

**Manufacturer**

Georgia-Pacific Gypsum  
 133 Peachtree Street  
 Atlanta, GA 30303

Technical Service Hotline: 1-800-225-6119

**Description**

**DensElement® Barrier System** serves as a water resistant barrier and air barrier when the sheathing joints, fasteners, penetrations, openings and transitions are properly sealed with an approved fluid applied flashing. The DensElement Barrier System consists of:

- (a) DensElement® Sheathing made with a treated, water-resistant core, surfaced with fiberglass mats and a GOLD colored coating;
- (b) DensDefy™ Liquid Flashing to treat fasteners, sheathing joints, penetration openings and transitions;
- (c) Optional DensDefy™ Transition Membrane to treat transitions and rough openings.

DensElement Sheathing is mold resistant, and has scored a 10, the highest level of performance for mold resistance under ASTM D3273 test method.

DensElement Sheathing exhibits dimensional stability providing for a flat and rigid substrate that is noncombustible as defined and tested in accordance with ASTM E136 or CAN/ULC S114. DensElement Sheathing is generally the same strength in both directions, and it may be installed either parallel or perpendicular to wall framing members (always follow specific wall assembly installation instructions as described in the DensElement Barrier System Technical Brochure).

**Primary Uses**

The DensElement Barrier System is specified to be used as the exterior wall sheathing, the water resistive barrier, and the air barrier as required by building code when the panel joints, fasteners, penetrations, openings and transitions are properly sealed by an approved fluid applied flashing per the manufacturer's recommendations. The DensElement Barrier System can be used under a wide range of adhered, attached and rainscreen cladding systems. These include EIFS, cavity brick and claddings such as wood, vinyl, fiber cement, composite sidings and rainscreen claddings such as insulated metal panels.

The DensElement Barrier System eliminates the need for attached flexible membranes, fluid applied membranes or self-adhered membranes over the field of the sheathing that have typically served as the water resistive barrier and air barrier for building code compliance.

The DensElement Barrier System Sheathing is attached directly to wood or steel framing with recommended fasteners.

**Limitations**

The following recommendations and limitations are important to ensure the proper use and benefits of DensElement Barrier System. Failure to strictly adhere to such recommendations and limitations may void the limited warranty provided by GP Gypsum for such products. For details, please go to [www.denselement.com/resources](http://www.denselement.com/resources) for warranty information.

DensElement Sheathing, fluid-applied flashing materials, and transition membranes are resistant to normal weather conditions. They are not intended for use as a cladding system, long-term outdoor exposure, for immersion in water, and cascading water from an unfinished roof or floor. Water should always be directed away from the DensElement Barrier System.

Avoid conditions that will create moisture in the air and condensation within the exterior walls. This is especially important during periods when the exterior and interior temperature differentials can create a condensation point within the exterior wall.

The use of forced air heaters creates volumes of water which, when not properly vented, can condense on building materials. The use of heaters and any resulting damage is not the responsibility of Georgia-Pacific Gypsum. Consult heater manufacturer for proper use and ventilation.

When DensElement Barrier System is used in slanted wall applications, protect the sheathing, sealed joints, treated fasteners, and openings from water ponding or settling on the assembly prior to cladding. Also, protect exposed wall ends such as those that may be found in parapets and openings to prevent water from entering the cavity.

Georgia-Pacific Gypsum does not warrant and is not responsible or liable for the performance of any cladding, or cladding system that is attached or adhered to the DensElement Barrier System. The compatibility of any cladding system is the responsibility of the cladding manufacturer or design authority.

Brackets to support heavy cladding such as tile, marble or stone, should be installed directly to the framing and not over the DensElement Sheathing.

Do not apply DensElement Sheathing to cementitious or masonry surfaces.

Do not attach cement board panels directly to DensElement Sheathing.

DensElement Barrier System is not intended for interior applications or as a substrate for adhered exterior tile, stone, or brick.

DensElement Barrier System should not be used in lieu of plywood or OSB where the physical properties of a wood structural panel is required.

Do not use DensElement Sheathing as a base for nailing or mechanical fastening. Fasteners shall be driven into framing and shall be flush with the face, not countersunk.

Do not apply DensElement Barrier System below grade.

Exterior wall design details including, but not limited to, cladding attachments, control joints, material transition details, window and door integration, per the project specification must be properly installed.

Joints, openings, transitions, and penetrations must be properly sealed, taped, or flashed. Failure to do so will void the warranty.

Not for use as a structural sealant.

Not for use in place of appropriate through-wall flashing.

Not for use below grade or in locations designed to be continuously immersed in water.

**Technical Data**

The DensElement Barrier System is a gypsum sheathing, water resistive barrier, and air barrier system when the joints, fasteners, penetrations, openings, and transitions are properly sealed with an approved fluid-applied flashing.

5/8" (15.9mm) DensElement Sheathing gypsum panel is UL designation **Type DGG**.

DensElement Sheathing is noncombustible as described and tested in accordance with ASTM E136, UL 723, or CAN/ULC S114.

