G-P Gypsum

DensArmor Plus™

Paperless Interior Drywall

Mold and Moisture Resistant

PAPERLESS SOLUTIONS

Product Overview

Areas of Use

Interiors of exterior walls, *where moisture intrusion is most likely.*

Pre-rock areas, *where the windows, doors or roof have not been installed making moisture intrusion inevitable.*

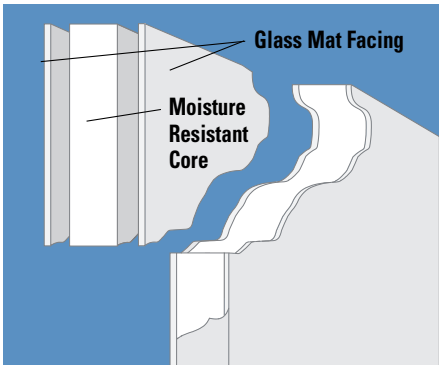
Areas likely to be exposed to moisture, *where paper-faced greenboard may have been specified in the past.*

For years, DensGlass Gold®, an exterior sheathing with glass mat facings, has been proven tough in commercial construction – under the most challenging of elements. Now the same powerful protection is working on the inside – all with the next-generation DensArmor Plus™ paperless interior glass mat gypsum panels.

DensArmor Plus panels feature a glass mat surface on both the front and the back for the best in interior protection from moisture currently available. The moisture resistant glass mats make DensArmor Plus panels the ideal replacement for paper faced greenboard. A revolutionary departure from traditional wallboard, the face of DensArmor Plus panels finishes in a similar manner to paper-faced wallboard and offers superior performance in resisting mold.

Integrating DensArmor Plus panels into your specifications is part of an overall building solution that addresses the mold issue and reduces the time and expense of replacing alternative products if they become wet.

When tested, as manufactured, in accordance with ASTM D 3273, DensArmor Plus interior panels scored a 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. The score of 10, in the ASTM D 3273 test, indicates no mold growth in a 4-week controlled laboratory test. The mold resistance of any building product when used in actual job site conditions may not produce the same results as were achieved in the controlled, laboratory setting. No material can be considered mold proof. When properly used with good design, handling and construction practices, products with Dens™ Technology provide increased mold resistance compared to standard paper faced wallboard.



- **Paperless design eliminates a potential food source for mold.**
- **Replaces traditional paper faced drywall and greenboard.**
- **Paperless design may reduce remediation and scheduling delays associated with paper faced drywall.**
- **Backed with a limited warranty against in-place exposure damage (delamination, deterioration and decay)*.**

**For complete warranty, visit www.gpgypsum.com*

G-P Gypsum Products and LEED

Many of our products may qualify to contribute to earning LEED credits through their Green Building Rating System for *New Construction & Major Renovations Version 2.1* (LEED-NC 2.1) and other current LEED building standards. Determine the G-P Gypsum plant source by calling the GP Technical Hot-Line at 800-225-6119, and you may qualify for points in the following LEED categories:

Materials and Resources
- Recycled Content Credits 4.1 and 4.2
- Regional Materials Credits 5.1 and 5.2

Innovation in Design Credit
- When tested, as manufactured, product resists growth of mold pursuant to the test method ASTM D 3273

Table of Contents

Physical Properties

Properties	1/2" DensArmor Plus™	1/2" DensArmor Plus™ Fireguard™ C	5/8" DensArmor Plus Fireguard
Thickness, nominal	1/2" (12.7mm) ± 1/64" (0.4mm)	1/2" (12.7mm) ± 1/64" (0.4mm)	5/8" (15.9mm) ± 1/64" (0.4mm)
Width, standard	4' (1220mm) ± 3/32" (2.4mm)	4' (1220mm) ± 3/32" (2.4mm)	4' (1220mm) ± 3/32" (2.4mm)
Length, standard	8' (2440mm) to 12' (4880mm) ± 1/4"(6.4mm)	8' (2440mm) to 12' (4880mm) ± 1/4"(6.4mm)	8' (2440mm) to 12' (4880mm) ± 1/4"(6.4mm)
Weight[1], lbs./M sq. ft.,nominal	2020[1]	2020[1]	2570[1]
Edges	Tapered	Tapered	Tapered
Surfacing	Coated glass mat on face, back	Coated glass mat on face, back	Coated glass mat on face, back
Flexural strength, parallel, lbs.[4]	80	80	100
Flexural strength, perpendicular[4]	100	120	140
R Value[2]	.56	.56	.67
Nail pull resistance minimum, lbs.	80	80	90
Hardness, lbs. force, core, edges and ends	>15	>15	>15
Water absorption (% of weight)[5]	<5%	<5%	<5%
Surface water absorption[6]	<1.6 grams	<1.6 grams	<1.6 grams
Surface burning characteristics (per ASTM E 84 or CAN/UL-S102): flame spread/smoke developed	10/5	10/0	10/5
Humidified deflection, inches[3,4]	2/8"	2/8"	1/8"

[1]*Represents approximate weight for design and shipping purposes.*
[2]*Tested in accordance with ASTM C 518.*
[3]*Maximum requirements for ASTM C 1177 and ASTM C 79.*
[4]*Tested in accordance with ASTM C 473.*
[5]*Maximum requirements for ASTM C 630 and ASTM C 1396.*
[6]*Maximum requirements for ASTM C 1396 and ASTM C 79.*

NOTE: Specified minimum values are as in applicable ASTM C 630, ASTM C 1396 and ASTM C 1177 standards.

