

ICC-ES Evaluation Report

ESR-4686

Reissued October 2024


This report also contains:

- [City of LA Supplement](#)
- [CA Supplement](#)
- [FL Supplement](#)

Subject to renewal October 2025

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<p>DIVISION: 07 00 00 — THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 25 00 — Water-Resistive Barriers/Weather Barriers</p> <p>Section: 07 27 00 — Air Barriers</p>	<p>REPORT HOLDER:</p> <p>TREMCO CPG INC.</p>	<p>EVALUATION SUBJECT:</p> <p>EXOAIR® 230 FLUID-APPLIED SYNTHETIC PERMEABLE AIR BARRIER MEMBRANE</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012, and 2009 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, 2012, and 2009 [International Residential Code® \(IRC\)](#)
- 2021, 2018, 2015, 2012, and 2009 [International Energy Conservation Code® \(IECC\)](#)
- 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:

- Surface-burning characteristics
- Water-resistive barrier
- Air leakage
- Types I, II, III, IV, and V Construction

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2024, 2021, 2018, 2015 and 2011 [International Green Construction Code® \(IgCC\)](#)
- 2023, 2020, 2017, 2014 and 2011 ANSI/ASHRAE/USGBC/IES Standard 189.1—Standard for the Design of High-Performance Green Buildings, Except Low-Rise Residential Buildings
- 2020, 2015, 2012 and 2008 [ICC 700 National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

- See Section 2.0

2.0 USES

ExoAir[®] 230 is used as an alternative to the water-resistive barrier specified in 2021 and 2018 IBC Section 1403.2 (2015, 2012 and 2009 IBC Section 1404.2) and Section R703.2 of the IRC. The membrane may be installed over exterior gypsum, glass-mat faced gypsum, plywood, and oriented strand board (OSB) sheathing, and over concrete and masonry walls. ExoAir[®] 230, when installed at a maximum wet thickness of 62 mils [0.062 inch (1.58 mm)], may be used in all types of construction, except that for Types I, II, III and IV construction, use is limited to exterior walls of buildings having a maximum height of 40 feet (12.2 m) above grade plane in accordance with 2021 and 2018 IBC Section 1402.5 (2015, 2012 and 2009 IBC Section 1403.5) unless the exterior wall assemblies are installed as described in Section 4.5 of this report.

ExoAir[®] 230 is also used as air barrier material in accordance with the IRC Section N1102.4 and 2021, 2018 and 2015 IECC Sections C402.5 and R402.4 [2012 IECC Sections C402.4 and R402.4 (2009 IECC Sections 402.4 and 502.4)].

The attributes of ExoAir[®] 230 have been verified as conforming to the provisions of (i) CALGreen Section 5.407.1 for water-resistive barriers and air barriers; (ii) ICC 700-2020 Section 602.1.8, 11.602.1.8, 1202.6 and 13.204.1.4; (iii) ICC 700-2015 Sections 602.1.8, 11.602.1.8 and 12.6.602.1.8; (iv) ICC 700-2012 Sections 602.1.8, 11.602.1.8 and 12.5.602.1.8; and (v) ICC 700-2008 Section 602.9 for water-resistive barriers.

The attributes of ExoAir[®] 230 have been verified as conforming to the provisions of (i) 2024 and 2021 IgCC Section 701.3.1.2, 2018 IgCC Section 701.3.1.1, and 2015 and 2012 IgCC Section 605.1.2.1; and (ii) 2023 and 2020 ASHRAE 189.1 Section 7.3.1.2, 2017 and 2014 ASHRAE 189.1 Section 7.3.1.1 and 2011 ASHRAE Section 7.4.2.9 for air barriers. Note that decisions on compliance for those areas rest with the user of this report.

The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 General: ExoAir[®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane is a monolithic, elastomeric membrane designed to be rolled or sprayed onto exterior above-grade wall assemblies. ExoAir[®] 230 has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84.

3.2 Air Permeance: When installed in accordance with Section 4.0 at 40 mil [0.04 inch (1.02 mm)] (wet) thickness and tested in accordance with ASTM E2178, ExoAir[®] 230 has an air leakage rate of less than 0.02 L/(sm²) @ 75 Pa [0.004 cfm/ft² @ 0.3 inch w.g. (1.57 psf)].

