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ICC-ES Report

ESR-3831

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DIVISION: 09 00 00—FINISHES
SECTION: 09 29 00—GYPSUM BOARD

REPORT HOLDER:

PANEL REY, S.A.

CARRETERA MONTERREY—MONCLOVA KM 11.5
EL CARMEN, NUEVO LEON 66550
MEXICO

EVALUATION SUBJECT:

PANEL REY GLASS REY® 1/2-INCH (GRE) AND 5/8-INCH (GREX) EXTENDED EXPOSURE SHEATHING BOARDS



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Section: 09 29 00—Gypsum Board

REPORT HOLDER:

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EVALUATION SUBJECT:

PANEL REY GLASS REY® ½ -INCH (GRE) AND 5/8-INCH (GREX) EXTENDED EXPOSURE SHEATHING BOARDS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2015, 2012, and 2009 *International Building Code*® (IBC)
- 2015, 2012, and 2009 *International Residential Code*® (IRC)

Properties evaluated:

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

2.0 USES

Glass Rey Extended Exposure Sheathing boards are used as gypsum sheathing boards and as exterior gypsum soffit boards that comply with the appropriate standard in Table 2506.2 of the IBC and Section R702.3.1 of the IRC. The sheathing boards may be used as a single- or multiple-ply backing for exterior wall covering materials on buildings of all construction types under the IBC and buildings under the IRC. The sheathing boards 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. The 5/8-inch thick (15.9 mm) (GREX) Extended Exposure Sheathing Boards may be used as a component of a fire-resistance-rated wall assembly when installed in accordance with Section 4.3.

3.0 DESCRIPTION

Glass Rey Extended Exposure Sheathing Boards are noncombustible, coated glass-fiber-mat faced, water-resistant-core gypsum sheathing boards which conform to the physical property requirements of ASTM C1177, and the physical property requirements for exterior gypsum soffit boards and treated core gypsum sheathing boards in ASTM C1396. The sheathing boards are available in two varieties: ½-inch-thick (12.7 mm) (GRE) Extended Exposure Sheathing Board and 5/8-inch-thick (15.9 mm) (GREX) Extended Exposure Sheathing Board. The sheathing is 48 inches (1219 mm) wide and is available in various lengths.

Glass Rey Extended Exposure Sheathing Boards are classified as noncombustible in accordance with ASTM E136. 5/8-inch thick (15.9 mm) (GREX) Extended Exposure Sheathing Boards exhibit a flame-spread index of 25 or less, and a smoke-developed index of 450 or less, in accordance with ASTM E84 (UL 723).

4.0 DESIGN AND INSTALLATION

4.1 Installation:

Glass Rey Extended Exposure Sheathing Boards must be installed in accordance with the manufacturer's published installation instructions, this evaluation report, and ASTM C1280 for IBC applications or IRC Section R702.3.5 for IRC applications. Glass Rey Extended Exposure Sheathing Boards must be kept dry and stored off the ground under a protective covering prior to installation. The sheathing may be installed vertically or horizontally, except as noted in Sections 4.2.2 and 4.3 of this report, and must be fastened to framing in accordance with the applicable code. All fasteners used to attach the sheathing to structural framing must be driven so that the heads are at, or slightly below, the surface of the sheathing without fracturing the core. Once installed, the sheathing must be covered with an approved water-resistive barrier where required by the code, and an exterior wall covering. Exterior wall coverings may be adhered to Glass Rey Extended Exposure Sheathing Boards when approved by the code official.

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 sheathing boards may be used to resist transverse wind loads when

designed and installed as described in Table 1, including the footnotes. 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: The sheathing boards may be used as components of conventional light framed walls for resisting in-plane shear loads when installed as described in this section (Section 4.2.2).

4.2.2.1 Prescriptive Wall Bracing (IBC and IRC): Glass Rey Extended Exposure Sheathing boards are equivalent to gypsum boards for use as bracing to resist lateral loads due to wind and seismic forces, when installed in accordance with 2015 IBC Section 2308.6.4, Method GB or 2012 and 2009 IBC Section 2308.9.3, Method 5, subject to the limitations in 2015, 2012 and 2009 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, as applicable.

4.2.2.2 Engineered Shear Walls (IBC): Glass Rey Extended Exposure Sheathing boards may be used as the sheathing component of engineered shear walls, when designed and installed in accordance with 2015, 2012 and 2009 IBC Section 2305 for wood framed shear walls sheathed with gypsum wallboards or gypsum sheathing boards. The design wind and seismic loads must not exceed the allowable racking shear capacity for wood framed shear walls sheathed with gypsum wallboards or gypsum sheathing boards, prescribed in AF&PA SDPWS referenced in 2015, 2012 and 2009 IBC Section 2305. 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 Glass Rey Extended Exposure Sheathing boards may be used as the sheathing component of wood-framed shear walls with shear panels of all other materials, described in ASCE 7-10 Table 12.2-1, Item A.17 for the 2015 and 2012 IBC (ASCE 7-05, Table 12.2-1, Item A.14 for the 2009 IBC), for resisting seismic loads in Seismic Design Categories A, B, C, and D.

Structural framing members and connections, including members and connections to resist in-plane lateral shear and overturning moments, must be designed and installed to provide adequate and continuous load paths for all applicable loads from the point of application to the final point of resistance.

