

ICC-ES Evaluation Report

ESR-3562

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This report also contains:

[- CA Supplement](#)

[- City of LA Supplement](#)

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<p>DIVISION: 09 00 00— FINISHES</p> <p>Section: 09 29 00— Gypsum Board</p>	<p>REPORT HOLDER:</p> <p>PABCO® GYPSUM, A DIVISION OF PABCO® BUILDING PRODUCTS, LLC</p>	<p>EVALUATION SUBJECT:</p> <p>PABCO GLASS® 1/2-Inch SHEATHING AND PABCO GLASS® 5/8-Inch TYPE X SHEATHING</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, 2015 and 2012 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015 and 2012 [International Residential Code® \(IRC\)](#)

Every code reference in this report is related to 2024 IBC. See [Table 1](#) for previous code editions of the IBC and IRC.

Properties evaluated:

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

2.0 USES

PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch 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. PABCO GLASS® 5/8-inch Type X Sheathing 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:

PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch Sheathing are noncombustible glass matt 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. Both sheathings have a Class A interior finish classification in accordance with IBC Section 803.1, comply with the IRC Section R302.9 and are classified as noncombustible building materials in accordance with ASTM E136.

3.2 PABCO GLASS® Type X Sheathing:

PABCO GLASS® Type X Sheathing is 5/8-inch (15.9 mm) thick and 48 inches (1219 mm) wide, has square edges and is available in 96 inch (2438 mm) lengths. Custom sizes are available upon request.

3.3 PABCO GLASS® Sheathing:

PABCO GLASS® Sheathing is 1/2-inch (12.7 mm) thick, 48 inches (1219 mm) wide, has square edges and is available in 96 inch (2438 mm) lengths. Custom sizes are available upon request.

4.0 DESIGN AND INSTALLATION

4.1 Installation:

PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch 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 and soffits, 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: PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch Sheathing may be used to resist transverse wind loads as permitted by the applicable code for gypsum sheathing.

4.2.2 Shear Resistance: PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch 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: The PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch Sheathing boards are 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 PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® 1/2-inch Sheathing boards may be used as wall bracing in accordance with IBC Section 2308.10.3, Method GB subject to the limitations in IBC Section 2308.2, or in accordance with IRC Section R602.10.4, Method GB.

4.2.2.2 Engineered Shear Walls: The PABCO GLASS® Sheathing boards may be used as a component of engineered shear walls when designed in accordance with IBC Section 2305 for wood framed walls or in accordance with IBC Section 2206.1 for light steel framed walls. The design wind and seismic loads must not exceed the allowable racking shear capacity for gypsum sheathing shown in IBC Table 2306.3(3). 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, Ω_o , must be equal to 2½; 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 Fire-resistance-rated Assemblies

4.3.1 One-hour Load-bearing Wood Stud Wall: The 5/8-inch-thick (15.9 mm) PABCO GLASS® Type X Sheathing may be installed vertically to both faces of a wood-stud partition wall with nominal 2-by-4 studs at 16 inches (406 mm) on center. The boards must be attached using minimum 1 7/8-inch long (47.6 mm) galvanized 6d nails 7 inches (178 mm) on center for the field, edge and end spacing. Fasteners must have minimum edge and end distances of 1/2-inch (12.7 mm). All interior board joints and fastener heads must be covered with two layers of joint compound. Allowable bearing loads must not exceed 2,145 pounds (9541 N) per stud, 100 percent of the allowable F'_c , or 100 percent of the calculated stress with studs having a slenderness ratio, l_e/d , of 33, whichever is less.

4.3.2 One-hour Load-bearing Steel Stud Wall: The $\frac{5}{8}$ -inch-thick (15.9 mm) PABCO GLASS® Type X Sheathing may be installed vertically to both faces of a steel-stud partition wall with minimum $3\frac{1}{2}$ -inch (89 mm) deep web, No. 20 gauge [0.0359 inch (0.912 mm)] based-metal-thickness steel stud, having minimum 1.57 inch (40 mm) wide flanges with minimum 0.43 inch (11 mm) returns, and spaced at a maximum of 24 inches (610 mm) on center. The boards must be attached using minimum $1\frac{1}{8}$ -inch long (28.6 mm) Type S screws spaced at 12 inches (305 mm) on center for field, end, and edge fastening. Fasteners must have a minimum edge and end distances to the board of $\frac{3}{8}$ -inch (9.5 mm). Allowable bearing loads must not exceed 1,470 pounds (6,538 N) for a 10 foot (304.8 cm) stud, braced at 6 feet (182.9 cm) on center.

4.3.3 Other Fire-resistance-rated Wall Construction: One layer of PABCO GLASS® Type X Sheathing may be substituted for the gypsum sheathing specified for exterior faces of assemblies Nos. 13-1.1, 13-1.3, 14-1.3, 14-1.5, 15-1.1, 15-1.5 and 15-1.6 of IBC Table 721.1(2).

