

DEXcell[®]
BRAND
Roof Board

DEXcell[®] FA Glass Mat Roof Boards
DEXcell[®] Glass Mat Roof Boards
DEXcell[®] Cement Roof Boards
Technical Guide

National 
Gypsum[®]

DEXcell[®]

BRAND

Roof Board

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National Gypsum Company® (“National Gypsum”) has provided the following Product Recommendations and Limitations as guidance for the recommended use, installation and storage of its DEXcell® BRAND Roof Board products, including without limitation, DEXcell® Glass Mat Roof Board, DEXcell® FA Glass Mat Roof Board, and DEXcell® Cement Roof Board. DEXcell roof products typically constitute one component of a multi-component roof assembly and it is possible that for any given project, the project’s roof design professional, the roof system manufacturer, or any applicable design or construction code requirements may require practices that do not conform to the recommendations and limitations below. National Gypsum makes no representations or warranties regarding best practices in the design or installation of roof assemblies. However, it is understood that failure to follow the recommendations and limitations below (including using a DEXcell product for a non-recommended use) may void the product warranty.

Best Choice for All Applications			
Roof System Applications	DEXcell FA – Glass Mat Roof Boards	DEXcell Glass Mat Roof Boards	DEXcell Cement Roof Boards
Single Ply - Fully Adhered	Recommended	Not Recommended	Recommended
Single Ply - Mechanically Attached	Acceptable*	Recommended	Recommended
Single Ply - Self Adhered	Recommended	Not Recommended	Recommended
Modified Bitumen - Hot Mop	Not Recommended	Not Recommended	Recommended
Modified Bitumen - Cold Adhesive	Recommended	Not Recommended	Recommended
Modified Bitumen - Torch	Recommended	Not Recommended	Recommended
Modified Bitumen - Self Adhered	Recommended	Not Recommended	Recommended
Built-Up Roof (BUR)	Not Recommended	Not Recommended	Recommended
Spray Polyurethane Foam	Recommended	Not Recommended	Recommended
Fluid Applied	Recommended	Not Recommended	Recommended
Thermal Barrier	Acceptable*	Recommended	Recommended
Fire Barrier	Acceptable*	Recommended	Recommended
Substrate for Vapor Barrier	Recommended	Acceptable*	Recommended
Substrate for Parapet Wall	Recommended	Not Recommended	Recommended
Vegetative “Green” Roof System	Acceptable*	Not Recommended	Recommended
Photovoltaic Roofing System	Acceptable*	Not Recommended	Recommended
Standing Seam Metal Roof System	Acceptable*	Recommended	Acceptable*
Wood Shake Underlayment	Acceptable*	Recommended	Acceptable*

*Indicates product applications that may be used successfully, but may not be optimal in terms of cost or performance as compared to the recommended product.

Note: In situations where prolonged excessive membrane surface temperatures may be experienced, such as dark-colored membranes in southern climates, roof surfaces that experience reflected sunlight or photovoltaic installations, DEXcell Cement Roof Board is the preferred DEXcell product.

DEXcell[®]

BRAND
Glass Mat Roof Board

Description

DEXcell[®] BRAND Glass Mat Roof Board is a mold resistant gypsum board designed for use as a coverboard and/or thermal barrier in commercial roofing applications. DEXcell Glass Mat Roof Board is ideally suited for mechanically fastened roof systems.

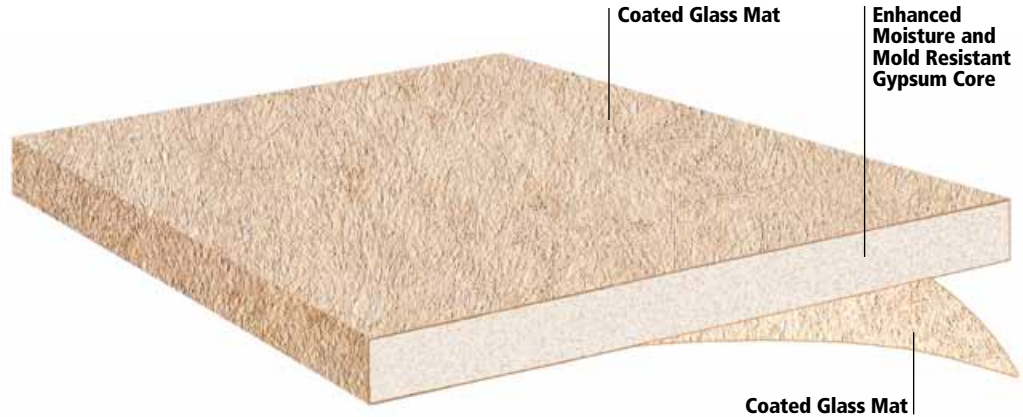
DEXcell Glass Mat Roof Board is a fire barrier and thermal barrier manufactured with coated fiberglass facers and an enhanced mold resistant gypsum core. It is produced in 1/4", 1/2", and 5/8" thicknesses and 4' wide in 4' and 8' lengths. DEXcell Glass Mat Roof Board scores and cuts easily and is specially coated on the front, back and sides for easy handling.

Basic Uses

DEXcell Glass Mat Roof Boards are ideally suited for a wide variety of roofing systems including but not limited to mechanically attached single ply membranes, metal and fire/thermal barrier applications.

Features/Benefits

- Scores and snaps easily
- Fire barrier meets FM Class 1 and UL Class A fire ratings for roofing systems up to unlimited slope per UL 790.
- Resists mold growth on the board per ASTM D 3273
- Manufactured to meet ASTM C 1177
- Coated fiberglass facers for improved handling and strength
- High density coverboard/thermal barrier



Installation

Wind Uplift

DEXcell Glass Mat Roof Boards are included in numerous assemblies evaluated by FM or 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 and Factory Mutual Global (FMG) and/or Underwriters Laboratories (UL) requirements for proper installation techniques.

- Use fasteners specified in accordance with system requirements. Install approved fasteners with plates into the DEXcell Glass Mat Roof Board, flush with the surface. Fasteners should be installed in strict compliance with the roof system manufacturer's installation recommendations and FMG Loss Prevention Data Sheet 1-29. Proper fastener spacing is essential to achieve wind-uplift performance.
- Locate edge joints on, and parallel to, deck ribs. Stagger end joints of adjacent lengths of DEXcell Glass Mat Roof Board. In typical installations, butt board edges and ends loosely.
- See Physical Properties chart for maximum flute span when panels are applied directly over metal decking.

Limitations

DEXcell Glass Mat Roof Boards are engineered to perform within a properly designed roof system. The use of DEXcell Glass Mat Roof Boards as a roofing component is the responsibility of the design professional.

For specific instructions, please contact roofing manufacturers on the application of their products to DEXcell Glass Mat Roof Boards.

National Gypsum Company cannot control certain situations including weather conditions, dew, application temperature, installation techniques and moisture drive which can have adverse effects on the performance of the roof system.

Keep DEXcell Glass Mat Roof Board panels dry at all times. DEXcell Glass Mat Roof Board should not be installed during rain, heavy fog and any other conditions that can deposit moisture on the surface of the board.

Apply only as much DEXcell Glass Mat Roof Board as can be covered by the final roof covering in the same day. Always avoid exposure to moisture from any source.

Re-roof or re-cover applications must be thoroughly dry prior to installation of DEXcell Glass Mat Roof Board.

Any plastic or poly packaging which may be applied at the plant to protect board during rail or other transit should be removed immediately upon receipt to prevent

any buildup of moisture or condensation. Any exposure to moisture may cause problems and should be avoided.

DEXcell Glass Mat Roof Boards should never be stored on the ground and should always be stocked flat. If the product must be stored outside, avoid exposure to moisture by utilizing a breathable waterproof covering.

