting shear loads when installed as described in this section.

**4.2.2.1 Prescriptive Wall Bracing:** SECUROCK® glass mat gypsum substrate is equivalent to gypsum sheathing for use as bracing to resist lateral loads due to wind and seismic forces. When installed as prescribed by code for gypsum sheathing, the glass mat gypsum substrate may be used as wall bracing in accordance with 2015 IBC Section 2308.6.3 or 2012, 2009, and 2006 IBC Section 2308.9.3, Method 5, subject to the limitations in IBC Section 2308.2, or in accordance with 2015 and 2012 IRC Section R602.10.4, Method GB, or 2009 IRC Section R602.10.2, Method GB, or ~~2006 IRC Section R602.10.3, Method 5~~ as applicable.

**4.2.2.2 Engineered Shear Walls:** SECUROCK® glass mat gypsum substrate may be used as a component of engineered shearwalls when designed in accordance with IBC Section 2305 for wood framed walls or 2015 and 2012 IBC Section 2211.6 or 2009 and 2006 IBC Section 2210.6 for light steel framed walls. The design wind and seismic loads must not exceed the allowable racking shear capacity for gypsum sheathing shown in Table 2306.3(3) of the 2015 and 2012 IBC or Table 2306.7 of the 2009

IBC or Table 2306.4.5 of the 2006 IBC. Design wind loads must be determined in accordance with Section 1609 of the IBC. Design seismic loads must be determined in accordance with Section 1613 of the IBC.

For seismic design, the substrate may be used as a component of wood-framed engineered shear walls for resisting seismic loads in Seismic Design Categories A, B, C and D. The response modification factor, R, must be equal to 2; the system overstrength factor,  $\Omega_o$ , must be equal to 2<sup>1/2</sup>; and the deflection amplification factor,  $C_d$ , must be equal to 2. The maximum building height is 35 feet (10.6 m) for buildings located in Seismic Design Category D areas.

Structural members, systems and components, including boundary studs and plates, must be anchored to resist design forces and to provide continuous load paths for these forces to the foundation.

### 4.3 One-hour Load-bearing Fire-resistance-rated Wall Assemblies:

**4.3.1 General:** The 5/8-inch-thick (15.9 mm) SECUROCK® Glass-Mat Sheathing FIRECODE® X and 5/8-inch-thick (15.9 mm) SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X shall be installed horizontally or vertically and attached with fasteners noted in Section 4.3.2 or 4.3.3. Fasteners must have minimum edge and end distances of 3/8 inch (9.5 mm).

When SECUROCK® Glass-Mat Sheathing FIRECODE® X or SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X is installed only on the exterior side, 5/8-inch-thick (15.9 mm), Type X gypsum board conforming to ASTM C36 or ASTM C1396 must be installed on the interior side using the same fastening schedule. All interior board joints without corner beads installed must be covered with 2-inch-wide (51 mm) joint tape and two layers of joint compound. All interior board nail heads must be covered with two layers of joint compound. Horizontal joints of the sheathing are not required to be supported by framing.

**4.3.2 Wood-framed Assembly:** The sheathing must be attached using No. 6 by 1 7/8 inch-long (48 mm), Type W corrosion-resistant screws at 7 inches (178 mm) on center for the field, edge, and end spacing. Framing must be 2-by-4 spaced at maximum 16 inches (406 mm) on center.

**4.3.3 Steel-framed Assembly:** The sheathing must be attached with minimum 1 1/4-inch-long (31.7 mm), Type S-12 corrosion-resistant screws spaced 8 inches (203 mm) on center for field, edge and end fastening. Framing must be minimum 3 1/2-inch-deep (89 mm), No. 20 gage [0.0359 inch (0.912 mm)] base-metal-thickness steel, having minimum 1.57-inch flanges and minimum 0.43-inch returns, spaced a maximum of 24 inches (610 mm) on center.

### 4.4 Thermal Barrier:

SECUROCK® Glass-Mat Sheathing FIRECODE® X and SECUROCK® Glass-Mat Sheathing may be used as a thermal barrier for foam plastic insulation when installed in accordance with Section 4.1.

## 5.0 CONDITIONS OF USE

The SECUROCK® Glass-Mat Sheathing FIRECODE® X, the SECUROCK® Glass-Mat Sheathing, the SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and the SECUROCK® ULTRALIGHT Glass-Mat Sheathing products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions.

- 5.1 The products must be manufactured, identified and installed in accordance with this report, the manufacturer's published installation instructions and the applicable code. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 When the sheathing is in accordance with this report, excluding Section 4.2.2, the stud walls must be braced by other materials in accordance with the applicable code.
- 5.3 Shear walls using the sheathing must not be used to resist forces imposed by masonry and/or concrete walls.
- 5.4 The sheathing is manufactured for USG Corporation in Bridgeport, Alabama; Shoals, Indiana; Jacksonville, Florida; Sperry, Iowa; Baltimore, Maryland; Sweetwater, Texas; and El Centro, California; and for Canadian Gypsum Company, Inc. in Hagersville, Ontario, Canada; and for Atlantic Wallboard Limited (AWL) in Saint John, New Brunswick, Canada, under a quality control program with inspections by ICC-ES.