3.3 Water Vapor Transmission: The water vapor transmission (WVT) values of a 70 mil [0.07 inch (1.78 mm)] (wet) application of ExoAir[®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane as determined in accordance with ASTM E96 are as follows:

3.3.1 Desiccant Method:

- WVT = 17.76 grains/ft² per 24h (12.43 g/m² per 24h)
- Permeance = 1.81 Perms (103.7 ng/Pa·s·m²)

3.3.2 Water Method:

- WVT = 281.9 grains/ft² per 24h (196.48 g/m² per 24h)
- Permeance = 22.26 Perms (1272 ng/Pa·s·m²)

3.4 Substrates: The use of ExoAir[®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane is limited to applications over the following substrates:

- Exterior grade gypsum sheathing complying with ASTM C1396.
- Glass mat faced gypsum listed in a current evaluation report as complying with ASTM C1177.
- Plywood, Exposure 1 exterior grade, complying with U.S. DOC PS-1.
- Oriented Strand Board (OSB), Exposure 1, complying with U. S. DOC PS-2.
- Concrete and masonry complying with the applicable code.

4.0 DESIGN AND INSTALLATION

4.1 General: Installation of ExoAir[®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must always be available at the jobsite during installation.

4.2 Substrate Preparation: ExoAir[®] 230 must be installed on the exterior side of vertical exterior walls over the exterior sheathing. The sheathing type must be one of those listed in Section 3.4 of this report. Sheathing must be installed as required by the applicable code. The sheathing surfaces must be free of all bond-inhibiting materials, including dirt, oil, and other foreign matter. ExoAir[®] 230 must not be installed on damp or frost-covered surfaces, below-grade surfaces, or on surfaces subject to water immersion. The substrate must be sufficiently dry to ensure bonding (adhesion) of the membrane and joint sealant. Damaged sheathing must be removed and replaced. Prepare and treat joints and cracks in substrate per ASTM C1193 and manufacturer's written instructions.

4.3 Assembly Transitions:

4.3.1 Opening Transitions: Fill gaps at perimeter of openings with sprayed polyurethane foam sealant (such as Tremco Flexible Low Expanding Foam) and apply approved transition or accessory material.

4.3.2 Penetrations: Fill gaps at perimeter of penetrations with foam sealant and level with Dymonic 100 high-performance polyurethane sealant, or seal transition strips around penetrating objects and terminate with Dymonic 100.

4.3.3 Joints: Bridge and cover isolation joints, expansion joints, and discontinuous joints between separate assemblies utilizing approved transition or accessory materials. For in-plane sheathing joints apply and tool Dymonic 100 high-performance polyurethane sealant ensuring a minimum overlap of $\frac{3}{4}$ inch onto each sheathing panel at a thickness of 40 mils [0.04 inch (1.02 mm)].

4.3.4 Rough Openings and Changes in Plane: Apply a cant bead (minimum of $\frac{1}{2}$ -inch x $\frac{1}{2}$ -inch) of Dymonic 100 onto all vertical to horizontal transitions within the rough opening. Apply Dymonic 100 at a minimum wet thickness of 40 mils [0.04 inch (1.02 mm)] into rough openings and any other changes in plane in a zig zag pattern. Once the sealant is installed, smooth with a trowel to ensure uniform and complete coverage.

4.3.5 Substrate Gaps: Cover gaps with stainless steel sheet mechanically attached to substrate and providing continuous support for the air barrier.

4.4 ExoAir[®] 230 Application:

4.4.1 Weather: The air and surface temperatures at the time of application must be at least 40°F (-7°C) and rising. ExoAir[®] 230 must not be installed during rain or impending rain or mist, or on wet surfaces that might damage the system before it can sufficiently dry and cure.

4.4.2 ExoAir[®] 230 Application over Exterior Gypsum Sheathing and Glass Mat Faced Gypsum: The substrate must be prepared as described in Section 4.2. ExoAir[®] 230 must be applied with a minimum $\frac{3}{4}$ -inch (19mm) nap roller or spray applicator to a minimum wet thickness of 48 mils [0.048 inch (1.2 mm)]. The membrane shall be protected from rain and washout prior to drying.

4.4.3 ExoAir[®] 230 Application over Exterior Plywood, Concrete or Concrete Masonry: The substrate must be prepared as indicated in Section 4.2 of this report. ExoAir[®] 230 must be applied with a minimum $\frac{3}{4}$ -inch (19 mm) nap roller or spray applicator to a minimum wet thickness of 70 mils [0.07 inch (1.8 mm)]. The membrane shall be protected from rain and washout prior to drying.