Moisture vapor drive must be eliminated, and the movement of water by gravity through deficiencies in the roofing assembly must be controlled. Anytime a leak occurs, no moisture on the top side should be accepted, and any water introduced by the leak must be dissipated as quickly as possible.

Although DEXcell Glass Mat Roof Boards are engineered with coated fiberglass facers and high density gypsum cores, the presence of free moisture can have an adverse effect on product performance and may compromise the installation of additional components. For example, hot asphalt applications can blister; torched modified bitumen may not properly bond and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DEXcell Glass Mat Roof Boards that contain disproportionate free moisture content may need to be tested for stability to ensure product performance.

PRODUCT COMPARISON									
Performance	1/4" DEXcell Glass Mat	1/4" Securock® Glass Mat ¹	1/4" DensDeck® Glass Mat ²	1/2" DEXcell Glass Mat	1/2" Securock® Glass Mat ¹	1/2" DensDeck® Glass Mat ²	5/8" DEXcell Glass Mat	5/8" Securock® Glass Mat ¹	5/8" DensDeck® Glass Mat ²
Flexural Strength, parallel, lbf. min. per ASTM C473 Method B	> or = 40	40	≥40	> or = 80	80	≥80	> or = 100	100	≥100
Flute Span	2-5/8"	2-5/8"	2-5/8"	5"	5"	5"	8"	8"	8"
Permeance, perms	25	18	>50	24	18	>35	23	16	>32
Water Absorption, % max, per ASTM C473	<10	10	<10	<10	10	<10	<10	10	<10
Compressive Strength, psi	900	700 - 1000	900	900	700 - 1000	900	900	700 - 1000	900
Bending Radius	4'	4'	5'	6'	6'	8'	8'	9'	12'
Mold Resistance per ASTM D3273	10	10	10	10	10	10	10	10	10
ASTM Standard	C1177	C1177	C1177	C1177	C1177	C1177	C1177	C1177	C1177

1. USG Securock data taken from USG literature, Form #RF39/rev. 6-14 2. Georgia-Pacific data taken from GP literature, Item #622602 - 8/14

Technical Data

Fire Resistance

- UL 790 – DEXcell Glass Mat Roof Board meets UL Class A fire ratings for roofing systems up to unlimited slope per UL 790 (CAN/ULC-S107), see the *UL Certifications Directory* for more information.
- UL 1256 – DEXcell Glass Mat Roof Board is classified in roof deck constructions in accordance with ANSI/UL 1256, see the *UL Certifications Directory* for more information.
- 5/8" DEXcell Glass Mat Roof Board is UL Classified for use in numerous hourly rated UL assemblies including UL "P" roof assemblies. See the *UL Certifications Directory* for more information. Meets Type X per ASTM C 1177.
- When tested in accordance with ANSI/UL 723 (ASTM E 84, CAN/ULC-S102), DEXcell Glass Mat Roof Board had a Flame Spread 0 and Smoke Developed 0.

PHYSICAL PROPERTIES			
Thickness, nominal	1/4" (6.4 mm)	1/2" (12.7 mm)	5/8" (15.9 mm)
Width, standard	4' (1219 mm)	4' (1219 mm)	4' (1219 mm)
Length, standard	4', 8' (1219, 2438 mm)	4', 8' (1219, 2438 mm)	8' (2438 mm)
Weight, nominal, lbs./sq. ft. (kg/m²)	1.2 (5.9)	2.0 (10)	2.5 (12)
Surfacing	Coated Fiberglass Facer	Coated Fiberglass Facer	Coated Fiberglass Facer
Flexural Strength¹, parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (445)
Flute Spanability²	2-5/8" (67 mm)	5" (127 mm)	8" (203 mm)
Permeance³, Perms (ng/Pa.S.m²)	25 (1429)	24 (1371)	23 (1314)
Water Absorption⁴, % max.	<10	<10	<10
Compressive Strength⁵, psi Nominal	900	900	900
Flame Spread, Smoke Developed (ASTM E 84, UL 723, CAN/ULC-S102)	0/0	0/0	0/0
Fire Classification	UL Classified FM Approved	UL Classified FM Approved	UL Classified FM Approved
Bending Radius	4' (1219 mm)	6' (1829 mm)	8' (2438 mm)

1. Tested in accordance with ASTM C 473 method B
2. Tested in accordance with ASTM E 661
3. Tested in accordance with ASTM E 96 (Dry cup method)
4. Tested in accordance with ASTM C 1177
5. Tested in accordance with ASTM C 473

FM Approved

- Complies with requirements of FM 4450 and FM 4470
- Meets FM Class 1

Fire resistance ratings represent the result of tests on assemblies made up of specific materials in specific configurations. When selecting construction designs to meet certain fire resistance requirements, caution must be used to ensure that each component of the assembly is the one specified in the test. Further, precaution should be taken 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, visit nationalgypsum.com).

PACKAGING

Thickness	1/4"	1/2"	5/8"
4' x 4' DEXcell Glass Mat			
Pieces per pallet	60	48	44
Sq. ft. per pallet	960	768	704
Weight per pallet, lbs.	1,200	1,612	1,964
Sq. ft. per truck	38,400	23,040	16,900
Weight per truck, lbs.	48,000	48,384	47,139
4' x 8' DEXcell Glass Mat			
Pieces per pallet	44	30	30
Sq. ft. per pallet	1,408	960	960
Weight per pallet, lbs.	1,760	2,016	2,678
Sq. ft. per truck	38,020	23,040	17,280
Weight per truck, lbs.	47,520	48,384	48,211

Note: 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.

DEXcell[®]

BRAND

FA Glass Mat Roof Board

Description

DEXcell[®] BRAND FA Glass Mat Roof Board is a mold resistant gypsum board designed for use as a coverboard and/or thermal barrier in commercial roofing applications. DEXcell FA Glass Mat Roof Board is ideally suited for fully adhered roof systems.

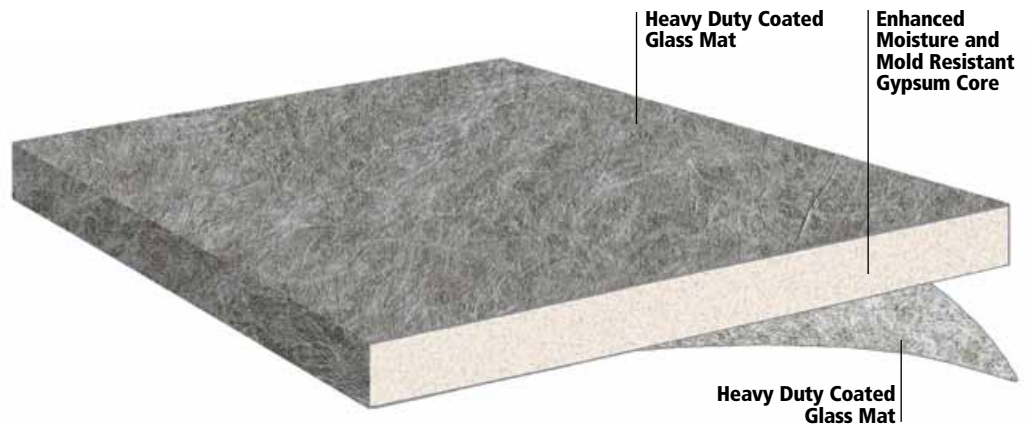
DEXcell FA Glass Mat Roof Board is a fire barrier and thermal barrier manufactured with heavy duty coated fiberglass facers and an enhanced mold resistant gypsum core. It is produced in 1/4", 1/2", and 5/8" thicknesses and 4' wide in 4' and 8' lengths. DEXcell FA Glass Mat Roof Board scores and cuts easily and is specially coated on the front, back and sides for easy handling.