*continued* →

**Submittal Approvals**

Job Name \_\_\_\_\_

Contractor \_\_\_\_\_

Date \_\_\_\_\_

DensElement<sup>®</sup> Sheathing has a flame spread and smoke develop rating of 0/0 when tested in accordance with ASTM E84 or CAN/ULC S102.

DensElement Sheathing is manufactured to meet ASTM C1177.

DensElement Sheathing exceeds ASTM C1396 sheathing standards for humidified deflection by a factor of 10 in tests over the standard for regular gypsum sheathing.

DensElement Sheathing has a vapor permeance of >30 (wet cup), >20 (dry cup) for 5/8" (15.9mm) tested in accordance with ASTM E96.

The DensElement<sup>®</sup> Barrier System was tested in accordance with applicable sections of ICC-ES Acceptance Criteria (AC) 212, Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers over Exterior Sheathing, and applicable sections of AC 310, Acceptance Criteria For Water Resistive Membranes Factory Bonded To Wood Based Structural Sheathing.

The DensElement Barrier System was tested in accordance with ASTM E2178, Standard Test Method for Air Permeance of Building Materials, and ASTM E2357, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

#### Handling and Use – WARNING

Refer to the SDS for instructions on safe handling and use of the product. The SDS can be found here: [www.buildgp.com/denselement/resources/literature/](http://www.buildgp.com/denselement/resources/literature/)

#### Product Data

See physical properties chart below. The DensElement Barrier System holds an ICC-ES Evaluation Report for use as both a water resistive barrier and air barrier. For a copy of the Evaluation Report see [www.icc-es.org](http://www.icc-es.org).

The following are approved flashing/transition accessories for the DensElement Barrier System:

#### DensDefy™ Liquid Flashing

#### DensDefy™ Transition Membrane

### Physical Properties for DensElement<sup>®</sup> Sheathing

Properties	5/8" (15.9 mm) DensElement <sup>®</sup> Sheathing
Width, nominal	4' (1219 mm) + 0 – 1/8" (3 mm)
Length, standard	8' (2438 mm), 9' (2743 mm), 10' (3048 mm), ± 1/4" (6 mm)
Weight, nominal, lbs./sq. ft. (Kg/m <sup>2</sup> )	2.5 (12)
Edges	Square
Bending radius <sup>5</sup>	8' (2438 mm)
Racking strength <sup>6</sup> , lbs./ft. (dry) (N/m), Ultimate—not design value	>654 (9544)
Flexural strength <sup>1,4</sup> , parallel, lbf. per Method B	≥100 (445)
Compressive strength	min. 500 psi (3445 kPa)
Humidified deflection <sup>1,4</sup>	<1/8" (3 mm)
Permeance <sup>2</sup> , perms (ng/Pa•s•m <sup>2</sup> )	>30 (1696)
R Value <sup>3</sup> , ft <sup>2</sup> •°F•hr/BTU (m <sup>2</sup> •K/W)	.67 (0.118)
Combustibility <sup>7</sup>	Noncombustible
Linear expansion with moisture change, in/in %RH (mm/mm %RH) <sup>8</sup>	6.25 x 10 <sup>-6</sup>
Surface burning characteristics per ASTM E84 or CAN/ULC S102: flame spread/smoke developed	0/0
Coefficient of thermal expansion, in/in/°F (mm/mm/°C) <sup>9</sup>	8.5 x 10 <sup>-6</sup> (15.3 x 10 <sup>-6</sup> )

<sup>1</sup> Tested in accordance with ASTM C473

<sup>2</sup> Tested in accordance with ASTM E96 (wet cup method)

<sup>3</sup> Tested in accordance with ASTM C518 (heat flow meter)

<sup>4</sup> Specified values per ASTM C1177

<sup>5</sup> Double fasteners on ends as needed

<sup>6</sup> Tested in accordance with ASTM E72

<sup>7</sup> As defined and tested in accordance with ASTM E136, UL 723, or CAN/ULC S114

<sup>8</sup> As stated by Gypsum Association GA-235

<sup>9</sup> Tested in accordance with ASTM E228-85



#### DISTRIBUTORS

U.S.A. GP Gypsum LLC  
 Canada Georgia-Pacific Canada LP

#### SALES INFORMATION AND ORDER PLACEMENT

U.S.A. West: **1-800-824-7503**  
 Midwest: **1-800-876-4746**  
 South Central: **1-800-231-6060**  
 Southeast: **1-800-327-2344**  
 Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**  
 Quebec Toll Free: **1-800-361-0486**

#### TECHNICAL INFORMATION

U.S.A. and Canada: **1-800-225-6119**, [www.gpgypsum.com](http://www.gpgypsum.com)

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**WARRANTIES, REMEDIES AND TERMS OF SALE** For current warranty information for this product, please go to [www.buildgp.com/warranties](http://www.buildgp.com/warranties). All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at [www.gpgypsum.com](http://www.gpgypsum.com).

**UPDATES AND CURRENT INFORMATION** The information in this document may change without notice. Visit our website at [www.gpgypsum.com](http://www.gpgypsum.com) for updates and current information.

**CAUTION For product fire, safety and use information, go to [www.buildgp.com/safetyinfo](http://www.buildgp.com/safetyinfo) or call 1-800-225-6119.**

**FIRE SAFETY CAUTION** Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.