4.3.4 One-hour Fire-resistance-rated Floor/Ceiling Assembly: Minimum nominal 2-by-10 ($1\frac{1}{2}$ by $9\frac{1}{4}$ inches) (38 mm by 235 mm) Douglas fir, No. 2 grade wood joists spaced 16 inches (406mm) with nominal 1 by 3 [$\frac{3}{4}$ by $2\frac{1}{2}$ inches (19 by 64 mm)] wood cross-bridging at midspan. Subflooring shall be either $\frac{15}{32}$ -inch (12mm) plywood or $\frac{7}{16}$ -inch wood structural panels, minimum grade "C-D" or "sheathing" with strength axis perpendicular to joists with joints staggered and fastened with 8d nails spaced 8 inches (203 mm) on center, with end joints over joists. Finish flooring shall be minimum $\frac{19}{32}$ -inch (15 mm) tongue and groove wood structural panels, minimum grade "Underlayment" or "Single-Floor", with strength axis perpendicular to joists and joints staggered from subflooring joints. The finish flooring sheets are secured to the joists with 8d nails spaced 8 inches (203 mm) on center. One layer of $\frac{5}{8}$ -inch-thick (15.9 mm) PABCO GLASS® Type X Sheathing is installed on the ceiling side of the assembly perpendicular to the joists with the butted end joints in adjacent lengths staggered 48 inches (1219 mm). The boards are fastened directly to the joists with $1\frac{7}{8}$ -inch long (47.6 mm) 6d nails at 6 inches (152mm) on center starting $\frac{1}{2}$ -inch (12.7 mm) from the side edges. Fasteners must have minimum edge and end distances of $\frac{1}{2}$ -inch (12.7 mm).

4.4 Thermal Barrier:

The PABCO GLASS® sheathings may be used as thermal barrier for foam plastic insulation when installed in accordance with Section 4.1.

5.0 CONDITIONS OF USE:

The PABCO GLASS® $\frac{5}{8}$ -inch Type X Sheathing and PABCO GLASS® $\frac{1}{2}$ -inch 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 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 The sheathing is manufactured in Las Vegas, NV 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, and compliance with the flexural strength requirements of ASTM C1396.
- 6.2 Report of surface-burning tests in accordance with ASTM E84.
- 6.3 Report of noncombustibility tests in accordance with ASTM E136.
- 6.4 Reports of fire-resistance testing in accordance with ASTM E119.
- 6.5 Quality documentation.

7.0 IDENTIFICATION

7.1 Each PABCO GLASS® Type X Sheathing and PABCO GLASS® Sheathing board is identified with the manufacturer’s name (PABCO® Gypsum), a plant identifier and date code, the product name, the board thickness, and the evaluation report number (ESR-3562).

7.2 The report holder’s contact information is the following:

PABCO® GYPSUM, A DIVISION OF PABCO® BUILDING PRODUCTS, LLC
10811 INTERNATIONAL DRIVE
RANCHO CORDOVA, CALIFORNIA 95670(702) 407-3753
www.pabco gypsum.com
techservice@pabco gypsum.com

TABLE 1 — APPLICABLE SECTIONS UNDER EACH EDITION OF THE IBC AND IRC

International Building Code (IBC)				
2024 IBC	2021 IBC	2018 IBC	2015 IBC	2012 IBC
		Table 721.1(2)		
		Section 803.1		
		Section 1609		
		Section 1613		
Section 2206.1	Section 2211.1		Section 2211.1	
		Section 2305		
		Table 2306.3(3)		
Section 2308.10.3 Method GB		Section 2308.6.3 Method GB		Section 2308.9.3 Method 5
		Section 2308.2		
		Table 2506.2		
International Residential Code (IRC)				
2024 IRC	2021 IRC	2018 IRC	2015 IRC	2012 IRC
		Section R302.9		
		Section R502.10.4 Method GB		
		Section R602.10.4		
		Section R702.3.5		

DIVISION: 09 00 00—FINISHES

Section: 09 29 00—Gypsum Board

REPORT HOLDER:

PABCO® GYPSUM, A DIVISION OF PABCO® BUILDING PRODUCTS, LLC

EVALUATION SUBJECT:

PABCO GLASS® ½-Inch SHEATHING AND PABCO GLASS® 5/8-Inch TYPE X SHEATHING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® ½-inch Sheathing, described in ICC-ES evaluation report ESR-3562, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2022 California Building Code® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code® (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® ½-inch Sheathing described in Sections 2.0 through 7.0 of the evaluation report ESR-3562, comply with CBC Chapter 14, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 14, 16, 17 and Sections 2305, 2306, 2308 and 2503 as applicable.

2.1.1 OSHPD: The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The PABCO GLASS® 5/8-inch Type X Sheathing and PABCO GLASS® ½-inch Sheathing, described in Sections 2.0 through 7.0 of the evaluation report ESR-3562, comply with CRC Chapters 3 and 7, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions noted in the evaluation report.

This supplement expires concurrently with the evaluation report, reissued October 2024.

DIVISION: 09 00 00—FINISHES

Section: 09 29 00—Gypsum Board

REPORT HOLDER:

PABCO® GYPSUM, A DIVISION OF PABCO® BUILDING PRODUCTS, LLC

EVALUATION SUBJECT:

PABCO GLASS® ½-Inch SHEATHING AND PABCO GLASS® 5/8-Inch TYPE X SHEATHING

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that PABCO GLASS® ½-inch Sheathing and PABCO GLASS® 5/8-inch Type X Sheathing, described in ICC-ES evaluation report [ESR-3562](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2023 City of Los Angeles Building Code ([LABC](#))
- 2023 City of Los Angeles Residential Code ([LARC](#))

2.0 CONCLUSIONS

The PABCO GLASS® ½-inch Sheathing and PABCO GLASS® 5/8-inch Type X Sheathing, described in Sections 2.0 through 7.0 of the evaluation report [ESR-3562](#), comply with the LABC Chapter 14, and the LARC, and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The PABCO GLASS® ½-inch Sheathing and PABCO GLASS® 5/8-inch Type X Sheathing, described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-3562](#).
- The design, installation, conditions of use and identification of the PABCO GLASS® are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-3562](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 14, 16 and 17, Sections 2305, 2306, 2308 and 2503, as applicable.
- The seismic design provisions for hillside buildings referenced in LABC Section 2301.1 have not been considered and are outside of the scope of this supplement.

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