Abuse Resistant Properties
5/8" DensArmor Plus is more resistant to indentation (*when tested in accordance with ASTM D 5420*) and impact (*when tested in accordance with ASTM E 695*) than traditional paper faced 5/8" Type X wallboard.

NOTE: Based on tests of products stocked in Atlanta, GA area; average values may vary.

Limited Warranty

DensArmor Plus™ Interior Panels are based on proven and patented paperless Dens™ Technology, which has a lengthy history of performance. Based on that track record, G-P Gypsum Corporation backs the performance of DensArmor Plus with the following limited warranty:*

- Three months of coverage against in-place exposure damage (delamination, deterioration and decay)
- A three-year warranty against manufacturing defects.

**For complete warranty details, visit www.gpgypsum.com or call 1-800-225-6119.*

Application

1. DensArmor Plus™ panels shall be installed in accordance with ASTM C 840 "Standard Specifications for Application and Finishing of Gypsum Board."
2. For fire rated installations, the installation and details shall be in conformity with those assemblies published in the Gypsum Association Fire Resistance Design Manual GA-600, UL/ULC Fire Resistance Directory or Intertek Testing Services/ Warnock Hersey Listing Book.
3. Nails shall be spaced a maximum of 7" (177.8 mm) on center on ceilings, and a maximum of 8" (203.2 mm) on center on walls.
4. Nails shall be driven with the heads slightly below the surface of the gypsum board, avoiding damage to the face and core of the board, such as breaking the glass mat or fracturing the core.
5. Screws shall be spaced not more than 12" (304.8 mm) on center along the framing members for ceilings and 16" (406.4 mm) on center for walls where the framing members are 16" on center. Screws shall be spaced not more than 12" on center along the framing members for ceilings and walls where framing members are 24" (609.6 mm) on center.
6. When using a combination of fasteners consisting of nails along the perimeter and screws in the field of the gypsum board, the spacing between a nail and an adjacent screw shall be not more than the spacing specified for screws.
7. Screws shall be driven to provide screw head penetration just below the DensArmor Plus panel surface without breaking the glass mat surface of the panel or stripping the framing member around the screw shank.
8. Where DensArmor Plus panels are used for ceilings of carports, open walkways, porches and soffits or eaves that are horizontal or inclined downward away from the building, the DensArmor Plus panels shall be either 1/2" or 5/8" (12.7 or 15.9 mm) in thickness. Framing shall be not more than 16" (406 mm) on center for 1/2" (12.7 mm) thick DensArmor Plus panels and not more than 24" (610 mm) on center for 5/8" (15.9 mm) thick DensArmor Plus panels. The DensArmor Plus panels shall be installed perpendicularly in accordance with the specifications above except as herein modified.
9. Suitable fascia and moulding shall be provided around the perimeter to protect the DensArmor Plus panels from direct exposure to water. Unless protected by metal or other water stops, the edges of the DensArmor Plus panel shall be placed not less than 1/2" (12.7 mm) away from abutting vertical surfaces. Do not allow water to pond on DensArmor Plus panels.
10. DensArmor Plus panels can be used as a tile backerboard in dry areas or areas with limited moisture contact such as areas adjacent to sinks and toilets, bathroom ceilings and areas above tile in shower areas. In wet areas where 2006 IBC and IRC codes have been adopted G-P Gypsum recommends the use of DensShield® Tile Backer, which incorporates a built-in moisture barrier in wet areas.

    Where DensArmor Plus panels are to receive adhesively applied tile, the panel can be used on ceilings where ceiling framing is spaced not more than 12" o.c. (304.8 mm) for 1/2" (12.7 mm) thick panels and not more than 16" o.c. (406 mm) for 5/8" (15.9 mm) thick panels. (editor's note: this is to conform with IBC section 2509.3 and GA-216-2004 section 15.3.2)
11. All materials shall be kept dry prior to installation. Where DensArmor Plus panels are stored out side, it shall be off the ground, properly supported on a level platform and fully protected from the weather or direct sunlight exposure. Adequate ventilation shall be provided to prevent condensation. DensArmor Plus panels shall be neatly stacked flat, not on their ends or edges, to prevent toppling, sagging or damage to the ends, edges, or surfaces.
12. Where DensArmor Plus is to receive a veneer plaster, longer working or open time as well as longer drying times can be expected due to the superior moisture resistance properties of DensArmor Plus. Veneer plasters adhere well to DensArmor Plus. Always apply veneer plaster systems according to manufacturer's recommendations.

