

SECTION 07 22 20

ROOF BOARDS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes: Fiberglass-mat faced gypsum roof boards for application directly under roof membrane systems.

1.02 REFERENCES

- A. ASTM International (ASTM):
 1. ASTM C209 Standard Test Method for Cellulosic Fiber Insulating Board
 2. ASTM C472 Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete.
 3. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
 4. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 5. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 6. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
 7. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
 8. ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings
 9. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 C.
 10. ASTM E661 Standard Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads.
- B. Underwriters Laboratories (UL): UL 790 Standard Test Methods for Fire Tests of Roof Coverings.
- C. [Florida Approvals: Roof boards shall have Florida Product Approval and Miami-Dade County Product Control Approval.]

1.03 SUBMITTALS

- A. Product Data and Installation Instructions: Submit manufacturer's product data including installation instructions and substrate preparation recommendations
- B. Sample warranty: Submit a sample warranty identifying the terms and conditions of the warranty as herein specified.

1.04 QUALITY ASSURANCE

- A. Inspection: Where applicable, allow for Owner's inspection and moisture testing and reporting prior to installation of roof boards.
- B. [Install roof board in mock-up as specified in [Section 01 4339 Mock-Ups.]
[Section _____].]

1.5 DELIVERY, STORAGE, AND HANDLING

- A. All components used in roofing systems, including DensDeck® Prime Roof Boards, shall be protected from exposure to moisture before, during and after installation.
- B. Remove any plastic packaging from roof boards immediately upon receipt of delivery. Failure to remove plastic packaging may result in entrapment of condensation or moisture, which may cause application problems that are not the responsibility of manufacturer
- C. Any protective, plastic factory packaging that is used to wrap roof boards for shipment is intended to provide temporary protection from moisture exposure during transit only and is not intended to provide protection during storage after delivery.
- D. Roof boards stored outside shall be stored level and off the ground and protected by a waterproof covering. Provide means for air circulation around and under stored bundles of DensDeck® Prime Roof Boards. Use adequate supports to keep the bundles flat, level and dry.
- E. Care should also be taken during installation to avoid the accumulation of moisture in the system. Roof boards shall be covered the same day as installed. Avoid application of roof boards during rain, heavy fog and any other conditions that may deposit moisture on the surface, and avoid the overuse of non-vented, direct-fired heaters during winter months.

1.6 FIELD CONDITIONS

- A. Application standards where applicable are in accordance with design assembly specifics, system manufacturer requirements and the DensDeck® Technical Guide.
- B. Do not install DensDeck® Prime Roof Board that is moisture damaged. Indications that panels are moisture damaged include, but not limited to, discoloration, sagging, or irregular shape.
- C. Installed DensDeck® Prime Roof Boards shall be dry, with free moisture content of less than 1% using a moisture meter that has been set to the gypsum scale, before applying adhesive, asphalt or membrane.

8-8-2018

- D. All components used in roofing systems, including DensDeck® Roof Boards, shall be protected from exposure to moisture before, during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS:

- A. Georgia-Pacific Gypsum LLC products as specified herein.

2.02 COATED PRIME FIBERGLASS-MAT FACED GYPSUM ROOF BOARDS:

Specifier Note: Below is ¼" board, 2-5/8" flute span.

- A. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Prime with EONIC™ Technology Roof Boards.
 2. Thickness: 1/4 inch.
 3. Width: 4 feet.
 4. Length: [4 feet] [8 feet].
 5. Weight: 1.2 lb/sq. ft.
 6. Surfacing: Primed Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 40 lbf, minimum.
 8. Flute Span (ASTM E661): 2-5/8 inches.
 9. Permeance (ASTM E96): Greater than 30 perms.
 10. R-Value (ASTM C518): 0.28.
 11. Water Absorption (ASTM C473): Less than 5 percent of weight.
 12. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
 13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
 14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
 15. Combustibility (ASTM E136): Noncombustible
 16. Fire resistance rating (UL 790 and ASTM E108): Class A
 17. Mold Resistance (ASTM D3273): Scored a 10

Specifier Note: Below is ½" board, 5" flute span.

- B. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Prime with EONIC™ Technology Roof Boards.
 2. Thickness: 1/2 inch.
 3. Width: 4 feet.
 4. Length: [4 feet] [8 feet].
 5. Weight: 2.0 lb/sq. ft.
 6. Surfacing: Primed Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 80 lbf, minimum.
 8. Flute Span (ASTM E661): 5 inches.
 9. Permeance (ASTM E96): Greater than 23 perms.

10. R-Value (ASTM C518): 0.56.
11. Water Absorption (ASTM C473): Less than 5 percent of weight.
12. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
15. Combustibility (ASTM E136): Noncombustible
16. Fire resistance rating (UL 790 and ASTM E108): Class A
17. Mold Resistance (ASTM D3273): Scored a 10

Specifier Note: Below is 5/8" board, 8" flute span.

