G-P Gypsum

DensDeck®

Roof Board

Manufacturer

G-P Gypsum Corporation
55 Park Place, 19th floor, Atlanta, GA 30303
Technical Service Hotline 1-800-225-6119 or www.densdeck.com

Description

DensDeck® Roof Board is an exceptional fire barrier, thermal barrier and recovery board used in various commercial roofing systems. The patented DensDeck design employs glass mat facings front and back that are embedded into a water-resistant gypsum core, providing excellent fire resistance, moisture resistance and wind uplift properties. The unique construction of DensDeck provides superior flute spanning that stiffens and provides increased foot traffic resistance to the roof deck. Additionally, DensDeck has been shown to withstand delamination, deterioration, warping and job-site damage more effectively than roofing membrane substrates such as paperfaced gypsum board, fiberboard and perlite insulation. DensDeck resists the growth of mold and mildew per ASTM D 3273.

Primary Uses

Roof system manufacturers and designers have found DensDeck Roof Board to be compatible with many types of roofing systems, including: built-up, modified bitumen, single ply, metal systems, wood shingle and shake, tile, slate, recover board, as well as an overlayment protection board for polyisocyanurate and polystyrene insulation. DensDeck can also be used as a form board for poured gypsum concrete deck in roof applications as well as a substrate for spray foam roofing systems. 1/2" and 5/8" DensDeck may also be used in vertical applications as a backer board or liner for the roof side of parapet walls.

Some membrane manufacturers have hot mop asphalt or torch applications directly to DensDeck without using a primer or base sheet. Consult with the system manufacturer for their recommendations with this application. System manufacturers and designers have found DensDeck to be compatible with bonding adhesives for fully-adhered single-ply membrane applications. DensDeck's exceptional moisture resistance and low R-value make it the preferred substrate for vapor retarders.

An excellent fire barrier, DensDeck features a noncombustible core and inorganic surface that offers greater fire protection than other conventional commercial roofing products when applied over combustible roof decks and steel decks. DensDeck is FM tested and approved as the only 1/2" gypsum product to meet the calorimeter requirements for conventionally insulated decks. Tested in accordance with ASTM E 84, its surface burning characteristics are Flame Spread-0 and Smoke Developed-0. 5/8" DensDeck can replace any generic Type X gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P".

Limitations

DensDeck Roof Board is designed to act with a properly designed roof system. The actual use of DensDeck as a roofing component is the responsibility of the roofing system's designing authority. Georgia-Pacific does not offer roofing system design services. Conditions beyond the control of Georgia-Pacific such as weather conditions, dew, application temperatures and techniques may cause adverse effects with adhered roofing systems. Always consult roofing manufacturers for their specific instructions on applying their products to DensDeck.

Panels must be kept dry before, during and after installation. Apply only as much DensDeck as can be covered by a roof membrane system in the same day.

Accumulation of water due to leaks or condensation in or on DensDeck must be avoided during construction and after construction. Avoid over-use of non-vented direct-fired heaters during winter months. Avoid application of DensDeck during rains, heavy fogs and other conditions that may deposit moisture on the surface. The need for a separator sheet between the DensDeck and the roofing membrane shall be determined by the roof membrane manufacturer or roofing systems designer. When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components. Maximum flute span is 2-5/8" for 1/4" DensDeck; 5" for 1/2" DensDeck; and 8" for 5/8" DensDeck Fireguard® Type X.

1/4" DensDeck is not recommended for vertical parapet applications.

Hot mopping directly to DensDeck:

1. For full mopping applications, use asphalt heated to a maximum application temperature of 425° F. (Type III asphalt)
2. If Type IV is required because of slope limitations, consider the use of ribbon or spot mopping, or the installation of a perforated base sheet.
3. Full mopping of fully asphalt coated felts or impermeable base sheets such as modified bitumen is not recommended.
4. Ensure that proper pressure is applied to the roll to make contact with the DensDeck. Use a broom to press the membrane into place.

Torch applied directly to DensDeck:

1. Prime the surface of the DensDeck and allow to dry thoroughly, or use DensDeck Prime®.
2. Ensure proper torching technique. Limit the heat to the DensDeck substrate. Maintain a majority of the torch flame directly on the roll.
3. Use flat insulation plates.
4. Ensure proper pressure is applied to the membrane roll to make contact. Brooming may be required at the end of rolls.
5. Consider the use of strip or spot torched base membranes to allow the lateral movement of moisture.

Consult membrane manufacturer for specific system installation instructions.

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SUBMITTAL APPROVALS: (Stamps or Signatures)

☐ 1/4" – 6.4mm
☐ 1/2" – 12.7mm
☐ 5/8" – 15.9mm, type X

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Technical Data

Flame spread 0, smoke developed 0, when tested in accordance with ASTM E 84 or CAN/ULC-S102. Noncombustible when tested in accordance with ASTM E 136.