Installation and Decoration

A mock up or test wall should be used to ensure the proposed decorative finish will produce an acceptable result. Proper installation, finishing and priming are critical. Skipping a step, such as the application of a primer; or taking shortcuts, such as not using proper sanding techniques, will negatively impact the quality of the final decorative finish.

Installation

DensArmor Plus™ panels are installed in a similar manner to traditional paper faced drywall. DensArmor Plus should be installed according to the most current versions of Gypsum Association Publication GA-216 "Application and Finishing of Gypsum Panel Products" and ASTM C 840 "Standard Specification for Application and Finishing of Gypsum Board for Non-Fire Rated Construction." For best results, abut DensArmor Plus panels against regular paper faced drywall only at inside or outside corners to eliminate transitions in the field of a wall or ceiling. Adjust fastening tools to insure that the fasteners are not over-driven through the face of the panel. Nails and screws should be driven with the heads slightly below the surface of the panel.

Finishing

The finishing and sanding of DensArmor Plus panels should be performed in accordance with the most current version of Gypsum Association Publication GA-214 "Recommended Levels of Gypsum Board Finish." Joints between DensArmor Plus panels may be finished with either paper tape embedded with all purpose joint compound or (for a paperless surface) with fiberglass mesh tape and setting compound. Because of the enhanced moisture and mold resistant properties of DensArmor Plus, drying times for the joint and setting compounds may vary slightly. It is essential to allow each coat of compound to dry thoroughly before applying additional coats of compound. Care should be taken to ensure that all joints and fasteners are properly and adequately sanded to provide a smooth transition between the compound and the face of the panel.

Critical (Severe) Lighting Areas and Gloss Paints

When using gloss, semi-gloss or enamel paint, or when working in a critical (severe) lighting area, always finish DensArmor Plus panels to a "Level 5" finish as detailed in GA-214. Critical lighting areas include but are not limited to walls and ceiling areas near windows and skylights, long hallways and atriums with large surface areas exposed to artificial and/or natural light. Refer to GA-214 for additional examples.

Priming and Painting

For best results when painting DensArmor Plus, G-P Gypsum requires the use of a high quality, high build drywall primer/surfacer. Follow the application instructions of the primer manufacturer stated on the container. G-P Gypsum recommends that the high build primer be applied at a sufficient wet film thickness to ensure a dry film thickness that will produce acceptable results. Always use a test wall or mock up because different application techniques, such as back rolling, and variations in wet film thickness (or milage) may be required to offer pleasing results. The number of coats of finish paint and the total dry film thickness of the finish coats needed for acceptable results will depend on the paint used. The finish coats of paint must be applied according to the manufacturer's label instructions.

Wallcoverings

Because of the enhanced moisture and mold resistant properties of DensArmor Plus, drying times for the wallcovering adhesives and primers may vary slightly. Some wallcoverings, such as an unbacked vinyl wallcovering, require a "Level 5" finish as detailed in GA-214 when applied over DensArmor Plus panels. Avoid the use of wallcovering material over a "Level 4" finish if the material is lightweight, contains a limited pattern, has a gloss finish or any combinations of these elements is present as detailed in GA-214. Always follow wallpaper and adhesive manufacturer's installation instructions.

Because many factors that are unrelated to the manufacture of the panels can affect the acceptability of the final finish result, G-P Gypsum makes no warranty, express or implied, regarding the finish results to be achieved with DensArmor Plus panels.

Maximum Framing Spacing for Single-Ply Construction[1]

Single-Ply DensArmor Plus™ Panel Thickness, in. (mm)	Application[2]	Maximum Framing Members on Centers Spacing, in. (mm)
Ceilings:		
Non-Tile Applications		
1/2" (12.7)	parallel	16 (406.4)
5/8" (15.9)	parallel	16 (406.4)
1/2" (12.7)	perpendicular[1]	24 (609.6)
5/8" (15.9)	perpendicular	24 (609.6)
Tile Applications		
1/2" (12.7)	perpendicular	12 (305)
5/8" (15.9)	perpendicular	16 (406.4)
Walls:		
1/2" (12.7)	perpendicular	24 (609.6)
or	or	
5/8" (15.9)	parallel	24 (609.6)

[1] *DensArmor Plus™ panels to receive hand or spray-applied water-based texture material shall be applied perpendicular.*

[2] *Nails for DensArmor Plus panels applied over existing surfaces shall have a flat head and diamond point, and shall penetrate not less than 7/8" (22.2) mm), nor more than 1-1/4" (31.8 mm) into the framing member.*

Ceiling Applications

DensArmor Plus is the ideal choice for both interior ceilings and exterior soffits. It meets the requirements for CD ceiling board.

Moisture resistant DensArmor Plus™ is the ideal choice for Ceiling Board applications over wet areas and in kitchen and interior garage areas. It has tapered edges for easy finishing and resists moisture that can cause problems with traditional ceiling board which have paper facers.