- C. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Prime with EONIC™ Technology Roof Boards.
 2. Thickness: 5/8 inch.
 3. Width: 4 feet.
 4. Length: [4 feet] [8 feet].
 5. Weight: 2.5 lb/sq. ft.
 6. Surfacing: Primed Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 100 lbf, minimum.
 8. Flute Span (ASTM E661): 8 inches.
 9. Permeance (ASTM E96): Greater than 17 perms.
 10. R-Value (ASTM C518): 0.67.
 11. Water Absorption (ASTM C473): Less than 5 percent of weight.
 12. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
 13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
 14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
 15. Combustibility (ASTM E136): Noncombustible
 16. Fire resistance rating (UL 790 and ASTM E108): Class A
 17. Mold Resistance (ASTM D3273): Scored a 10

2.03 FIBERGLASS-MAT FACED GYPSUM ROOF BOARDS:

Specifier Note: Below is 1/4" board, 2-5/8" flute span.

- A. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Roof Boards.
 2. Thickness: 1/4 inch.
 3. Width: 4 feet.
 4. Length: [8 feet].
 5. Weight: 1.2 lb/sq. ft.
 6. Surfacing: Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 40 lbf, minimum.
 8. Flute Span (ASTM E661): 2-5/8 inches.
 9. Permeance (ASTM E96): Greater than 50 perms.

10. R-Value (ASTM C518): 0.28.
11. Water Absorption (ASTM C473): Less than 10 percent of weight.
12. Surface Water Absorption (ASTM C473): Nominal 2.5 grams.
13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
15. Combustibility (ASTM E136): Noncombustible
16. Fire resistance rating (UL 790 and ASTM E108): Class A
17. Mold Resistance (ASTM D3273): Scored a 10

Specifier Note: Below is ½" board, 5" flute span.

- B. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Roof Boards.
 2. Thickness: 1/2 inch.
 3. Width: 4 feet.
 4. Length: [8 feet].
 5. Weight: 2.0 lb/sq. ft.
 6. Surfacing: Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 80 lbf, minimum.
 8. Flute Span (ASTM E661): 5 inches.
 9. Permeance (ASTM E96): Greater than 35 perms.
 10. R-Value (ASTM C518): 0.56.
 11. Water Absorption (ASTM C473): Less than 10 percent of weight.
 12. Surface Water Absorption (ASTM C473): Nominal 2.5 grams.
 13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
 14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
 15. Combustibility (ASTM E136): Noncombustible
 16. Fire resistance rating (UL 790 and ASTM E108): Class A
 17. Mold Resistance (ASTM D3273): Scored a 10

Specifier Note: Below is 5/8" board, 8" flute span.

- C. Fiberglass Mat Faced Gypsum Roof Board:
1. Acceptable Product: GP Gypsum, DensDeck® Roof Boards.
 2. Thickness: 5/8 inch.
 3. Width: 4 feet.
 4. Length: [8 feet].
 5. Weight: 2.5 lb/sq. ft.
 6. Surfacing: Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 100 lbf, minimum.
 8. Flute Span (ASTM E661): 8 inches.
 9. Permeance (ASTM E96): Greater than 32 perms.
 10. R-Value (ASTM C518): 0.67.
 11. Water Absorption (ASTM C473): Less than 10 percent of weight.
 12. Surface Water Absorption (ASTM C473): Nominal 2.5 grams.

8-8-2018

13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
14. Flame Spread/ Smoke Development (ASTM E84): Not more than 0 Flame Spread, 0 Smoke Development
15. Combustibility (ASTM E136): Noncombustible
16. Fire resistance rating (UL 790 and ASTM E108): Class A
17. Mold Resistance (ASTM D3273): Scored a 10

2.04 VERY SEVERE HAIL (VSH) PRIME FIBERGLASS-MAT GYPSUM ROOF BOARDS

Specifier Note: Below is 5/8" board, 8" flute span.

- A. Fiberglass Mat Faced Gypsum Roof Board:
 1. Acceptable Product: GP Gypsum, DensDeck® StormX™ Prime with EONIC™ Technology Roof Boards.
 2. FM Very Severe Hail (VSH) Requirements
 2. Thickness: 5/8 inch.
 3. Width: 4 feet.
 4. Length: [4 feet] [8 feet].
 5. Weight: 3.0 lb/sq. ft.
 6. Surfacing: Primed Fiberglass Mat.
 7. Flexural Strength, Parallel (ASTM C473): 100 lbf, minimum.
 8. Flute Span (ASTM E661): 8 inches.
 9. Permeance (ASTM E96): Greater than 30 perms.
 10. R-Value (ASTM C518): 0.67.
 11. Water Absorption (ASTM C473): Less than 5 percent of weight.
 12. Surface Water Absorption (ASTM C473): Nominal 1.0 grams.
 13. Compressive Strength (Applicable Sections of ASTM C472): Nominal 900 pounds per square inch.
 14. Combustibility (ASTM E136): Noncombustible
 15. Fire resistance rating (UL 790 and ASTM E108): Class A
 16. Mold Resistance (ASTM D3273): Scored a 10

PART 3 EXECUTION

3.1 INSTALLATION

- A Apply only as many roof boards as can be covered by a roof membrane system in the same day.
- B Board edges and ends shall be butted tightly together; do not gap edges or ends.