DensDeck Fireguard: UL Classified when tested in accordance with ASTM E 119.

1/4" DensDeck has been tested by Factory Mutual for 60 psf and 90 psf wind uplift for BUR, EPDM, thermoplastics and modified bitumen roof systems. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck in their FMRC-approved construction designs.

Installation

1. DensDeck should be used with fasteners specified in accordance with FM requirements and roof membrane manufacturer's written recommendations.
2. For wind uplift/FMRC compliance where DensDeck is mechanically attached to metal decks, DensDeck shall be installed to the specifics of the FMRC design assembly.11. DensDeck Prime is manufactured to conform to ASTM C 1177.
3. For installations involving BUR, EPDM, thermoplastics and modified bitumen roof systems, call the G-P Technical Hotline at 1-800-225-6119 for fastener patterns of G-P's FMRC uplift assemblies.
4. In accordance with approved shop drawings, FM-approved fasteners shall be installed with plates through the DensDeck, flush with the surface.
5. Where DensDeck is installed over combustible wood decks or insulation, all joints should be staggered. The optional separator sheet should be installed prior to DensDeck installation.
6. Edge joints should be located on, and parallel to, deck ribs. End joints of adjacent lengths of DensDeck should be staggered.
7. The securement of the roof system must be enhanced at the building corners and perimeter per FM.
8. Adhered Systems: Insta-Foam Products, Inc.'s Insta-Stik Adhesive used with 1⁄4" DensDeck achieved 2a FMRC Class I-180 according to test report 1Y7A5.AM in selected Class 1 insulated steel and concrete deck roof construction. Contact Insta-Foam Products, Inc. for details at 1- 800-800-FOAM.
9. DensDeck shall be installed with ends and edges butted tightly.
10. DensDeck is manufactured to conform to ASTM C 117

Properties	1/4"	1/2"	5/8"
Thickness, nominal	1/4" + 1/16"	1/2" ± 1/32"	5/8" ± 1/32"
Width, standard	4' ± 1/8"	4' ± 1/8"	4' ± 1/8"
Length, standard	4' and 8' ± 1/4"	4' and 8' ± 1/4"	4' and 8' ± 1/4"
Weight, lbs./sq. ft., nominal	1.1	1.95	2.5
Surfacing	Glass mat	Glass mat	Glass mat
Flexural Strength[1], parallel, lbs. min.	40	80	100
Flute Spanability[2]	2-5/8"	5"	8"
Permeance[3], Perms	50	35	32
"R" Value[4]	.28	.56	.67
Linear Variation with Change in Temp., in/in °F	$8.5x10^{-6}$	$8.5x10^{-6}$	$8.5x10^{-6}$
Linear Variation with Change in Moisture, in/in %RH	$6.25x10^{-6}$	$6.25x10^{-6}$	$6.25x10^{-6}$
Water Absorption[5], % max	10.0	10.0	10.0
Compression Strength, psi nominal	500 - 900	500 - 900	500 - 900
Surface Water Absorption[5], grams, nominal	2.5	2.5	2.5
Flame Spread, Smoke Developed (ASTM E 84)	0/0	0/0	0/0
Fire Classification	FM CLASS 1 (as overlayment)	FM Class 1 (FM 4450) UL 1256, ULC S-126	FM Class 1 (FM 4450) UL 1256, ULC S-126
	UL 1256, ULC S-126 UL Class A (UL 790) ULC S-107	UL Class A (UL 790) ULC S-107	UL Classified "P" assemblies ULC Classified "R" assemblies ULC S-101 Class A (UL 790), ULC S-107
Mold Resistance per ASTM D 32736	Mold resistant	Mold resistant	Mold resistant
FM Approvals[7]	60 and 90 psf uplift/ FM Class 1-90 as an overlayment	FM 1-60, 1-90, 1-135	FM 1-60, 1-90, 1-180
Bending Radius	5'	8'	12'

1. Tested in accordance with ASTM C 473.
2. Tested in accordance with ASTM E 661 (400 lb. conc. load only for 1/2" and 5/8").
3. Tested in accordance with ASTM E-96 (dry cup method).
4. Tested in accordance with ASTM C 518 (heat flow meter).
5. ASTM C 1177 minimums.
6. When tested as manufactured in accordance with ASTM D 3273.
7. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using DensDeck, DensDeck Prime or DensDeck DuraGuard roof boards in their FM-Approved construction designs.

Sales Information and Order Placement:
USA - Midwest: 1.800.876.4746; South: 1.800.327.2344; Northeast: 1.800.947.4497; West: 1.800.824.7503
CANADA - 1.800.387.6823; Quebec: 1.800.361.0486

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