Basic Uses

DEXcell FA Glass Mat Roof Boards are ideally suited for a wide variety of roofing systems including but not limited to fully adhered single ply membranes, mechanically attached roof systems, modified bitumen, built up roofing (cold applied), fluid applied, metal, and spray foam. Also used on the roof side of parapet walls.

Features/Benefits

- Scores and snaps easily
- Fire barrier meets FM Class 1 and UL Class A fire ratings for roofing systems up to unlimited slope per UL 790.
- Resists mold growth on the board per ASTM D 3273
- Heavy duty coated fiberglass facers for improved handling, strength and adhesion
- Manufactured to meet ASTM C 1177
- High density coverboard/thermal barrier



Installation

Wind Uplift

DEXcell FA Glass Mat Roof Boards are included in numerous assemblies evaluated by FM or 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 and Factory Mutual Global (FMG) and/or Underwriters Laboratories (UL) requirements for proper installation techniques.

- Use fasteners specified in accordance with system requirements. Install approved fasteners with plates into the DEXcell FA Glass Mat Roof Board, flush with the surface. Fasteners should be installed in strict compliance with the roof system manufacturer's installation recommendations and FMG Loss Prevention Data Sheet 1-29. Proper fastener spacing is essential to achieve wind-uplift performance.
- Locate edge joints on, and parallel to, deck ribs. Stagger end joints of adjacent lengths of DEXcell FA Glass Mat Roof Board. In typical installations, butt board edges and ends loosely.
- See Physical Properties chart for maximum flute span when panels are applied directly over metal decking.
- For vertical parapet applications, only 1/2" or 5/8" panels should be used.

Limitations

DEXcell FA Glass Mat Roof Boards are engineered to perform within a properly designed roof system. The use of DEXcell FA Glass Mat Roof Boards as a roofing component is the responsibility of the design professional.

For specific instructions, please contact roofing manufacturers on the application of their products to DEXcell FA Glass Mat Roof Boards.

National Gypsum Company cannot control certain situations including weather conditions, dew, application temperature, installation techniques and moisture drive which can have adverse effects on the performance of the roof system.

Keep DEXcell FA Glass Mat Roof Board panels dry at all times. DEXcell FA Glass Mat Roof Board should not be installed during rain, heavy fog and any other conditions that can deposit moisture on the surface of the board.

Apply only as much DEXcell FA Glass Mat Roof Board as can be covered by the final roof covering in the same day. Always avoid exposure to moisture from any source.

Re-roof or re-cover applications must be thoroughly dry prior to installation of DEXcell FA Glass Mat Roof Board.

Any plastic or poly packaging which may be applied at the plant to protect board during rail or other transit should be removed immediately upon receipt to

prevent any buildup of moisture or condensation. Any exposure to moisture may cause problems and should be avoided.

DEXcell FA Glass Mat Roof Boards should never be stored on the ground and should always be stocked flat. If the product must be stored outside, avoid exposure to moisture by utilizing a breathable waterproof covering.

Moisture vapor drive must be eliminated, and the movement of water by gravity through deficiencies in the roofing assembly must be controlled. Anytime a leak occurs, no moisture on the top side should be accepted, and any water introduced by the leak must be dissipated as quickly as possible.

Although DEXcell FA Glass Mat Roof Boards are engineered with coated fiberglass facers and high density gypsum cores, the presence of free moisture can have an adverse effect on product performance and may compromise the installation of additional components. For example, hot asphalt applications can blister; torched modified bitumen may not properly bond and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DEXcell FA Glass Mat Roof Boards that contain disproportionate free moisture content may need to be tested for stability to ensure product performance.

PRODUCT COMPARISON

Performance	1/4" DEXcell FA Glass Mat	1/4" Securock® Gyp.-Fiber¹	1/4" DensDeck® Prime²	1/2" DEXcell FA Glass Mat	1/2" Securock® Gyp.-Fiber¹	1/2" DensDeck® Prime²	5/8" DEXcell FA Glass Mat	5/8" Securock® Gyp.-Fiber¹	5/8" DensDeck® Prime²
Flexural Strength, parallel, lbf. min. per ASTM C473 Method B	> or = 40	40	≥40	> or = 80	110	≥80	> or = 100	161	≥100
Flute Span	2-5/8"	2-5/8"	2-5/8"	5"	8"	5"	8"	10"	8"
Permeance, perms	25	30	>30	24	26	>23	23	24	>17
Water Absorption, % max, per ASTM C473	<10	10	<10	<10	10	<10	<10	10	<10
Compressive Strength, psi	900	1800	900	900	1800	900	900	1800	900
Bending Radius	4'	25'	4'	6'	25'	6'	8'	30'	8'
Mold Resistance per ASTM D3273	10	10	10	10	10	10	10	10	10
ASTM Standard	C1177	C1177	C1177	C1177	C1177	C1177	C1177	C1177	C1177

1. USG Securock data taken from USG literature, Form #RF39/rev. 6-14 2. Georgia-Pacific data taken from GP literature, Item #622602 - 8/14

Technical Data

Fire Resistance

- UL 790 – DEXcell FA Glass Mat Roof Board meets UL Class A fire ratings for roofing systems up to unlimited slope per UL 790 (CAN/ULC-S107), see the *UL Certifications Directory* for more information.
- UL 1256 – DEXcell FA Glass Mat Roof Board is classified in roof deck constructions in accordance with ANSI/UL 1256, see the *UL Certifications Directory* for more information.
- 5/8" DEXcell FA Glass Mat Roof Board is UL Classified for use in numerous hourly rated UL assemblies including UL "P" roof assemblies. See the *UL Certifications Directory* for more information. Meets Type X per ASTM C 1177.
- When tested in accordance with ANSI/UL 723 (ASTM E 84, CAN/ULC-S102), DEXcell FA Glass Mat Roof Board had a Flame Spread 0 and Smoke Developed 0.

PHYSICAL PROPERTIES

Thickness, nominal	1/4" (6.4 mm)	1/2" (12.7 mm)	5/8" (15.9 mm)
Width, standard	4' (1219 mm)	4' (1219 mm)	4' (1219 mm)
Length, standard	4', 8' (1219, 2438 mm)	4', 8' (1219, 2438 mm)	8' (2438 mm)
Weight, nominal, lbs./sq. ft. (kg/m²)	1.2 (5.9)	2.0 (10)	2.5 (12)
Surfacing	Coated Fiberglass Facer	Coated Fiberglass Facer	Coated Fiberglass Facer
Flexural Strength¹, parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (445)
Flute Spanability²	2-5/8" (67 mm)	5" (127 mm)	8" (203 mm)
Permeance³, Perms (ng/Pa.S.m²)	25 (1429)	24 (1371)	23 (1314)
Water Absorption⁴, % max.	<10	<10	<10
Compressive Strength⁵, psi Nominal	900	900	900
Flame Spread, Smoke Developed (ASTM E 84, UL 723, CAN/ULC-S102)	0/0	0/0	0/0
Fire Classification	UL Classified FM Approved	UL Classified FM Approved	UL Classified FM Approved
Bending Radius	4' (1219 mm)	6' (1829 mm)	8' (2438 mm)

1. Tested in accordance with ASTM C 473 method B 4. Tested in accordance with ASTM C 1177
 2. Tested in accordance with ASTM E 661 5. Tested in accordance with ASTM C 473
 3. Tested in accordance with ASTM E 96 (Dry cup method)

FM Approved

- Complies with requirements of FM 4450 and FM 4470
- Meets FM Class 1

Fire resistance ratings represent the result of tests on assemblies made up of specific materials in specific configurations. When selecting construction designs to meet certain fire resistance requirements, caution must be used to ensure that each component of the assembly is the one specified in the test. Further, precaution should be taken 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 nationalgyypsum.com).