Specifier Note: Select installation type from installation types below:

- C. Adhesive Installation over Thermal Insulation, under Single-Ply Roofing Systems:
 1. Stagger roof board end and edge joints minimum 12" over installed

- insulation layers.
 - 2. Stagger roof board end and edge joints minimum 6".
 - 3. Adhere roof boards over installed insulation using adhesive as recommended by roofing system manufacturer's product data.
 - 4. Apply overall pressure to ensure full adhesion. Do not slide into place.
- D. Hot-Mopped Installation over Thermal Insulation, under Modified Bitumen Roofing Systems:
- 1. Stagger roof board end and edge joints minimum 12" over installed insulation layers.
 - 2. Stagger roof board end and edge joints minimum 6".
 - 3. Prior to hot-mopping the roof boards to the substrates, ensure that the roof boards are dry, with free moisture content less than 1% by weight using a moisture meter that has been set to the gypsum scale.
 - 4. Maximum asphalt application temperatures shall be 425°F (218°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. Consult and follow roofing system manufacturer's specifications for full mopping applications and temperature requirements.
 - 5. Follow accepted roofing industry guidelines for full mopping applications such as EVT temperature guidelines, brooming and proper application rates of asphalt.
 - 6. DensDeck® Prime Roof Boards may be flood mopped to a substrate followed by a flood mopped application of membrane using these guidelines:
 - a. Roof boards and substrate shall be dry.
 - b. Asphalt used to install roof boards should be allowed to cool prior to mopping base sheet to top of DensDeck® Prime Roof Boards.
 - c. Allow base ply to cool before mopping additional plies or cap sheet to limit the amount of direct heat that is applied to boards.

Specifier note: Below is for fire barrier installation (below thermal insulation), or for applications with no thermal insulation.

- E. Installation Directly on Metal Decking:
- 1. Install roof boards with long edges bearing on and parallel to top flutes, so that edges are supported.
 - 2. Stagger roof board end and edge joints minimum 6".
 - 3. Please fasten DensDeck® Prime Roof Board in accordance to system Manufacturer's recommendations.
 - 4. [Adhesive installation: Adhere roof boards to metal deck using adhesive as recommended by roofing system manufacturer's product data. Apply overall pressure to ensure full adhesion. Do not slide into place.]
 - 5. [Hot-mopped installation:
 - a. Prior to hot-mopping the roof boards to the substrates, ensure that the roof boards are dry, with free moisture content less than 1% by weight using a moisture meter that has been set to the gypsum scale.
 - b. Maximum asphalt application temperatures shall be 425°F (218°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. Consult and

follow roofing system manufacturer's specifications for full mopping applications and temperature requirements.

c. Follow accepted roofing industry guidelines for full mopping applications such as EVT temperature guidelines, brooming and proper application rates of asphalt.

d. DensDeck® Prime Roof Boards may be flood mopped to a substrate followed by a flood mopped application of membrane using these guidelines:

1) Roof boards and substrate shall be dry.

2) Asphalt shall be allowed to cool prior to mopping base sheet to top of DensDeck® Prime Roof Boards.

3) Allow base ply to cool before mopping additional plies or cap sheet to limit the amount of direct heat that is applied to boards.]

6. [Mechanically fastened to a metal deck: Please fasten DensDeck® Prime Roof Board in accordance to system manufacturer's recommendations.

F. Concrete and Lightweight Concrete Roof Decks; new roofing and re-roofing: When roofing systems are installed on new poured concrete or light weight concrete decks or when re-roofing over an existing concrete deck, install a vapor barrier above the concrete to limit the migration of water from the concrete into the roof assembly. Consult the roofing system manufacturer or design authority for specific instructions for applying other products to roof boards.

G. Following roofing system installation, avoid leaks and properly manage water accumulation.

1. Eliminate moisture vapor movement by convection and control the flow of water by gravity through imperfections in the roof system.

2. After a leak has occurred, do not allow condensation on the upper surface of the roof membrane, and all moisture accumulations as a result of the leak shall be removed, leaving dry substrates and materials.

3.02 PROTECTION

A. Protect roof board installations from damage and deterioration until the date of Substantial Completion.

END OF SECTION 07 22 20