Soffit Applications, Fastening, Framing and Finishing

Moisture resistant paperless DensArmor Plus™ is the ideal choice for exterior soffits, porch and lanai ceilings, and drive-under garages. It has tapered edges for easy finishing.

Traditional gypsum exterior ceiling board has paper facers. Paper is a potential food source for mold. DensArmor Plus has glass mats on each side instead of paper and is moisture resistant.

Thickness	Framing Spacing	Orientation	Screw Spacing
1/2"	16" o.c. max	Perpendicular	8" o.c. along framing
5/8"	24" o.c. max	Perpendicular	8" o.c. along framing

	1/2" DensArmor Plus™	1/2" Gypsum Soffit Board	5/8" DensArmor Plus™	5/8" Gypsum Soffit Board
Humidified Deflection[1] (Sag)[2, 3]	2/8"	7/8"	1/8"	4/8"
Water Absorption[2, 3]	<5%	40+%	<5%	40+%
Surface Water Absorption[2, 3]	<1.6 grams	2.5 grams	<1.6 grams	2.5 grams
Surface	Glass mat	Paper	Glass mat	Paper

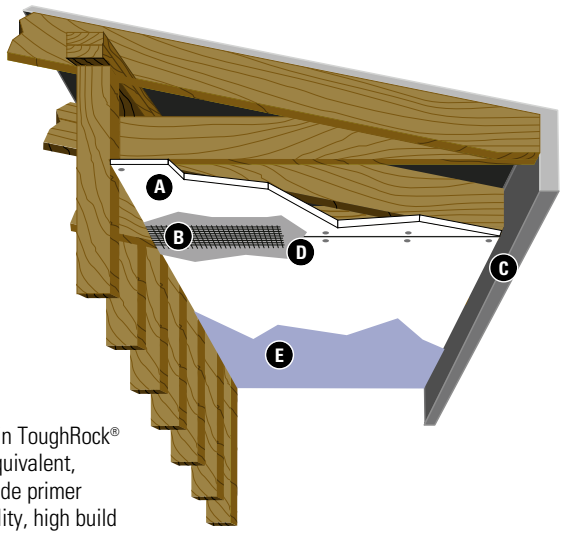
[1] *Maximum requirement for ASTM C 79.*
[2] *Maximum requirement for ASTM C 1177.*
[3] *Tested in accordance with ASTM C 473.*

Soffit Applications, Fastening, Framing and Finishing

Painted Ceilings and Soffits
Finished Joints

A. DensArmor Plus™
B. 2" 10 x 10 Glass Mesh Tape
C. Drip Edge
D. ToughRock® Setting Compound
E. Finish Coats

**Sandable setting compounds are not recommended.*



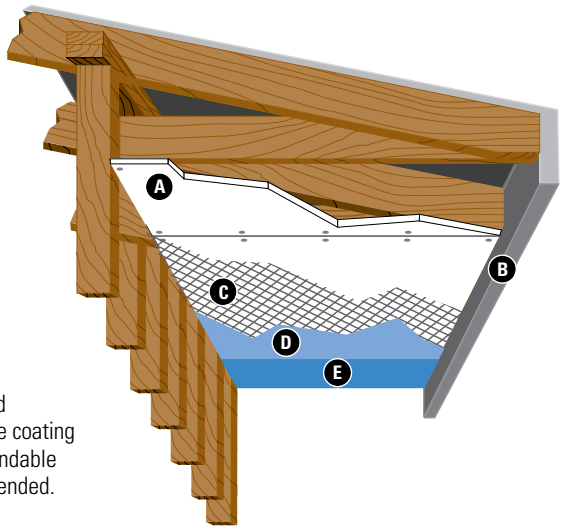
Finishing

Method #1

Embed 2" wide fiberglass mesh tape in ToughRock® 90 Setting Type joint compound, or equivalent, over all joints. Prime with exterior-grade primer and finish with two coats of high quality, high build exterior-grade paint.

Exterior Ceilings and Soffits

A. DensArmor Plus™
B. Drip Edge
C. Reinforcing Mesh/Base Coat*
D. Base Coat*
E. Finish Coat*



Finishing

Method #2

*Apply a synthetic-type Direct Applied Finish System in accordance with the coating manufacturer's recommendation. Sandable setting compounds are not recommended.

Special Conditions:

1. Control joints are recommended a minimum of 30 feet or closer as specified by the design authority.
2. Protection from the elements shall be provided prior to installing DensArmor Plus in horizontal applications to prevent moisture from ponding or settling on top of the panel.
3. Sandable setting compounds are not acceptable for use over DensArmor Plus in exterior soffit applications.
4. GP ToughRock 90 joint compound is not available in all markets. It is permissible to use setting-type joint compounds from other manufacturers that are equivalent to ToughRock 90 joint compound.