PACKAGING

Thickness	1/4"	1/2"	5/8"
4' x 4' DEXcell FA Glass Mat			
Pieces per pallet	60	48	44
Sq. ft. per pallet	960	768	704
Weight per pallet, lbs.	1,200	1,612	1,964
Sq. ft. per truck	38,400	23,040	16,900
Weight per truck, lbs.	48,000	48,384	47,139
4' x 8' DEXcell FA Glass Mat			
Pieces per pallet	44	30	30
Sq. ft. per pallet	1,408	960	960
Weight per pallet, lbs.	1,760	2,016	2,678
Sq. ft. per truck	38,020	23,040	17,280
Weight per truck, lbs.	47,520	48,384	48,211

Note: 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.

DEXcell[®]

BRAND
Cement Roof Board

Description

DEXcell[®] BRAND Cement Roof Board is a lightweight moisture and mold resistant cement board designed for use as a coverboard and/or thermal barrier in all commercial roofing applications.

DEXcell Cement Roof Board is a fire barrier and thermal barrier manufactured of Portland cement, lightweight aggregate and glass mesh that provides an exceptionally hard, durable surface that is able to withstand prolonged exposure to moisture.

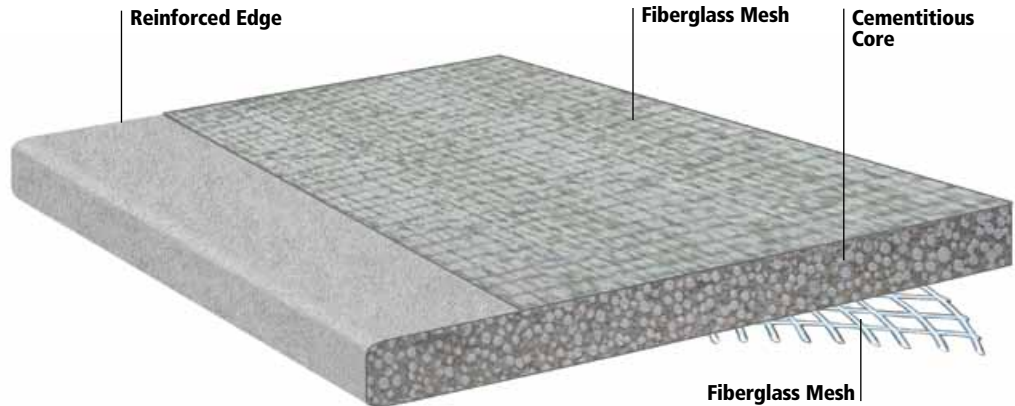
It is produced in 7/16" thickness and 4' wide in 4' and 8' lengths.

Basic Uses

DEXcell Cement Roof Boards are ideally suited for a wide variety of roofing systems including but not limited to fully-adhered single ply membrane, mechanically attached roof systems, modified bitumen, built up roofing, fluid applied, metal, and spray foam. Also used on the roof side of parapet walls.

Features/Benefits

- Ideally suited for all roof systems
- Fire barrier meets FM Class 1 and UL Class A fire ratings for roofing systems up to unlimited slope per UL 790.
- Lightweight cementitious core
- Superior moisture resistance
- Exceptional freeze/thaw resistance
- Excellent bond/pull-through/uplift values
- Impact resistant, extremely durable and dimensionally stable
- High compressive strength
- Scores and snaps easily
- Moisture resistant and resists mold growth on the board per ASTM D 3273



- Manufactured to meet ASTM C 1325
- Recommended for green roofs and photovoltaic systems

Installation

Wind Uplift

DEXcell Cement Roof Board are included in numerous assemblies evaluated by FM or 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 and Factory Mutual Global (FMG) and/or Underwriters Laboratories (UL) requirements for proper installation techniques.

- Use fasteners specified in accordance with system requirements. Install approved fasteners with plates into the DEXcell Cement Roof Board, flush with the surface. Fasteners should be installed in strict compliance with the roof system manufacturer's installation recommendations and FMG Loss Prevention Data Sheet 1-29. Proper fastener spacing is essential to achieve wind-uplift performance.
- Locate edge joints on, and parallel to, deck ribs. Stagger end joints of adjacent lengths DEXcell Cement Roof Board. Butt board edges and ends loosely in typical installations.

- See Physical Properties chart for maximum flute span when panels are applied directly over metal decking.
- For vertical parapet applications, maximum framing spacing is 16" o.c.

Limitations

DEXcell Cement Roof Boards are engineered to perform within a properly designed roof system. The use of DEXcell Cement Roof Boards as a roofing component is the responsibility of the design professional.

Consult roofing manufacturers for specific instructions on the application of their products to DEXcell Cement Roof Boards.

Weather conditions, dew, application temperature, installation techniques and moisture drive can have adverse effects on the performance of the roof system and are beyond the control of National Gypsum Company.

Keep DEXcell Cement Roof Board panels dry at all times. DEXcell Cement Roof Board should not be installed during rain, heavy fog and any other conditions that can deposit moisture on the surface of the board.

Apply only as much DEXcell Cement Roof Board as can be covered by the final roof covering in the same day. Always avoid exposure to moisture from any source.

Re-roof or re-cover applications must be thoroughly dry prior to installation of DEXcell Cement Roof Board.

DEXcell Cement Roof Boards should never be stored on the ground and always stocked flat. If the product must be stored outside, avoid exposure to moisture by utilizing a breathable waterproof covering.

Moisture vapor drive must be eliminated, and the movement of water by gravity through deficiencies in the roofing assembly must be controlled. Anytime a leak occurs, no moisture on the top side should be accepted, and any water introduced by the leak must be dissipated as quickly as possible.

Although DEXcell Cement Roof Boards are engineered to have superior moisture resistance, the presence of free moisture can have an adverse effect on product performance and may compromise the installation of additional components. For example, hot asphalt applications can blister; torched modified bitumen may not properly bond and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly.

PHYSICAL PROPERTIES	
Thickness, nominal	7/16" (11.1 mm)
Width, standard	4' (1219 mm)
Length, standard	4', 8' (1219, 2438 mm)
Weight, nominal, lbs./sq. ft. (kg/m ²)	2.1 (10.3)
Flexural Strength ¹ , psi	>1000
Flute Spanability ²	12" (304 mm)
Permeance ³ , Perms (ng/Pa.S.m ²)	>5 (287)
R Value ⁴ , ft ² °F hr/BTU (m ² K/W)	.28
Linear Variation with Change in Moisture ⁵	≤0.07%
Water Absorption ⁶ , % Max.	<10
Compressive Strength, psi Nominal	1250
Flame Spread, Smoke Developed (ASTM E 84)	0/0
Bending Radius	5' (1524 mm)

1. Tested in accordance with ASTM C 947
2. Tested in accordance with ASTM E 661
3. Tested in accordance with ASTM E 96 (Dry cup method)
4. Tested in accordance with ASTM C 518 (Heat flow meter)
5. Tested in accordance with ASTM C 1037
6. Tested in accordance with ASTM C 473

Technical Data

Fire Resistance

- UL 790 – DEXcell Cement Roof Board meets UL Class A fire ratings for roofing systems up to unlimited slope per UL 790 (CAN/ULC-S107), see the *UL Certifications Directory* for more information.
- UL 1256 – DEXcell Cement Roof Board is classified in roof deck constructions in accordance with ANSI/UL 1256, see the *UL Certifications Directory* for more information.
- When tested in accordance with ANSI/UL723 (ASTM E 84, CAN/ULC-S102), DEXcell Cement Roof Board had a Flame Spread 0 and Smoke Developed 0.

FM Approved

- Complies with requirements of FM 4450 and FM 4470
- Meets FM Class 1

Fire resistance ratings represent the result of tests on assemblies made up of specific materials in specific configurations. When selecting construction designs to meet certain fire resistance requirements, caution must be used to ensure that each component of the assembly is the one specified in the test. Further, precaution should be taken 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 nationalgypsum.com).

