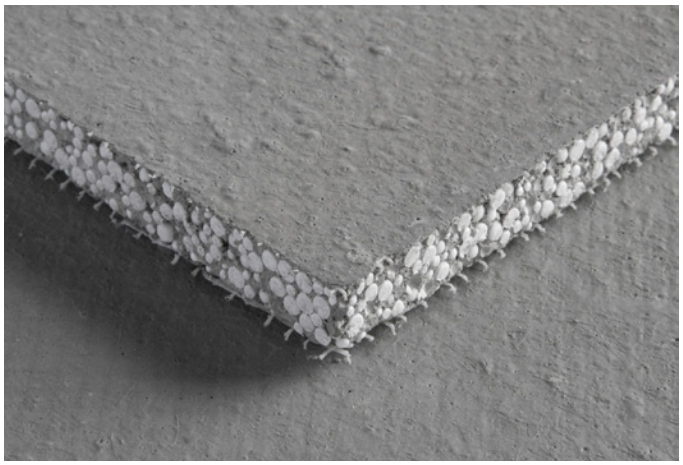
DEXcell® Cement Roof Board



Overview

DEXcell Cement Roof Board provides an exceptionally hard, durable surface that withstands prolonged exposure to moisture. Its composition of Portland cement and lightweight aggregate with heavy duty fiberglass-mesh facers makes it an excellent fire and thermal barrier. This mold- and moisture-resistant cement panel is a substrate board, thermal barrier and coverboard for commercial roofing applications.

Use it for a wide variety of roofing systems, including fully adhered,mechanically attached and ballasted roofs using single-ply membranes, modified bitumen, fluid-applied, built-up roofing, spray foam and metal.

Basic Uses

Applications

- Use DEXcell Cement Roof Board as a substrate board and for thermal protection in roofing assemblies. It provides increased fire safety and acoustical enhancement. It also serves as a substrate for a vapor retarder and/or continuous substrate for the application of roofing membranes. This board provides increased moisture, mold and impact resistance.
- Use it as a coverboard in roofing assemblies. DEXcell Cement Roof Board protects and supports the roof membrane; provides increased fire, moisture and mold resistance; and reduces the potential for penetration damage to the membrane.
- Use it to sheath the roof side of parapet and penthouse walls.
- Ideal for green roofs and photovoltaic systems.

Advantages

- Excellent bond/pull-through/uplift values.
- Impact resistant, extremely durable and dimensionally stable.
- High compressive strength.
- Lightweight, cementitious core.
- Superior moisture resistance.
- Exceptional freeze/thaw resistance.
- Scores and snaps easily.
- Meets ASTM C1325.
- Meets FM Class 1 and UL Class A fire ratings for roofing systems up to unlimited slope.
- Use in accordance with a rated system, and DEXcell Cement Roof Board provides a thermal barrier meeting IBC Section 2603.
- Resists the growth of mold per ASTM D3273 with a score of 10, the best possible score.
- Achieves UL GREENGUARD Gold Certification for low chemical emissions into indoor air during product usage.
- For more information, visit: ul.com/gg.

Installation

General

- Install roof boards in accordance with methods described in the standards and references cited in this document. Always refer to the roof-system manufacturer for project-specific installation details.
- Examine and inspect deck substrate to which roof boards are to be applied. Remedy all defects prior to installation of the roof boards.
- Provide minimum 1/4” (6.4 mm) clearance between boards and adjacent concrete or masonry to minimize wicking of moisture.
- Install fire-rated assemblies in accordance with the details found in the UL Fire Resistance Directory: ul.com.
- See Physical Properties chart on next page for maximum flute span when panels are applied directly over metal decking.

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Wind Uplift

DEXcell Cement Roof Boards are included in numerous assemblies evaluated by Factory Mutual Global (FMG) and other independent laboratories for wind-uplift performance. For information concerning such assemblies, *visit: roofnav.com*.

Refer to roof system manufacturer's written instructions, local code requirements, Factory Mutual Global (FMG) and Underwriters Laboratories (UL) requirements for proper installation techniques.

