

ICC-ES Evaluation Report

ESR-4708

Reissued August 2024


This report also contains:

- City of LA Supplement
- CA Supplement
- FL Supplement

Subject to renewal August 2026

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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>Section: 07 65 00— Flexible Flashing</p>	<p>REPORT HOLDER: GEORGIA-PACIFIC GYPSUM LLC</p>	<p>EVALUATION SUBJECT: DENSDEFY™ LIQUID BARRIER SYSTEM</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

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

Properties evaluated:

1.2 Water-resistive barrier:

- Air barrier material
- Surface-burning characteristics

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

- 2019 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2018, 2015 and 2012 [International Green Construction Code® \(IgCC\)](#)
- 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 3.1.

2.0 USES

The DensDefy™ Liquid Barrier System is used as an alternative to the water-resistive barrier specified in 2021 and 2018 IBC Section 1403.2 (2015 and 2009 IBC Section 1404.2) and IRC Section R703.2 when installed over substrates as described in this report in exterior walls of any construction type. The system also may be

used as an air barrier material in accordance with IRC Section N1102.4 and 2021, 2018 and 2015 IECC Sections C402.5 and R402.4 (2009 IECC Sections 402.4 and 502.4). The DensDefy™ Liquid Flashing component of the DensDefy™ Liquid Barrier System may be used as a flashing in accordance with 2021, 2018 and 2015 IRC Section 703.4, when installed in accordance with Section 4.4 of this report.

DensDefy™ Liquid Barrier System complying with ASTM E2570 is used over sheathing where EIFS cladding is to be used in accordance with 2021 and 2018 IBC Section 1407.4.1 (2015 and 2009 IBC Section 1408.4.1) and IRC Section R703.9.2.

The DensDefy™ Liquid Barrier System installed as a water-resistive barrier and an air barrier material, is recognized for use on Types I, II, III, IV and Type V construction. When used on exterior walls of buildings greater than 40 feet above grade in Types I, II, III or IV construction under the 2021, 2018 and 2015 IBC, installation must comply with Exception 1 of 2021 and 2018 IBC Section 1402.5 (2015 IBC Section 1403.5).

3.0 DESCRIPTION

3.1 General:

The DensDefy™ Liquid Barrier System consists of: DensDefy™ Liquid Barrier and DensDefy™ Liquid Flashing.

The attributes of the DensDefy™ Liquid Barrier System have been verified as conforming to the requirements of (i) CALGreen Section 5.407.1 for water-resistive barriers and Section A4.407.5 for air barriers; (ii) 2018 IgCC Section 701.3.1.1. and 2015 and 2012 IgCC Section 605.1.2.1 for air barriers; (iii) 2017 and 2014 ASHRAE 189.1 Section 7.3.1.1 and 2011 ASHRAE 189.1 Section 7.4.2.9 for air barriers; (iv) ICC 700-2020 Sections 602.1.8, 11.602.18, 1202.6 and 13.104.1.4; (v) ICC 700-2015 Section 602.1.8, 11.602.1.8 and 12.6.602.1.8; and (vi) ICC 700-2012 Section 602.1.8, 11.602.1.8 and 12.5.602.1.8; and (vii) ICC 700-2008 Section 602.9 for water-resistive 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.

3.1.1 DensDefy™ Liquid Barrier: DensDefy™ Liquid Barrier is a ready-mixed, flexible, polymer-based, roller or spray-applied liquid coating material. It is packaged in 5-gallon (19 L) buckets weighing 54 pounds (24.5 kg) and has a one-year shelf life after the date of manufacture when stored in its original unopened container at temperatures between 40°F (4.4°C) and 80°F (27°C). The coating is gold color. The DensDefy™ Liquid Barrier coating 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.

3.1.2 DensDefy™ Liquid Flashing: DensDefy™ Liquid Flashing is a single-component, ready-mixed, flexible, polymer-based, gun-grade material. DensDefy™ Liquid Flashing is packaged in 20-ounce (591 mL) sausages. It has a one-year shelf life after the date of manufacture when stored in its original unopened container at temperatures between 40°F (4.4°C) and 80°F (27°C). The DensDefy™ Liquid Flashing complies with AAMA 714-19, AAMA 714-15 and AAMA 714-12 in accordance with 2021 and 2018 IBC Section 1404.4 and 2021, 2018 and 2015 IRC Section R703.4, as applicable.