PRODUCT COMPARISON		
	7/16" DEXcell Cement Roof Board	1/2" Securock Cement Roof Board
Performance		
Flexural Strength, parallel, lbf. min. per ASTM C473 Method B	>1000	>750
Flute Span	12"	12"
Permeance, perms	>5	5.84
Water Absorption, % max, per ASTM C473	<10	<15
Compressive Strength, psi	1250	>1000
Bending Radius	5'	6'
Mold Resistance per ASTM D3273	10	10
ASTM Standard	C1325	C1325

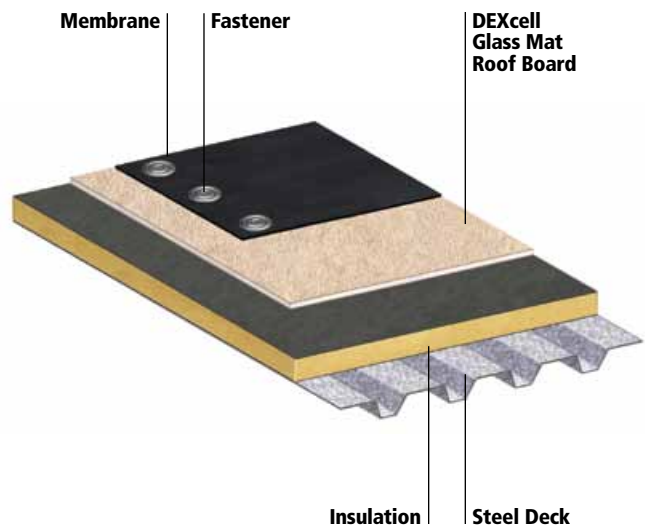
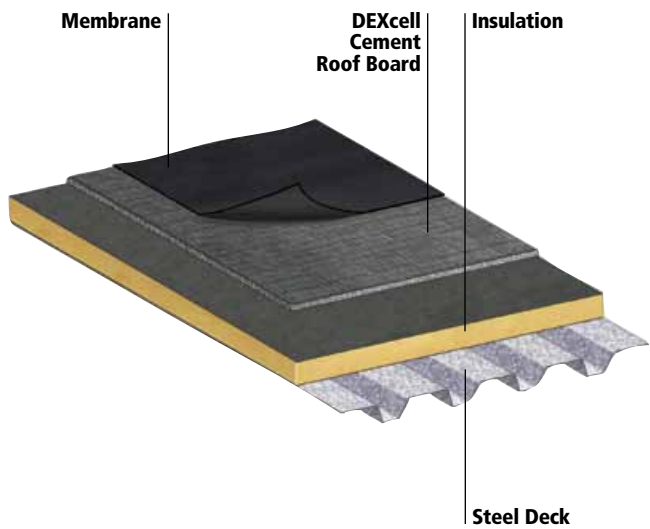
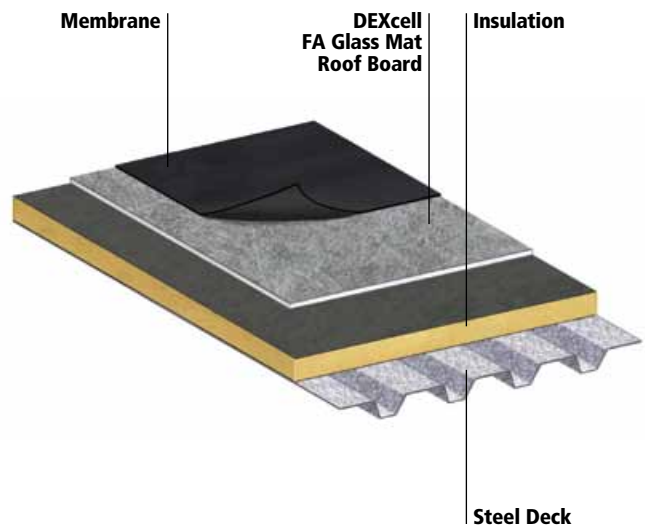
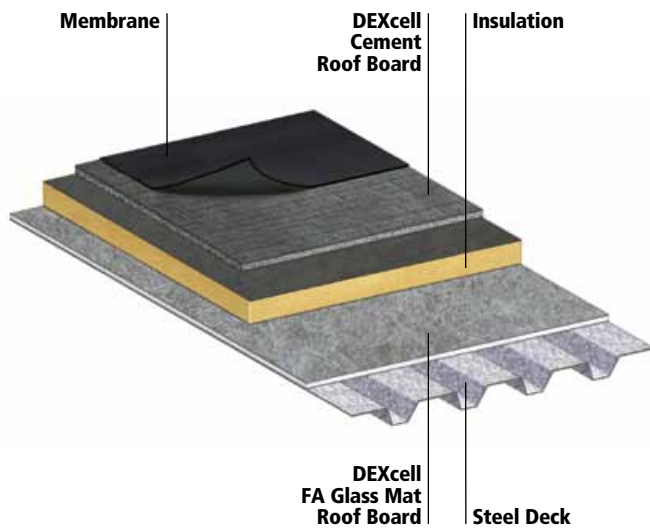
PACKAGING	
Thickness	7/16"
4' x 4' DEXcell Cement	
Pieces per pallet	30
Sq. ft. per pallet	480
Weight per pallet, lbs.	1,067
Sq. ft. per truck	22,080
Weight per truck, lbs.	49,083
4' x 8' DEXcell Cement	
Pieces per pallet	30
Sq. ft. per pallet	960
Weight per pallet, lbs.	2,110
Sq. ft. per truck	22,080
Weight per truck, lbs.	48,531

Note: 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.