4.4.4 Curing and Drying: Protect ExoAir[®] 230 membranes to avoid damage by other trades and construction materials during subsequent operations. Insulation and/or protection products may be installed after membranes have cured for 16 to 24 hours following application, or firm and dry to the touch. Schedule work so that the air barrier system is covered as soon as possible after installation. If the air barrier system cannot be covered within 12 months, apply temporary UV protection.

4.5 Use on Exterior Walls in Types I, II, III and IV Construction: When used in exterior walls of Types I, II, III and IV construction and when installed in accordance with this report, the assemblies shown in [Table 1](#) of this report comply with NFPA 285 and the provisions shown in 2021 and 2018 IBC Section 1402.5 (2015, 2012 and 2009 IBC Section 1403.5) and IBC Section 2603.5.

5.0 CONDITIONS OF USE:

The ExoAir[®] 230 Fluid-applied Synthetic Permeable Air Barrier Membrane 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 Installation must comply with this report, the manufacturer's published installation instructions, and the applicable code. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 For water-resistive coatings used in EIFS applications, special inspections are required at the jobsite in accordance with 2021 IBC Section 1705.17 {2018 and 2015 IBC Section 1705.16 [2012 IBC Section 1705.15.1 (2009 IBC Section 1704.14.1)]}. For other applications, special inspections are not required at the jobsite if installation is done by an installer or contractor trained by the manufacturer, and a certificate of installation is presented to the code official at the completion of each project; otherwise, special inspections are required at the jobsite in accordance with 2021 IBC Section 1705.17.1 {2018 and 2015 IBC Section 1705.16.1 [2012 IBC Section 1705.15.1 (2009 IBC Section 1704.15)]}. Duties of the inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components, applied dry-film thickness and interface of coating material with flashings.
- 5.3 The ExoAir[®] 230 membrane is limited to installation on vertical walls and must not be used on sloped or horizontal surfaces.
- 5.4 The ExoAir[®] 230 membrane must be covered with an exterior wall covering complying with the applicable code or a current ICC-ES evaluation report.
- 5.5 The ExoAir[®] 230 membrane must not be used for repairing moving cracks or joints.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Water-resistive Coatings Used as Water-resistive Barriers over Exterior Sheathing \(AC212\)](#), dated February 2015 (editorially revised July 2020).

7.0 IDENTIFICATION

- 7.1 Packages of the ExoAir[®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane product described in this report must be identified by a label bearing the manufacturer's name (Tremco CPG, Inc.) and address, product name and product number, identification of components, lot or batch number, quantity of material in packaged mix, storage instructions and shelf life, and the ICC-ES evaluation report number (ESR-4686).
- 7.2 The report holder's contact information is the following:

TREMCO CPG INC.
3735 GREEN ROAD
BEACHWOOD, OHIO 44122
(800) 321-7906
www.tremcosealants.com

TABLE 1—EXOAIR[®] 230 WALL ASSEMBLIES FOR TYPES I, II, III AND IV CONSTRUCTION¹

WALL COMPONENT	MATERIALS
Base Wall System	1: One layer of 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or ASTM C1396 (on interior), installed over steel studs (minimum 35/8-inch deep, minimum No. 20 gage, maximum 16-inch o.c.) 2: One layer of 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or ASTM C1396 (on interior), installed over fire-retardant-treated 2x4 wood studs, (maximum 24-inch o.c.)
Floorline Firestopping	4-inch thick, 4 pcf mineral-fiber insulation
Exterior Sheathing Over Base Wall System No. 1—Use 1 Over Base Wall System No. 2—Use 2	1: 1/2-inch-thick water-resistant core gypsum sheathing complying with ASTM C1396 2: 1/2-inch-thick glass mat gypsum sheathing complying with ASTM C1177
Air and water-resistive barrier coating applied to exterior sheathing	ExoAir [®] 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane maximum 62 mils (wet) with joint treatment per Section 4.3 of this report
Continuous Exterior Insulation Over Exterior Sheathing No. 1 – use either 1 or 3 Over Exterior Sheathing No. 2 - use 2	1: ASTM C578 Type I, EPS foam insulation board, maximum 12 1/2-inch-thick. 2: ASTM C578 Type I, EPS foam insulation board, maximum 3 1/2-inch-thick. 3: DuPont de Nemours, Inc. Styrofoam [™] Insulation ASTM C578 Type X, EPS foam insulation board as described in ICC-ES evaluation report ESR-2142 , maximum 3 1/2-inch-thick.
Exterior Veneer Over Base Wall System No. 1 and Continuous Insulation 1 —Use either 1 or 2 Over Base Wall System No. 1 and Continuous Insulation 3—Use 3 Over Base Wall System No. 2 and Continuous Insulation 2—Use 2	1: Dryvit Outsulation [®] MD System [®] as described in ICC-ES evaluation report ESR-1821 . 2: Dryvit Outsulation [®] Plus MD System [®] as described in ICC-ES evaluation report ESR-1543 . 3: Dryvit Outsulation [®] X System [®] as described in ICC-ES evaluation report ESR-3295 .