3.2 Water Vapor Transmission:

The water vapor transmission value of DensDefy™ Liquid Barrier, as determined in accordance with ASTM E96, Method A (Dessicant Method) or Method B (Water Method), is as follows:

- ASTM E96 Method A
 - DensDefy™ Liquid Barrier at 15 mil [0.015 inch (0.38 mm)] : 9.6 perms
 - DensDefy™ Liquid Barrier at 15 mil [0.015 inch (0.38 mm)] thickness over DensDefy™ Liquid Flashing at 12 mil [0.012 inch (0.30 mm)] thickness: 3.6 perms
- ASTM E96 Method B:
 - DensDefy™ Liquid Barrier at 15 mil [0.015 inch (0.38 mm)] : 13.9 perms
 - DensDefy™ Liquid Barrier at 15 mil [0.015 inch (0.38 mm)] thickness over DensDefy™ Liquid Flashing at 12 mil [0.012 inch (0.30 mm)] thickness: 5.8 perms

3.3 Substrates:

The use of the DensDefy™ Liquid Barrier System is limited to applications over the following substrate materials:

- Oriented strand board, Exposure 1, complying with U.S. DOC PS-2
- Plywood, Exposure 1 exterior grade, complying with U.S. DOC PS-1.
- Glass-mat faced gypsum recognized in a current evaluation report as complying with ASTM C1177.
- Concrete and concrete masonry complying with the applicable code.

4.0 INSTALLATION

4.1 General:

The installation of the DensDefy™ Liquid Barrier System must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

4.2 Substrate Preparation:

The DensDefy™ Liquid Barrier System must be installed on the exterior side of vertical exterior walls, over the substrate. The substrate type must be one of those listed in Section 3.3 of this report. Substrate must be installed as required by the applicable code. The substrate surfaces must be free of all bond-inhibiting materials, including dirt, oil and other foreign matter. The DensDefy™ Liquid Barrier System must not be installed on below-grade surfaces or on surfaces subject to water immersion. Damaged substrate must be removed and replaced.

4.3 DensDefy™ Liquid Flashing Application:

DensDefy™ Liquid Flashing may be applied in the rough openings, extending onto the sheathing surface 2 inches (50.8 mm) on substrate joints and seams, fastener heads and penetrations. Flashing complying with the applicable code or recognized in an ICC-ES evaluation report, must be installed at transitions to beams, columns, window and door openings, etc., in a manner as to prevent moisture from entering the wall or to redirect the moisture to the surface of the exterior wall finish or to the DensDefy™ Liquid Barrier system that is part of the means of drainage.

4.4 DensDefy™ Liquid Barrier Application:

The DensDefy™ Liquid Barrier must be roller or spray-applied over the substrate after the DensDefy™ Liquid Flashing has developed a skin on the surfaces. DensDefy™ Liquid Barrier must be applied to a nominal wet film thickness of 15 mils [0.015 inch (0.38 mm)]. The coating, rough opening treatment and joint sealant should be applied when air and surface temperatures are between 25°F (-4°C) and 110°F (43°C). DensDefy™ Liquid Barrier and DensDefy™ Liquid Flashing must be dry to the touch before covering. At 70°F (21°C) and 50 percent relative humidity, DensDefy™ Liquid Barrier and DensDefy™ Liquid Flashing are typically dry to the touch within two hours. Curing time varies depending on temperature/humidity and surface conditions; cool and/or dry conditions may slow curing, while hot and/or damp conditions may accelerate curing.

5.0 CONDITIONS OF USE:

The DensDefy™ Liquid Barrier System 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 EIFS application, special inspections are required at the jobsite in accordance with 2021 and 2018 IBC Section 1705.17.1 (2015 Section 1705.16.1 and 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, 2018, and 2015 IBC Section 1705.1.1 (2009 IBC Section 1704.15). Duties of the inspector include verifying field preparation of materials, expiration dates, installation components, curing of components, installation of joints and sealants, applied dry-film thickness and interface of coating material with flashings. Special inspections are not required under the IRC.