**6.0 EVIDENCE SUBMITTED**

- 6.1 Reports of physical property testing in accordance with ASTM C473, for compliance with ASTM C1177.
- 6.2 Reports of surface-burning tests in accordance with ASTM E84.
- 6.3 Reports of noncombustibility tests in accordance with ASTM E136.
- 6.4 Reports of tests on a fire-resistance-rated wall assembly in accordance with ASTM E119.
- 6.5 Reports of transverse load tests in accordance with ASTM E330.
- 6.6 Engineering calculations.
- 6.7 Quality documentation.

**7.0 IDENTIFICATION**

- 7.1 Each SECUROCK® Glass-Mat Sheathing FIRECODE® X, SECUROCK® Glass-Mat Sheathing,

SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X, and SECUROCK® ULTRALIGHT Glass-Mat Sheathing board bears a label that includes the manufacturer's name (USG Corporation; or additional listee's name Canadian Gypsum Corporation or Atlantic Wallboard Limited); a plant identifier and date code; the product name; and the evaluation report number (ESR-3044).

SECUROCK® Glass-Mat Sheathing FIRECODE® X and SECUROCK® Glass-Mat Sheathing with a coated glass-mat are labeled "coated mat" on the face of each board.

SECUROCK® ULTRALIGHT Glass-Mat Sheathing FIRECODE® X and SECUROCK® ULTRALIGHT Glass-Mat Sheathing are labeled "ULTRALIGHT WEIGHT CORE" on the face of each board.

- 7.2 The report holder's contact information is the following:

**USG CORPORATION**  
**550 WEST ADAMS STREET**  
**CHICAGO, ILLINOIS 60661**  
**(800) 874-4968**  
[www.usg.com](http://www.usg.com)

- 7.3 The additional listees' contact information is the following:

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**30 JERVIS LANE**  
**SAINT JOHN, NEW BRUNSWICK E2E 6B7**  
**CANADA**  
**(506) 633-3331**

**CANADIAN GYPSUM COMPANY, INC.**  
**350 BURNHAMTHORPE ROAD WEST, 5<sup>TH</sup> FLOOR**  
**MISSISSAUGA, ONTARIO L5B 3J1**  
**CANADA**  
**(905) 803-5600**

**TABLE 1—ALLOWABLE TRANSVERSE WIND LOADS<sup>1,2,3,4,5,6,7,8,9</sup>**  
**(pounds per square foot [PSF])**

<b>SECUROCK Glass-Mat Sheathing FIRECODE X (<sup>5</sup>/<sub>8</sub> inch thick) and SECUROCK ULTRALIGHT Glass-Mat Sheathing FIRECODE X (<sup>5</sup>/<sub>8</sub> inch thick)</b>									
Frame Spacing	12 inch on center			16 inch on center			24 inch on center		
Fastener Spacing (inches)	4	6	8	4	6	8	4	6	8
Allowable Pressure	96	67	50	75	50	38	34	27	24
<b>SECUROCK Glass-Mat Sheathing (<sup>1</sup>/<sub>2</sub> inch thick) and SECUROCK ULTRALIGHT Glass-Mat Sheathing (<sup>1</sup>/<sub>2</sub> inch thick)</b>									
Frame Spacing	12 inch on center			16 inch on center			24 inch on center		
Fastener Spacing (inches)	4	6	8	4	6	8	4	6	8
Allowable Pressure	75	35	26	40	26	26	26	17	16

For SI: 1 inch = 25.4 mm, 1 psf = 47.9 Pa.

<sup>1</sup>The sheathing can be installed parallel or perpendicular to framing.  
<sup>2</sup>The perimeter of the sheathing must be supported by framing members, except edges when installed perpendicular to the framing.  
<sup>3</sup>No. 6 screws must have a minimum head diameter of 0.325 inch (8.255 mm).  
<sup>4</sup>No. 11 gage roofing nails must have a minimum head diameter of 0.372 inch (9.449 mm).  
<sup>5</sup>The nails and screws must be installed at panel edges with a minimum edge distance of <sup>3</sup>/<sub>8</sub> inch (9.5 mm).  
<sup>6</sup>Allowable values are for short term wind loads.  
<sup>7</sup>The values in this table are based on testing per ASTM E330 and represent the ultimate design capacity of the sheathing to resist fastener pull-through and/or flexural failure. The withdrawal resistance of fasteners from framing must be designed to provide withdrawal resistance greater than the allowable transverse load specified in the table and must be determined based on factors including, but not limited to, fastener type, fastener length and framing properties. The specification of fastener is the responsibility of the designers of record.  
<sup>8</sup>Deflection of wall framing at allowable pressure must be less than or equal to L/360.  
<sup>9</sup>Framing capacity and potential bracing requirements are beyond the scope of this evaluation report.