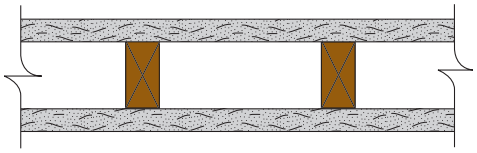
Where DensArmor Plus panels are used for ceilings of carports, open walk ways, porches and soffits or eaves that are horizontal or inclined downward away from the building, the DensArmor Plus panels shall be either 1/2" or 5/8" (12.7 or 15.9mm) in thickness. Framing shall be not more than 16" (406mm) on center for 1/2" (12.7mm) thick DensArmor Plus panels and not more than 24" (610mm) on center for 5/8" (15.9mm) thick DensArmor Plus panels. Suitable fascia and moulding shall be provided around the perimeter to protect the DensArmor Plus panels from direct exposure to water. Unless protected by metal or other water stops, the edges of the gypsum panel shall be placed not less than 1/2" (12.7 mm) away from abutting vertical surfaces. Do not allow water to pond on DensArmor Plus panels.

Paperless Solutions for Fire and Sound Rated Assemblies

DensArmor Plus™ panels are offered in 1/2" Fireguard™ C and 5/8" Fireguard X core types for use in fire-rated assemblies. These panels can be used in any G-P Gypsum or non-proprietary assembly where Type C/Type X gypsum board is required.

1-Hour Fire Rating

Test Reference: UL U305, ULC W301



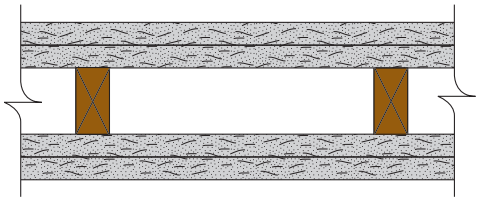
30-34 STC Sound Trans.

Test Reference: OR 64-8
Partition Thickness: 4-7/8"
Weight per Sq. Ft.: 7.0

5/8" DensArmor Plus™ Fireguard Interior gypsum board applied parallel or at right angles to each side of 2 x 4 wood studs 16" o.c. with 1-7/8" 6d coated nails spaced 7" o.c. Joints staggered. (UL U309, studs 24" o.c.)

2-Hour Fire Rating

Test Reference: UL U301



40-44 STC Sound Trans.

Test Reference: NGC-2363
Partition Thickness: 6-1/8"
Weight per Sq. Ft.: 12.0

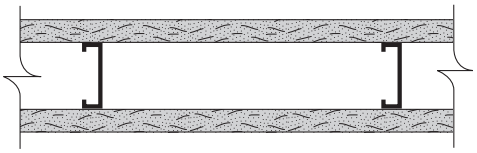
Base Layer: 5/8" DensArmor Plus Fireguard Interior gypsum board applied vertically or at right angles to each side of 2 x 4 wood studs 24" o.c. with 1-7/8" 6d coated nails 24" o.c.

Face Layer: 5/8" DensArmor Plus Fireguard Interior gypsum board applied vertically or at right angles to studs over base layer with 2-3/8" 8d coated nails 8"o.c. Stagger joints 24" o.c. each layer and side.

Sound Tested with studs 16" o.c. and with nails for base layer spaced 6" o.c.

1-Hour Fire Rating

Test Reference: UL U465, ULC W415



45-49 STC Sound Trans.

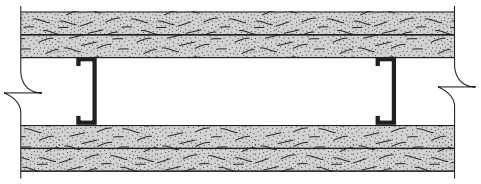
Test Reference: RAL TL99-103
Partition Thickness: 4-7/8"
Weight per Sq. Ft.: 6.0

5/8" DensArmor Plus Fireguard Interior gypsum board applied vertically to each side of 3-5/8" steel studs 24" o.c. with 1" Type S drywall screws 8" o.c. at edges and 12" o.c. at intermediate studs.

Sound Tested with 2-1/2" glass fiber insulation, friction fit in cavity

2-Hour Fire Rating

Test Reference: UL U411



50-54 STC Sound Trans.

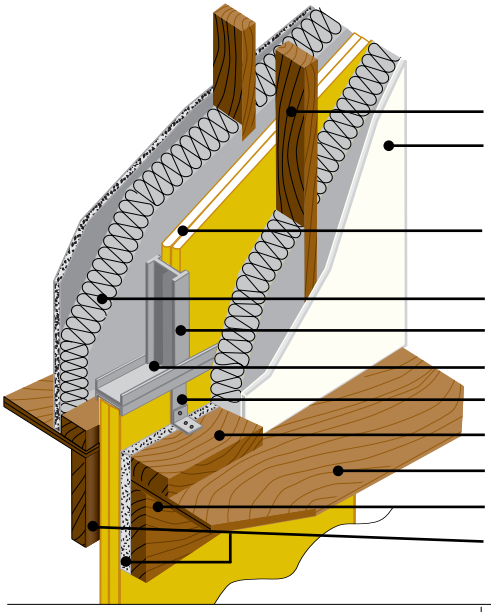
Test Reference: WHI 218-1
Partition Thickness: 5"
Weight per Sq. Ft.: 12

Base Layer: 5/8" DensArmor Plus Fireguard Interior gypsum board applied parallel to each side of 2-1/2" steel studs 24" o.c. with 1-1/4" Type S screws 16" o.c.