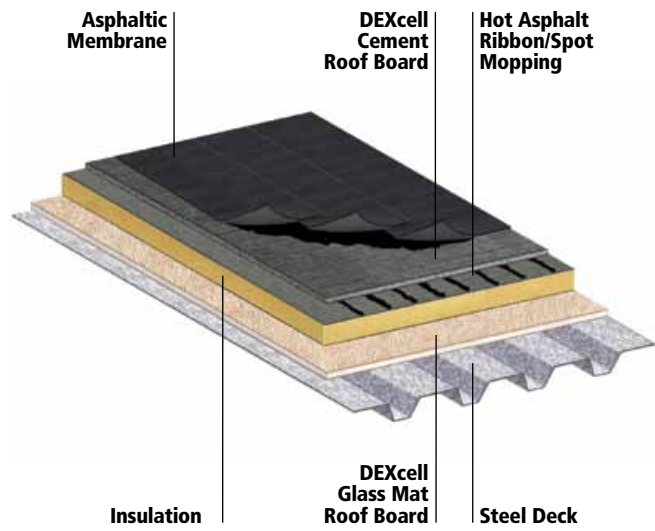
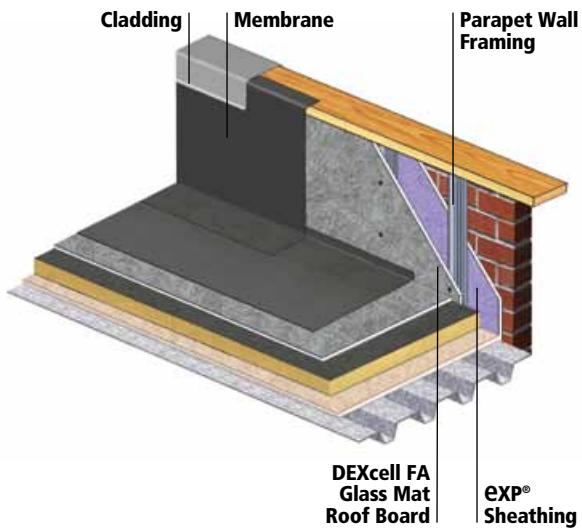
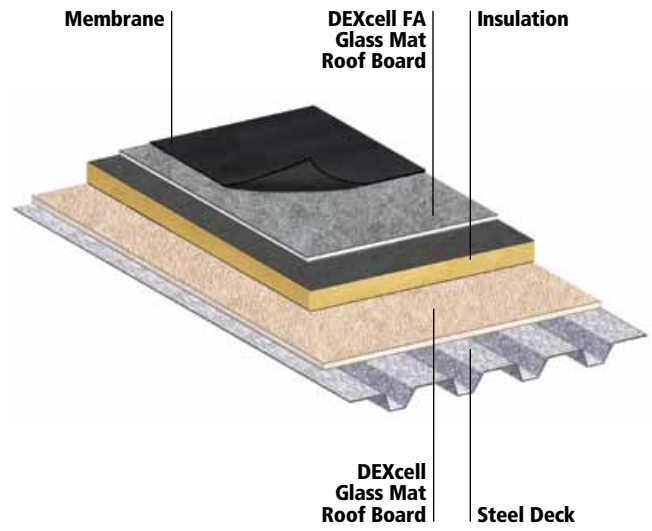
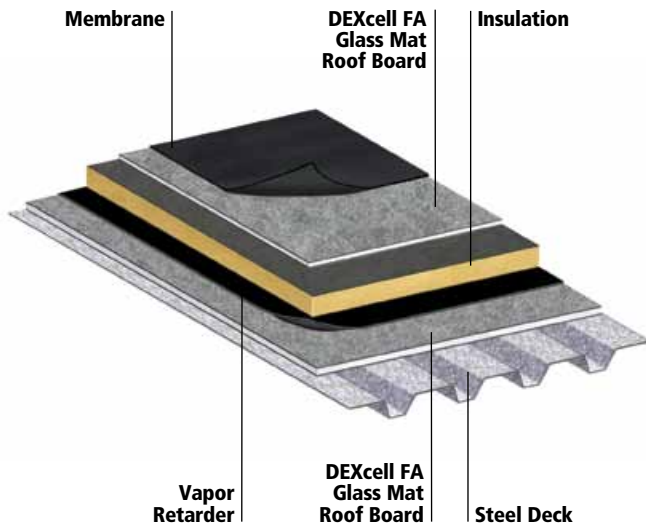
Typical Roof System Applications

The following are examples of typical roof system applications using DEXcell Roof Boards and should be considered to be for illustration purposes only. Consult with the roof system manufacturer or roof design professional for their recommendations of use and installation. National Gypsum Company does NOT provide roof design services, and makes no warranties or representation with respect to any particular roof system or any components or materials, other than DEXcell Roof Boards. It is the responsibility of the roof system manufacturer or roof design professional to determine the suitability of DEXcell Roof Boards, or the use of any other materials with DEXcell Roof Boards, for any particular application.

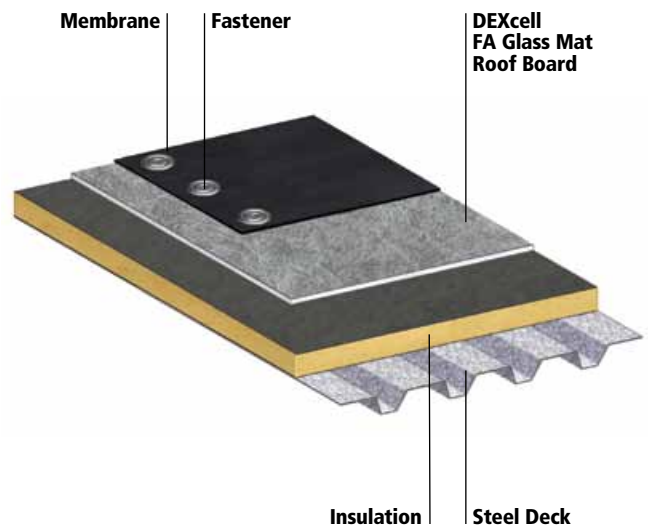
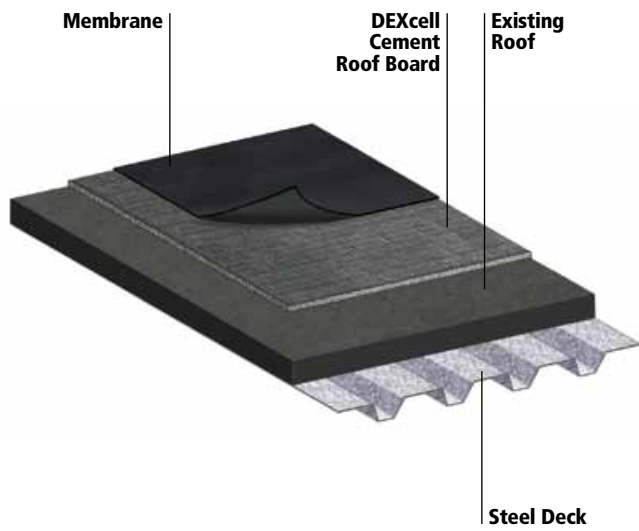
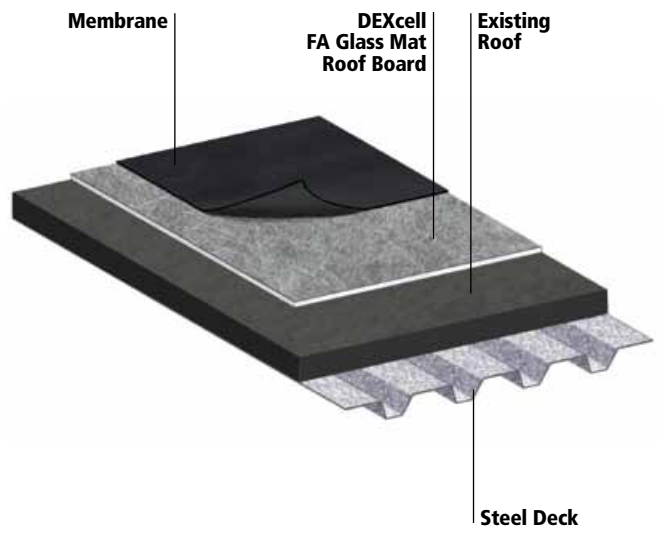
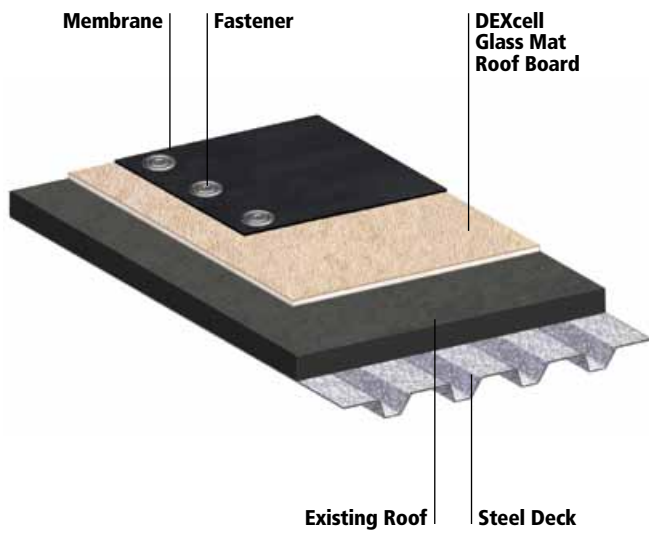
Coverboard