- 5.3 For EIFS application, EIFS systems must be mechanically fastened to the substrate when installing over the DensDefy™ Liquid Barrier System.
- 5.4 Use of the DensDefy™ Liquid Flashing as a flashing material, integrated with the DensDefy™ Liquid Barrier coating, around windows, doors and other openings on exterior walls, is recognized for use under the 2021 and 2018 IBC and 2021, 2018 and 2015 IRC.
- 5.5 The DensDefy™ Liquid Barrier System is limited to installations on vertical walls.
- 5.6 The DensDefy™ Liquid Barrier System must be covered with an exterior wall covering complying with the applicable code or recognized in a current ICC-ES evaluation report.
- 5.7 Repairing of joints and cracks greater than 1/8 inch (3.2 mm) using DensDefy™ Liquid Barrier System is outside the scope of this report.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Water-resistive Coatings Used as Weather-resistive Barriers over Exterior Sheathing \(AC212\)](#), dated February 2015 (editorially revised July 2020).
- 6.2 Data in accordance with AAMA 714 per Section 3.4 of [ICC-ES Acceptance Criteria for Flexible Flashing Materials \(AC148\)](#), dated July 2017(editorially March 2021).
- 6.3 Data in accordance with ASTM E84 (UL 723)

7.0 IDENTIFICATION

- 7.1 Packages of the DensDefy™ Liquid Barrier described in this report must be identified by a label bearing the report holder's name (Georgia-Pacific Gypsum LLC) and address, product name (DensDefy™ Liquid Barrier) and product number, identification of components, lot or batch number, quantity of material in packaged mix, storage instructions, date of manufacture, shelf life, and the ICC-ES evaluation report number (ESR-4708).

Packages of the DensDefy™ Liquid Flashing described in this report must be identified by a label bearing the report holder's name (Georgia-Pacific Gypsum LLC) and address, product name (DensDefy™ Liquid Flashing) and product number, identification of components, lot or batch.

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

GEOGIA-PACIFIC GYPSUM LLC
2861 MILLER ROAD
DECATUR, GEORGIA 30035
(800) 225-6119
www.buildgpc.com

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/ Weather Barriers
Section: 07 27 00—Air Barriers
Section: 07 65 00—Flexible Flashing

REPORT HOLDER:

GEORGIA-PACIFIC GYPSUM LLC

EVALUATION SUBJECT:

DENSDEFY™ LIQUID BARRIER SYSTEM

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the DensDefy™ Liquid Barrier System, described in ICC-ES evaluation report [ESR-4708](#), has 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:

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

2.0 CONCLUSIONS

The DensDefy™ Liquid Barrier System, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4708](#), complies with the LABC Chapter 14, and the LARC Section R703, and is subject to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The DensDefy™ Liquid Barrier System described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4708](#).
- The design, installation, conditions of use and identification of the DensDefy™ Liquid Barrier System are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report [ESR-4708](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 14 and 17, as applicable.

This supplement expires concurrently with the evaluation report reissued August 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers
Section: 07 65 00—Flexible Flashing

REPORT HOLDER:

GEORGIA-PACIFIC GYPSUM LLC

EVALUATION SUBJECT:

DENSDEFY™ LIQUID BARRIER SYSTEM

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the DensDefy™ Liquid Barrier System, described in ICC-ES evaluation report ESR-4708, 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 the 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:**

The DensDefy™ Liquid Barrier System, described in Sections 2.0 through 7.0 of the evaluation report ESR-4708, comply with CBC Chapter 14, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report and the additional requirements of CBC Chapters 14 and 17 as applicable. Use as an air barrier must be in accordance with the CEC.

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 DensDefy™ Liquid Barrier System, described in Sections 2.0 through 7.0 of the evaluation report ESR-4708, complies with CRC Chapter 7, provided the design and installation are in accordance with the 2018 *International Residential Code*® provisions noted in the evaluation report and the applicable provisions of the CRC. Use as an air barrier must be in accordance with the CEC.

This supplement expires concurrently with the evaluation report reissued August 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 25 00—Water-Resistive Barriers/Weather Barriers
Section: 07 27 00—Air Barriers
Section: 07 65 00—Flexible Flashing

REPORT HOLDER:

GEORGIA-PACIFIC GYPSUM LLC

EVALUATION SUBJECT:

DENSDEFY™ LIQUID BARRIER SYSTEM

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the DensDefy™ Liquid Barrier System, described in ICC-ES evaluation report ESR-4708, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The DensDefy™ Liquid Barrier System, as described in Sections 2.0 through 8.0 of the evaluation report ESR-4708, complies with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design requirements are determined in accordance with the the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in the evaluation report ESR-4708 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable, with the following condition:

Installation must meet the requirements of Section 1403.8 of the *Florida Building Code—Building* or Section R318.7 of the *and Florida Building Code—Residential*, as applicable.

Use of the DensDefy™ Liquid Barrier System for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and *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 August 2024.