Face Layer: 5/8" DensArmor Plus Fireguard Interior gypsum board applied parallel to each side with drywall adhesive or secured with 1-5/8" Type S screws 12" o.c. at top and bottom track, 16" o.c. at edge joints only. Stagger joints 24" each layer and side.

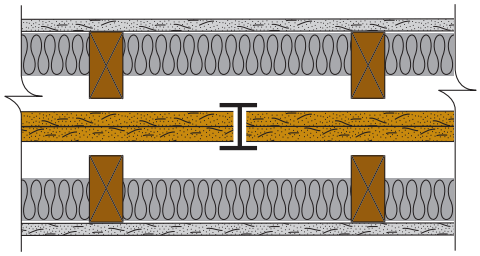
Sound Tested with 2-1/2" glass fiber insulation

Paperless Area Separation Wall Section Detail



Area Separation 2-Hour Fire Rating

Test Reference: UL DESIGN U373, WHI 120-04



60 STC Sound Trans.

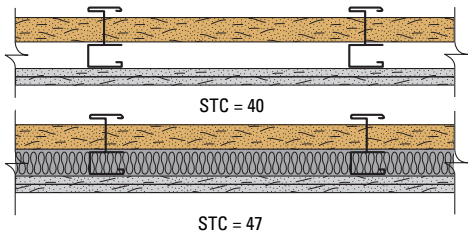
Test Reference: RAL TL89-383

Two layers 1" DensGlass Ultra Shaftliner inserted in H-Studs 24" o.c. Min. 3/4" air space on both sides must be maintained between liner panels and adjacent framing. Apply 1/2" DensArmor Plus panels to framing.

Sound Tested with 2" x 4" stud wall with 1/2" DensArmor Plus panels to each side of assembly and 3-1/2" glass fiber in stud space both sides.

Paperless Shaftwall/Stairwell Design Summary Vertical

Series 620 2-Hour Fire Rating



40, 47 STC Sound Trans.

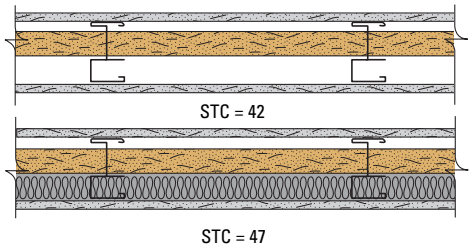
Test Reference: GA File #, WP 7096, WHI Design, GP/WA 120-01

Approx. Weight: 9 psf

Glass fiber sound insulation thickness is 1", 2-1/2" and 3-1/2" for C-T, C-H or I studs of 2-1/2", 4" and 6" respectively. Finished one side. Components: 1" DensGlass Ultra Shaftliner panel, C-T studs and two layers of 1/2" DensArmor Plus™ Fireguard® C installed horizontally or vertically. Edges and ends offset 24" o.c.

C-T, C-H or I Stud	2-1/2"	4"	6"
Wall Thickness	3-1/2"	5"	7"

Series 621 2-Hour Fire Rating



42, 47 STC Sound Trans.

Test Reference: WHI Design, GP/WA 120-02

Approx. Weight: 9 psf

Glass fiber sound insulation thickness is 1", 2-1/2" and 3-1/2" for C-T, C-H or I studs of 2-1/2", 4" and 6" respectively. Finished both sides with 1/2" DensArmor Plus Fireguard C installed horizontally or vertically. Edges and ends offset 24" o.c.

C-T, C-H or I Stud	2-1/2"	4"	6"
Wall Thickness	3-1/2"	5"	7"

Architectural Specifications

SECTION 09 29 00

GYPSUM BOARD

THIS SECTION IS WRITTEN IN CSI 3-PART FORMAT AND IN CSI PAGE FORMAT.

IT IS ASSUMED THAT THE GENERAL CONDITIONS BEING USED ARE AIA A201-1997.

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Glass mat faced, moisture resistant gypsum board.

B. Related Sections:
1. Section 06 10 00 Rough Carpentry.
2. Section 09 21 16 Gypsum Board Assemblies.
3. Section 09 22 00 Supports for Plaster and Gypsum Board.

C. Allowances:

D. Unit Prices:

E. Alternates:

1.02 REFERENCES

A. ASTM International (ASTM):

1. ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
2. ASTM C 518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
3. ASTM C 630 Standard Specification for Water-Resistant Gypsum Backing Board.
4. ASTM C 840 Standard Specification for Application and Finishing of Gypsum Board.
5. ASTM C 1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
6. ASTM C 1396 Standard Specification for Gypsum Board.
7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.