- Use fasteners or adhesives specified in accordance with system requirements. Install approved fasteners with plates into the DEXcell Cement Roof Board. Install fasteners and adhesives in compliance with the roof-system manufacturer's installation recommendations and FMG Property Loss Prevention Data Sheet 1-29. Proper fastener spacing or adhesive application is essential to achieve wind-uplift performance.
- Locate board edge joints on, and end joints parallel to, metal deck ribs. Stagger end joints of adjacent lengths of DEXcell Cement Roof Board. In typical installations, butt board edges and ends loosely.

Safety

Installers should wear eye protection (goggles or safety glasses with side shield). Do not use a power saw to cut these products. Whenever possible, avoid contact with the skin and eyes and avoid breathing dust that may be released during cutting. Consult the SDS for this product, available at: *permabase.com* before use.

Review Carlisle specifications and details for complete installation information.

Fire-Resistance Ratings

Fire and sound ratings for building systems utilizing cement roof boards are dependent on the thickness of the roof board, its application in conjunction with other roof assembly parts, and the manner in which the assembly is installed.

Tests for fire resistance and sound transmission performed by independent laboratories have resulted in specific ratings for roof assemblies. For maximum fire resistance and sound control, use double-layer construction. The additional mass further retards heat and noise penetration.

Fire-resistance ratings represent the results of tests on assemblies made up of specific materials in a specific configuration. When selecting construction designs to meet certain fire-resistance requirements, use caution to ensure that each component of the assembly is the one specified in the test. Further, take precaution that assembly procedures are in accordance with those of the tested assembly. For copies of specific tests, call 1-800-NATIONAL. For fire-safety information, *see permabase.com*.

- DEXcell Cement Roof Board meets UL Class A fire ratings for roofing systems up to unlimited slope per UL 790; refer to UL Certifications Directory: ul.com.
- DEXcell Cement Roof Board is classified in roof deck constructions in accordance with ANSI/ UL 1256; refer to UL Certifications Directory: ul.com.
- DEXcell Cement Roof Board complies with requirements of FM 4450 and FM 4470. Meets FM Class 1.

Limitations

General

- DEXcell Cement Roof Boards are engineered to perform within a properly designed roof system. The use of DEXcell Cement Roof Boards as a roofing system component is the responsibility of the design professional.
- Design roof assemblies containing DEXcell Cement Roof Boards to control vapor drive and moisture.
- Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DEXcell Cement Roof Boards that contain disproportionate free moisture content may require testing or replacement. The presence of free moisture can have an adverse effect on product performance and may compromise the installation of additional roofing system components.
- Do not use panels as a nailing base (they are nonstructural).
- For suitability in specific roofing systems, contact roofing manufacturers on the application of their products to DEXcell Cement Roof Boards.
- Do not expose DEXcell Cement Roof Boards to weather conditions and temperatures, dew, installation techniques or moisture drive conditions that may have adverse effects on the performance of the roof system.
- Apply only as much DEXcell Cement Roof Board as can be covered by a watertight roof covering the same day.
- Do not apply DEXcell Cement Roof Boards to wet roofing substrates.

Handling and Project Conditions

- Avoid water exposure during shipping, handling, storage, installation and after installation of roof boards in order to avoid the formation of mold or mildew.
- Remove nonbreathable shipping wrap material upon receiving and storing roof boards.
- Store roof boards off the ground and under cover. Store boards flat. Use sufficient supports extending under the entire length of roof boards to prevent sagging.
- Keep roof boards dry to minimize the potential for mold growth. Take adequate care while transporting, storing, applying and maintaining roof boards.
- Do not apply roof boards with visible signs of moisture damage or mold growth. Do not apply roof boards over other building materials where conditions exist that are favorable to mold growth.

Maintenance Following Application

- Maintain essential elements of sound weather-tight building envelope,including roofing, joint sealants, penetrations and flashings.
- Take immediate and appropriate remediation measures as soon as water leaks or condensation sources are identified.
- Perform routine cleaning and maintenance operations using methods that prevent leaks and resulting moisture saturation of roof boards.