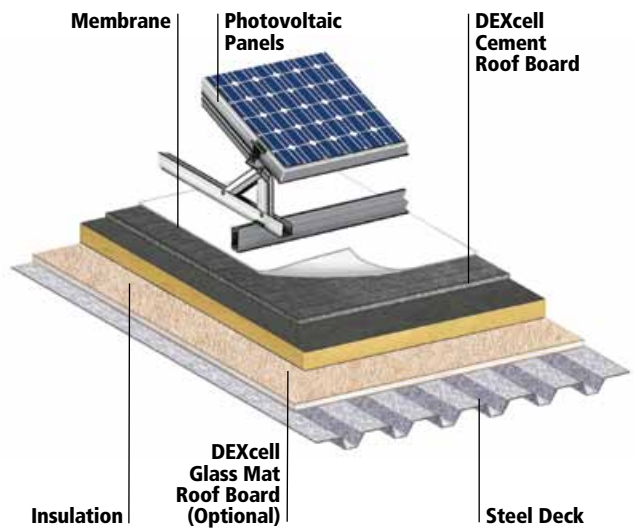
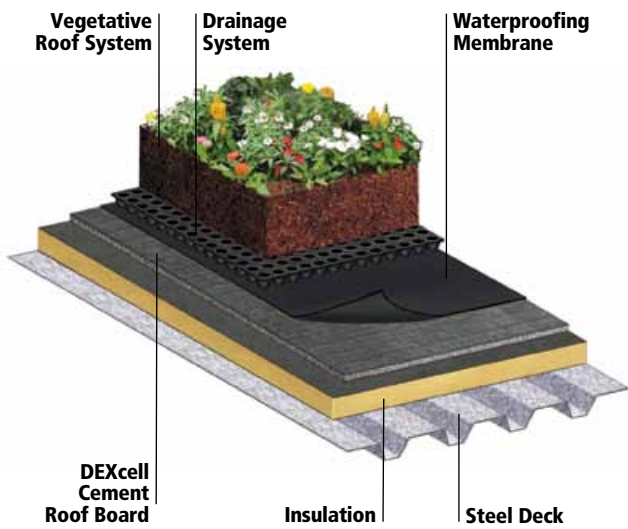
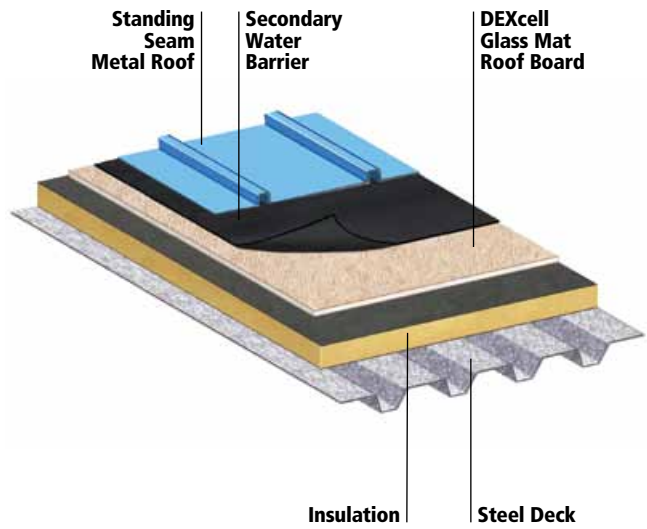
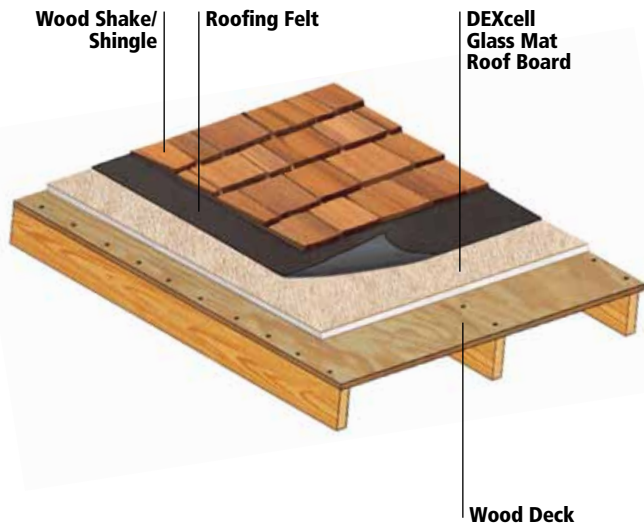
Thermal Barrier/Vapor Barrier



Roof Re-cover Board



Various Applications



Design Recommendations

DEXcell Roof Boards form one component among many components in a properly designed roof assembly. National Gypsum does not warrant the design, quality or workmanship of any other components in any roof assembly in which the DEXcell products may be used or of the roof assembly as a whole. Specifically, National Gypsum offers no recommendations regarding the following aspects of a roof assembly:

- The type of roof assembly to be used (single ply, modified bitumen, built-up roof, etc.)
- The specifications of the other components in the roof assembly
- Whether to use a separator sheet or vapor barrier between DEXcell Roof Boards and any other component of the roof assembly
- Priming requirements

However, different DEXcell products are designed for different applications. Refer to chart on page 3 for National Gypsum's recommendations of which DEXcell products are best suited for various applications.

Application Limitations

The performance of any DEXcell product may be negatively impacted by excess moisture, heat or pressure. The recommendations and limitations below are intended to lower the risk of excess moisture, heat and loads. Failure to observe these recommendations and limitations may void the warranty.

Adhesives and Primers

DEXcell FA Glass Mat Roof Board and DEXcell Cement Roof Board are the preferred products for use in fully adhered roof systems, subject to the following limitations:

Solvent-Based Adhesives and Primers. Solvent-based adhesives and primers should be used in accordance with the manufacturers' procedures. Installers must allow sufficient time for solvents and primers to evaporate after application to avoid potential damage to the DEXcell products or other components. Excessive use of solvent-based adhesives increases the risk of blisters. For water-based adhesives, follow manufacturer's recommendations. Confirm any priming requirements of DEXcell products with the membrane manufacturer.

Cold Adhesives. Cold adhesives should be applied uniformly as necessary for good bond. Excessive use of cold adhesives increases the risk of blisters.

Torch Down Roofing. When applying a membrane using a "torch down" application method, all products must be dry prior to beginning the installation. Use proper torch technique and limit the amount of heat placed on the DEXcell Roof Boards by aiming the torch flame directly at the roof membrane roll and not at the DEXcell Roof Boards. Avoid overheating the membrane or DEXcell product surface. Check with the roof system manufacturer or roof design professional for their attachment requirements for each project.

Hot Mop Applications. DEXcell Cement Roof Board is recommended for hot mop applications. When hot mopping, follow the manufacturer's recommendations with respect to ambient temperature and humidity, optimal temperature for the asphalt, and appropriate handling of the material. For application temperatures in excess of 450°F and/or mopping type IV asphalt, ribbon mopping, spot mopping or installing a venting base sheet are recommended.

Flood Mopping. Flood mopping DEXcell FA Glass Mat Roof Boards or DEXcell Glass Mat Roof Boards to a substrate and then flood mopping a membrane to the DEXcell product is *not recommended*. To avoid excess heat and moisture, spot mopping, ribbon mopping, or installing a venting base sheet are recommended.

Always allow time to cool between applications of hot asphalt or torching.

Additional Limitations

Avoid Excess Loads. Subjecting any DEXcell product to excessive loads or foot traffic may void the warranty. Appropriate protective measures should be taken to avoid any concentration of weight that may damage or fracture the roof boards. For example, extra caution should be used when placing steel-wheeled equipment on installed DEXcell Roof Boards or when installing DEXcell Roof Boards on plaza decks.

Avoid Excess Moisture. Keep DEXcell products dry at all times. The presence of moisture on the surface or within the core of any substrate (including DEXcell products) or anywhere in the roof assembly can negatively impact performance by causing blisters to form during torching or hot mopping or by weakening the structural stability of the roof system. This can significantly decrease wind uplift resistance in the roof system. It is recommended to evaluate the moisture content of DEXcell Roof Boards with a high quality moisture meter.