1.03 SUBMITTALS

A. Product Data: Manufacturer's specifications and installation instructions for each product specified.

1.04 QUALITY ASSURANCE

A. Regulatory Requirements: Provide products that comply with the following limits for surface burning characteristics when tested per ASTM E 84:

1. Flame spread: 25, maximum.
2. Smoke developed: 450, maximum.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. G-P Gypsum, a Georgia-Pacific company:
1. Glass Mat Faced Gypsum Board: DensArmor Plus™.
2. Fire-Rated Glass Mat Faced Gypsum Board: DensArmor Plus Fireguard.

2.02 MATERIALS

A. Glass Mat Faced Gypsum Board:
1. Thickness: 1/2 inch.
2. Width: 4 feet.
3. Length: 8 feet.
4. Weight: 2020 pounds per M square feet.
5. Edges: Tapered.
6. Surfacing: Coated glass mat on face, back, and long edges.
7. Flexural Strength, Parallel (ASTM C 473, ASTM C 1177): Not less than 80 pounds.
8. Flexural Strength, Perpendicular (ASTM C 473, ASTM C 1177): Not less than 100 pounds.
9. R-Value (ASTM C 518): Not less than 0.56.
10. Nail Pull Resistance (ASTM C 473, ASTM C 1177): Not less than 80 pounds.
11. Hardness, Core, Edges, and Ends (ASTM C 473, ASTM C 1396): Not less than 15.
12. Water Absorption (ASTM C 473, ASTM C 630, and ASTM C 1396): Less than 5 percent of weight.

13. Mold Resistance (ASTM D 3273): 10, in a test as manufactured.
14. Acceptable Products:
    a. 1/2 inch DensArmor Plus™ Interior Guard, G-P Gypsum.
    b. 1/2 inch DensArmor Plus Fireguard™ C Interior GuardType C, G-P Gypsum.

B. 5/8 Inch Fire-Rated Glass Mat Faced Gypsum Board:
1. Thickness: 5/8 inch.
2. Width: 4 feet.
3. Length: 8 feet.
4. Weight: 2570 pounds per M square feet.
5. Edges: Tapered.
6. Surfacing: Coated glass mat on face, back, and long edges.
7. Flexural Strength, Parallel (ASTM C 473, ASTM C 1396): Not less than 100 pounds.
8. Flexural Strength, Perpendicular (ASTM C 473, ASTM C 1177): Not less than 140 pounds.
9. R-Value (ASTM C 518): Not less than 0.67.
10. Nail Pull Resistance (ASTM C 473, ASTM C 1177): Not less than 90 pounds.
11. Hardness, Core, Edges, and Ends (ASTM C 473, ASTM C 1396): Not less than 15.
12. Water Absorption (ASTM C 473, ASTM C 630, and ASTM C 1396): Less than 5 percent of weight.
13. Mold Resistance (ASTM D 3273): 10, in a test as manufactured.
14. Acceptable Products:
    a. 5/8 Inch DensArmor Plus Fireguard Interior Guard Type X, G-P Gypsum.

C. 1/2 Inch Fire-Rated Glass Mat Faced Gypsum Board:
1. Thickness: 1/2 inch.
2. Width: 4 feet.
3. Length: 8 feet.
4. Weight: 2020 pounds per M square feet.
5. Edges: Tapered.
6. Surfacing: Coated glass mat on face, back, and long edges.
7. Flexural Strength, Parallel (ASTM C 473, ASTM C 1177): Not less than 80 pounds.
8. Flexural Strength, Perpendicular (ASTM C 473, UL File No. R2717): Not less than 120 pounds.
9. R-Value (ASTM C 518): Not less than 0.56.
10. Nail Pull Resistance (ASTM C 473, ASTM C 1177): Not less than 80 pounds.
11. Hardness, Core, Edges, and Ends (ASTM C 473, ASTM C 1396): Not less than 15.
12. Water Absorption (ASTM C 473, ASTM C 630, and ASTM C 1396): Less than 5 percent of weight.
13. Mold Resistance (ASTM D 3273): 10, in a test as manufactured.
14. Acceptable Products:
    a. 1/2 Inch DensArmor Plus Fireguard Interior Guard Type C, G-P Gypsum.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: In accordance with ASTM C 840 and the manufacturer's recommendations.
1. Manufacturer's Recommendations:
    a. Current "Product Catalog" G-P Gypsum, a Georgia-Pacific company.

3.02 PROTECTION

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

END OF SECTION 09 29 00

DensArmor Plus™ Paperless Interior Drywall
DensArmor Plus is a new generation paperless drywall designed as a replacement for paper-faced drywall for building interiors. DensArmor Plus drywall incorporates glass mats on the surfaces of the drywall panel instead of paper facings found on traditional drywall. The combination of paperless surfaces and a moisture resistant core provides superior moisture- and mold-resistance when compared to traditional paper-faced drywall. G-P Gypsum offers a **three-month in-place exposure warranty** which means DensArmor Plus can be hung before installing doors and windows. DensArmor Plus installs using the same steps as traditional drywall.