For **SI**: 1 inch = 25.4 mm

¹Wall components must be installed in accordance with the code or applicable ICC-ES evaluation report to the satisfaction of the code official. Wall openings must be framed with minimum 0.0428-inch-thick (1.09 mm) aluminum or steel framing.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

TREMCO CPG INC.

EVALUATION SUBJECT:

EXOAIR® 230 FLUID-APPLIED SYNTHETIC PERMEABLE AIR BARRIER MEMBRANE

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane, described in ICC-ES evaluation report [ESR-4686](#) has also been evaluated for compliance with the code noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2020 *City of Los Angeles Building Code* ([LABC](#))
- 2020 *City of Los Angeles Residential Code* ([LARC](#))

2.0 CONCLUSIONS

ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4686](#), complies with the LABC and LARC and are subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the master evaluation report [ESR-4686](#).
- The design, installation, conditions of use, and identification of the ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane are in accordance with the 2018 *International Building Code*® (IBC) and *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-4686](#), as applicable.
- The design, installation, and inspection are in accordance with additional requirements of the LABC Chapters 14, 17, and 25 and LARC Section R703, as applicable.

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

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

TREMCO CPG INC.

EVALUATION SUBJECT:

EXOAIR® 230 FLUID-APPLIED SYNTHETIC PERMEABLE AIR BARRIER MEMBRANE

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane described in ICC-ES evaluation report ESR-4686 has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2019 *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.

- 2019 *California Residential Code*® (CRC)
- 2019 *California Energy Code*® (CEC)

2.0 CONCLUSIONS**2.1 CBC:**

ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane, described in Sections 2.0 through 7.0 of the evaluation report ESR-4686, complies with the CBC, provided the design and installation are in accordance with the 2018 International Building Code® (IBC) provisions noted in the evaluation report. Use as an air barrier must be in accordance with the CEC.

2.1.1 OSHPD:

The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections of the CBC are beyond the scope of this supplement.

2.2 CRC:

ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane, described in Sections 2.0 through 7.0 of the evaluation report ESR-4686, complies with the CRC, provided the design and installation are in accordance with the 2018 International Residential Code® (IRC) provisions noted in the evaluation report. Use as an air barrier must be in accordance with the CEC.

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

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers

REPORT HOLDER:

TREMCO CPG INC.

EVALUATION SUBJECT:

EXOAIR® 230 FLUID-APPLIED SYNTHETIC PERMEABLE AIR BARRIER MEMBRANE

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane, described in ICC-ES evaluation report ESR-4686, has also been evaluated for compliance with the code(s) noted below.

Applicable code editions:

- 2023 Florida Building Code—Building (FBC)
- 2023 Florida Building Code—Residential (FRC)

2.0 CONCLUSIONS

The ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane described in Sections 2.0 through 7.0 of the evaluation report ESR-4686, complies with the *Florida Building Code-Building* or the *Florida Building Code-Residential*. The design requirements must be determined in accordance with the *Florida Building Code-Building* or the *Florida Building Code-Residential*. The installation requirements noted in ICC-ES evaluation report ESR-4686 for the 2021 *International Building Code*® (IBC) meet the requirements of the *Florida Building Code-Building* or the *Florida Building Code-Residential*, as applicable.

Use of ExoAir® 230 Fluid-Applied Synthetic Permeable Air Barrier Membrane for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code-Building* or the *Florida Building Code-Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

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