Do not apply fully adhered membranes (solvent-based, water-based, cold adhesives, peel and stick, torched, hot mopped) to wet or dampened DEXcell products. All components of a roof assembly must be thoroughly dry prior to installation of the roof membrane. DEXcell products should not be installed during rain, heavy fog, or any other conditions that could deposit moisture on the surface of the roof boards.

To reduce the impact of environmental moisture, DEXcell Roof Boards must be covered by the roof system membrane the same day they are installed. Install only as many DEXcell Roof Boards as can be covered by the final roof covering in the same day.

Appropriate moisture control measures should be taken when installing DEXcell products on new poured concrete or lightweight concrete roof deck, or when re-roofing over an existing concrete roof deck, in accordance with recommendations by roof design professionals, roof system manufacturers, and any applicable design or construction code requirements. Re-roof or re-cover applications must be thoroughly dry prior to installation of DEXcell products.

Installation Recommendations

National Gypsum Company makes no representations or warranties regarding best practices in the design or installation of roof assemblies. Refer to the applicable roof system manufacturer's written instructions, industry best practices, local code requirements and FM Global® (FM) and/or UL® requirements for proper installation techniques. In addition to the limitations regarding heat, moisture and loads in the sections above, DEXcell products are subject to the following installation recommendations and limitations:

Only mechanical fasteners approved by FM or UL should be used with DEXcell products and such fasteners should be installed in strict compliance with the roof system manufacturer's installation recommendations and the most

current applicable FM Loss Prevention Data Sheets. Proper fastener spacing is essential to achieve the proper wind-uplift performance.

Install only as many DEXcell Roof Boards as can be covered by the roof membrane system during the same day. Locate joints parallel to the deck ribs on the ribs of the steel roof deck. See the product data table for maximum flute span when panels are installed directly over steel roof decking. Stagger end joints of adjacent lengths of DEXcell Roof Board. In typical installations, butt board edges and ends loosely. The design authority should calculate the appropriate spacing between roof boards to allow for thermal expansion based on typical post-installation roof temperature and accounting for installation conditions, in each case based on published DEXcell product properties data.

For vertical parapet applications, only 1/2" or 5/8" DEXcell FA Glass Mat Roof Boards or DEXcell Cement Roof Boards should be used. Maximum framing spacing is 24" o.c. for 5/8" DEXcell FA Glass Mat Roof Boards and 16" o.c. for both the 1/2" DEXcell FA Glass Mat Roof Board and 7/16" DEXcell Cement Roof Board.

Storage Recommendations

Keep DEXcell products dry at all times before, during and after the installation of the roof system. Upon receipt by the customer, all plastic packaging must be removed from the DEXcell Roof Boards immediately, and the DEXcell Roof Boards must be fully covered with a breathable, waterproof covering. Failure to immediately remove the plastic packaging may result in condensation or moisture being trapped on or in the product and may void the warranty.

DEXcell Roof Board must never be stored on the ground and must always be stocked flat. Air must be allowed to circulate around and under the stored bundles of DEXcell Roof Board to avoid build-up of moisture.

LIMITED WARRANTY

(United States, U.S. Territories, and Canada Only)

National Gypsum Company ("NGC") warrants to each purchaser of its DEXcell® BRAND Roofing Products ("DEXcell"), and to the owner at the time of installation of any building upon which DEXcell is installed, that subject to the conditions and limitations set forth below: (1) DEXcell Roof Boards shall be free from defects in material and workmanship at the time of shipment ("Defects Warranty"); and (2) with respect to only DEXcell FA – Glass Mat Roof Boards (1/2" and 5/8" thicknesses only) and DEXcell – Cement Roof Boards, such products will not deteriorate as a result of exposure to normal weather conditions when properly installed on parapet walls ("Exposure Warranty"). Claims under the Defects Warranty may be made for up to two (2) years after the date of the product's manufacture, as printed on each DEXcell Roof Board. Claims under the Exposure Warranty may be made for up to ninety (90) days after the date of installation of the product.

This Limited Warranty is the only warranty applicable to DEXcell and IS IN LIEU OF, EXCLUDES, AND NGC DISCLAIMS, ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR

A PARTICULAR PURPOSE. NGC WILL NOT BE RESPONSIBLE OR LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES, REGARDLESS OF THE NATURE OR THEORY OF THE CLAIM, OR FOR LOSS OF INCOME OR PROFITS, DAMAGE TO ANY STRUCTURE, CONTENTS OR OTHER PROPERTY, OR LOSS OF USE. Some states or provinces prohibit the exclusion or limitation of warranties or may not allow the exclusion or limitation of incidental or consequential damages. In this case, the above disclaimers may not apply to you. This warranty gives you specific legal rights and you may also have other rights which will vary depending upon the state or province.

WARRANTY CONDITIONS: This Limited Warranty applies only if the following conditions are met:

- DEXcell BRAND Roofing Products shall be dry prior to, during, and after roofing application processes.
- Installation methods are in strict accordance with roofing industry and roof system standards, proper roof design; applicable building codes, and any applicable written recommendations and specifications published by NGC.
- The DEXcell product has been properly handled and stored at all times in accordance with industry, trade, and

standard building practices, and has not been abused or used for an improper application.

- Only as much DEXcell as can be covered by complete and final roofing system during the same day has been installed, without leaving the DEXcell product exposed and uncovered.
- The problem with the DEXcell product is not due to structural movement of the building; movement in, failure of or defects in materials to which the product is attached or which are attached to it; causes other than normal weather conditions, such as near gale or higher force winds, tornadoes, hail storms, hurricanes, floods, earthquakes or falling objects; immersion in water, or sustained pooling or cascading of water; or fire, vandalism, misuse or abuse.
- The building on which the product is installed is maintained with reasonable care.
- The problem or claim is not the result of mold, mildew, algae, fungus, or other conditions involving organic growth or bacteria or insect issues.

CLAIMS: All claims under this warranty must be submitted to NGC within thirty (30) days from the time you discover a problem with DEXcell products. Include a brief description of the problem with photographs and copies of sales receipts,

invoices or other documents which may show the dates of purchase and installation. Mail this information to:

National Gypsum Company
5901 Carnegie Boulevard
Charlotte, NC 28209
Attn: Director, Quality Services R&D

NGC shall within a reasonable time be permitted to inspect the DEXcell products, site, installation and system conditions. The building owner must grant reasonable access for such inspection and shall not make or allow to be made any alteration or repair to DEXcell before NGC's inspection. If NGC's inspection confirms that the DEXcell product does not conform with the warranty set forth herein, then if all conditions are met NGC will, at its sole option, either replace the non-conforming DEXcell or refund the original uninstalled purchase price for the non-conforming DEXcell or, where the product has already been installed, provide reimbursement for the reasonable cost of repair or replacement of the non-conforming DEXcell Roof Board Product, up to a maximum amount equal to two (2) times the original uninstalled purchase price of the non-conforming DEXcell product. These remedies are NGC's sole and exclusive obligation and liability for any breach of warranty relating to DEXcell.

Issued July 2014



Mold and Moisture Resistance

DEXcell Roof Boards were designed to provide extra protection against mold and mildew. When tested by an independent laboratory per ASTM D 3273 ("Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber"), DEXcell Roof Board achieved a score of 10, the best possible score for this test.

The use of DEXcell Roof Boards in actual installations may not achieve the same results as were achieved in controlled,

laboratory conditions. No material can be considered "mold proof," nor is it certain that any material will resist mold indefinitely. When used in conjunction with good design, handling and construction practices, DEXcell Roof Boards can provide increased mold resistance versus standard roofing products. As with any building material, avoiding water exposure during handling, storage and installation and after installation is complete, is the best way to avoid the formation of mold or mildew.



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