DensGlass Gold® Exterior Sheathing
DensGlass Gold exterior sheathing is a moisture-resistant gypsum panel that can be used for exterior walls, ceilings and soffits. Its paperless, glass-mat facings and moisture-resistant core resist the effects of surface water exposure while providing resistance to mold. With a long established track record, DensGlass Gold sheathing is so weather resistant that it is backed with a **six-month in-place exposure warranty**. DensGlass Gold is the preferred sheathing for use under brick, stone, stucco and EIFS siding materials. DensGlass Gold sheathing is so widely used that its bright GOLD™ color is recognized throughout the industry.

DensShield® Tile Backer
DensShield tile backer is a patented substrate for floor, wall and ceiling ceramic tile installations. Designed with a built-in moisture barrier, DensShield protects tile installations and the wall cavity from the effects of moisture in damp areas such as bathrooms and kitchens. Incorporating glass-mat facings and a moisture resistant core, DensShield is lighter and easier to install than heavy, hard-to-work-with cement board tile backers. The combination of moisture and mold resistance, along with potential labor savings, makes DensShield the superior substrate for ceramic tile in the industry. Georgia-Pacific backs DensShield tile backer with a **lifetime limited warranty when used in residential tile installations**. In addition, DensShield offers a **20 year limited warranty** for its use in commercial applications.

DensGlass Ultra™ Shaftliner
DensGlass Ultra Shaftliner is the ideal component for gypsum board shaft wall/stairwell and area separation wall systems when a fire rating is required. DensGlass Ultra Shaftliner incorporates a moisture and mold resistant, non-combustible gypsum core with paperless glass-mat facings to resist exposure to the elements during the early stages of the construction cycle. Backed by a **six-month in-place exposure warranty**, DensGlass Ultra Shaftliner is the perfect substitute for heavy, expensive masonry construction. It also offers superior moisture and mold resistance compared to traditional paper-faced shaftliner wallboard products.

DensDeck® Roof Board
Versatile DensDeck roof board is utilized in a wide variety of roofing systems for new and re-roofing applications as cover boards, overlayments, underlayments and separator boards. Featuring a combination of fire resistance, strength, moisture resistance and dimensional stability, DensDeck roof board enhances the overall performance of most roofing assemblies and is widely respected and specified by leading roofing system manufacturers. DensDeck roof board, with its paperless glass-mat facings, has been shown to withstand delamination, deterioration, warping and job site damage far more effectively than paper-faced gypsum board or other conventional roofing products, such as wood fiberboard and perlite.

DensDeck Prime® Roof Board
DensDeck Prime roof board from G-P Gypsum combines the superior features of DensDeck roof board, including fire resistance, strength, moisture resistance and dimensional stability, with an enhanced surface treatment. The coated surface of DensDeck Prime provides an ideal substrate for a wide variety of adhered roofing systems by allowing a uniform spread of adhesives, which results in a strong, consistent bond. DensDeck Prime can be used in cold mastic, torch applied modified bitumen as well as fully-adhered, single-ply systems.

DensDeck DuraGuard® Roof Board
DensDeck DuraGuard roof board from G-P Gypsum combines the superior features of DensDeck roof boards, including fire resistance, strength, moisture resistance and dimensional stability, with a durable, low perm, integrated coating. This coating provides an ideal substrate for a wide variety of adhered roofing systems, including self-adhered, hot-mopped membranes, and torched asphaltic systems. The coating assures more uniform spreading of adhesives, an excellent coverage rate, and it enhances the bond strength of membrane system-to-board without the need for field priming with a number of systems.

G-P Gypsum
a Georgia-Pacific company

SALES INFORMATION AND ORDER PLACEMENT

U.S.A.	Midwest:	**1-800-876-4746**	West:	**1-800-824-7503**
	South:	**1-800-327-2344**	Northeast:	**1-800-947-4497**
CANADA	Canada Toll Free:	**1-800-387-6823**		
	Quebec Toll Free:	**1-800-361-0486**		

G-P Gypsum Technical Hotline: U.S.A. and Canada: **1-800-225-6119**

UPDATES AND CURRENT INFORMATION The information in this document may change without notice. Visit our website for updates and current information.

LIMITATION OF REMEDIES AND DAMAGES Unless otherwise stated in our written limited warranty for these products, our sole liability for any product claim shall be limited to reimbursement of the cost of repair or replacement of the affected product, up to a maximum amount of two times the original purchase price for the affected product. We shall not be responsible under any circumstances for lost profits, damage to a structure or its contents, or indirect, incidental, special or consequential damages. Claims shall be deemed waived if they are not submitted to us in writing within ten days after discovery.

SAFETY CAUTION: Some products contain fiberglass. Fibers and dust may be released from these products during normal handling and may result in skin, eye and respiratory irritation. Avoid breathing dust and contact with the skin and eyes. Follow these standard work practices: Wear a loose-fitting, long-sleeved shirt and long pants, protective gloves and eye protection (goggles or safety glasses with side shields). Wear a dust mask when sanding. Additional protection may be needed when very dusty. Do not use a power saw. For Material Safety Data Sheet or additional information, call 1-800-225-6119 or visit our website.