4.3 Fire-resistance-rated Wall Assembly:

One-hour Fire-resistance-rated Limited-Load-bearing Wall: The $\frac{5}{8}$ -inch thick (15.9 mm) Glass Rey (GREX) Extended Exposure Sheathing Board must be applied horizontally to the outside face of the wall, of minimum nominally 2-by-4 wood studs spaced at a maximum of 16 inches (406 mm) on-center. A layer of $\frac{5}{8}$ -inch-thick (15.9 mm) Type X gypsum wallboard conforming to ASTM C1396 must be installed horizontally on the interior side of the wall. The boards must be attached using minimum $1\frac{7}{8}$ -inch-long (47.6 mm) galvanized 6d nails, spaced at 7 inches on-center (177.8 mm) at the edges and 16 inches on-center (406 mm) at intermediate studs. All exposed interior gypsum wallboard joints must be taped with joint tape and compound, and all nail heads must be covered with joint compound, in accordance with ASTM C840 or GA216. The wall framing members must be braced laterally at the mid-height of the wall assembly with horizontal blocking. The allowable bearing loads for the assembly must not exceed 1180 pounds (5252 N) per stud and were calculated using an unbraced length for bracing

in the wood studs' weak direction based on the horizontal blocking located at the wall mid-height [60 inches (1524 mm) on center maximum], with the wood studs having a slenderness ratio (l_e/d)_y value of 39.

5.0 CONDITIONS OF USE

The Glass Rey Extended Exposure Sheathing Boards described in this report complies with, or is a suitable alternative 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 not installed as bracing, as described in Section 4.2.2.1, or as an engineered shear wall, as described in Section 4.2.2.2, 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 Calculations and details showing that the walls sheathed with the Glass Rey Extended Exposure Sheathing boards are adequate to resist the applied loads described in Sections 4.2.1 and 4.2.2.2 must be submitted to the code official for approval. The calculations and details must be signed and sealed by a registered design professional, when required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.5 The sheathing is manufactured in El Carmen, Nuevo Leon, Mexico, 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 (UL723).
- 6.3 Reports of noncombustibility tests in accordance with ASTM E136.
- 6.4 Reports of fire-resistance testing in accordance with ASTM E119 (UL263).
- 6.5 Reports of transverse load tests in accordance with ASTM E330.
- 6.6 Engineering calculations.
- 6.7 Quality documentation.

7.0 IDENTIFICATION

Each Glass Rey Extended Exposure Sheathing Board is identified with the manufacturer's name (Panel Rey, S.A.), a plant identifier and date code, the product name, the board thickness, and the evaluation report number (ESR-3831).

**TABLE 1—ALLOWABLE TRANSVERSE WIND LOADS (pounds per square foot [psf])
GLASS REY EXTENDED EXPOSURE SHEATHING BOARDS^{1,2}**

TYPE	THICKNESS (INCH)	FRAMING SPACING ^{7,8} (INCHES ON CENTER)	FASTENER SPACING (INCHES)	FASTENER TYPE ^{3,4} (tapping screws)	ALLOWABLE POSITIVE/NEGATIVE PRESSURE ^{5,6} (psf)
GRE	1/2	16	8	#6 X 1 1/4"	31
GRE	1/2	24	8	#6 X 1 1/4"	16
GREX	5/8	16	8	#6 X 1 1/4"	48
GREX	5/8	24	8	#6 X 1 1/4"	24

For SI: 1 inch = 25.4 mm, 1 psf = 47.0 Pa

¹The glass rey extended exposure sheathing boards may be installed vertically and/or horizontally.

²The perimeter of the glass rey extended exposure sheathing boards must be supported by framing members.

³No. 6 screws must have a minimum head diameter of 0.320 inch (8.1 mm) and a minimum shank diameter of 0.141 inch (3.6 mm).

⁴The screws must be installed at panel edges with a minimum edge distance of 3/8 inch (9.5 mm).

⁵Allowable wind pressure values are short term wind loads.

⁶The values in this table are based on testing per ASTM E330 and represent the allowable 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 the fastener is the responsibility of the registered design professional.

⁷Deflection of wall framing at allowable pressure must be less than or equal to L/360 per IBC Table 1604.3.

⁸Framing capacity and potential bracing requirements must be determined by the registered design professional.

ICC-ES Evaluation Report

ESR-3831 CBC and CRC Supplement

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Panel Rey® Glass Rey 1/2-inch (GRE) and 5/8-inch (GREX) Extended Exposure Sheathing Boards, recognized in ICC-ES master evaluation report ESR-3831, have also been evaluated for compliance with codes noted below.

Applicable code editions:

- 2016 and 2013 *California Building Code* (CBC)
- 2016 and 2013 *California Residential Code* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Panel Rey® Glass Rey 1/2-inch (GRE) and 5/8-inch (GREX) Extended Exposure Sheathing Boards, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3831, comply with 2016 and 2013 CBC Sections 703.2, 703.5, 2306.3, 2308.9.3, and 2506, provided the design and installation are in accordance with the 2015 and 2012 *International Building Code*® (IBC) provisions, respectively, noted in the master report and the additional requirements of CBC Chapters 7, 23, and 25, as applicable.

The products recognized in this supplement have not been evaluated under CBC Chapter 7A for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

2.2 CRC:

The Panel Rey® Glass Rey 1/2-inch (GRE) and 5/8-inch (GREX) Extended Exposure Sheathing Boards, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3831, comply with CRC Sections R702.3 and R602.10.4, provided the design and installation are in accordance with the 2015 and 2012 *International Residential Code*® (IRC) provisions, respectively, noted in the master report.

The products recognized in this supplement have not been evaluated under 2016 CRC Section R337 or 2013 CRC Section R327 for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code*®.

This supplement expires concurrently with the master report, issued December 2016.