Packaging

4' x 4' DEXcell Cement	**7/16"**	**5/8"**
Pieces per pallet	30	24
Sq. Ft. per pallet	480	384
Weight per pallet, lbs.	1,067	1,080
Sq. Ft. per truck	21,600	16,128
Weight per truck, lbs.	48,016	48,600
4' x 8' DEXcell Cement	**7/16"**	**5/8"**
Pieces per pallet	30	24
Sq. Ft. per pallet	960	768
Weight per pallet, lbs.	2,110	2,130
Sq. Ft. per truck	22,080	16,128
Weight per truck, lbs.	48,531	48,990

Any protective plastic factory packaging that is used to wrap DEXcell Roof Boards for shipment is intended to provide temporary protection from exposure to moisture only, and is not intended to provide protection during storage after delivery.

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Technical Data

Property	7/16" DEXcell Cement Roof Board	5/8" DEXcell Cement Roof Board
Thickness[1], Nominal	7/16" (11.1 mm)	5/8" (15.9 mm)
Width[1], Nominal	4' (1,219 mm)	4' (1,219 mm)
Length[1], Standard	4' (1,219 mm), 8' (2,438 mm)	4' (1,219 mm), 8' (2,438 mm)
Weight, Nominal	2.1 lbs./sq. ft. (10. k/m2)	3.0 lbs./sq. ft. (14.7 k/m2)
Edges[1]	Squared	Squared
Flexural Strength[6]	≥ 750 psi	≥ 750 psi
Bending Radius	5' (1,524 mm)	5' (1,524 mm)
Thermal Resistance[3]	R = .28	R = .40
Permeance[4]	> 5 perms	> 5 perms
Water Absorption[10] (% of Weight)	< 10%	< 10%
Linear Variation with Change Moisture[7]	≤ 0.07%	≤ 0.07%
Flute Spanability[5]	12" (305 mm)	12" (305 mm)
Compressive Strength[10]	1,250 psi	1,250 psi
Mold Resistance[9], ASTM G21	Score of 10	Score of 10
Mold Resistance[8], ASTM D3273	Score of 0	Score of 0
Product Standard Compliance	ASTM C1325	ASTM C1325
Fire-Resistance Characteristics		
Core Type	N/A	N/A
UL Type Designation	DEXcell Cement Roof Board	DEXcell Cement Roof Board
Surface Burning Characteristics[2]	Class A	Class A
Flame Spread[2]	0	0
Smoke Development[2]	0	0
Fire Classification	UL Classified, FM Approved	UL Classified, FM Approved

[1] Specified values per ASTM C1177, tested in accordance with ASTM C473.
[2] Tested in accordance with ASTM E84.
[3] Tested in accordance with ASTM C518.
[4] Tested in accordance with ASTM E96.
[5] Tested in accordance with ASTM E661.
[6] Specified minimum values per ASTM C1325, tested in accordance with ASTM C947.
[7] Specified minimum values per ASTM C1325, tested in accordance with ASTM D1037.
[8] Tested in accordance with ASTM D3273 and rated inaccordance with ASTM D3274.
[9] Tested in accordance with ASTM G21.
[10] Tested in accordance with ASTM C473.

Applicable Standards and References

- ASTM C473 *Standard Test Methods for Physical Testing of Gypsum Panel Products*
- ASTM C518 *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- ASTM C947 *Standard Test Method for Flexural Properties of Thin-Section Glass-Fiber-Reinforced Concrete (Using Simple Beam with Third-Point Loading)*
- ASTM C1325 *Standard Specification for Fiber-Mat Reinforced Cementitious Backer Units*
- ASTM D1037 *Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials*
- ASTM D2394 *Standard Test Methods for Simulated Service Testing of Wood and Wood-Base Finish Flooring*
- ASTM D3273 *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*
- ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials*
- ASTM E96 *Standard Test Methods for Water Vapor Transmission of Materials*
- ASTM E661 *Standard Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads*
- ASTM G21 *Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi*
- PermaBASE *Building Products, LLC Manufacturer Standards, NGC Construction Guide*

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