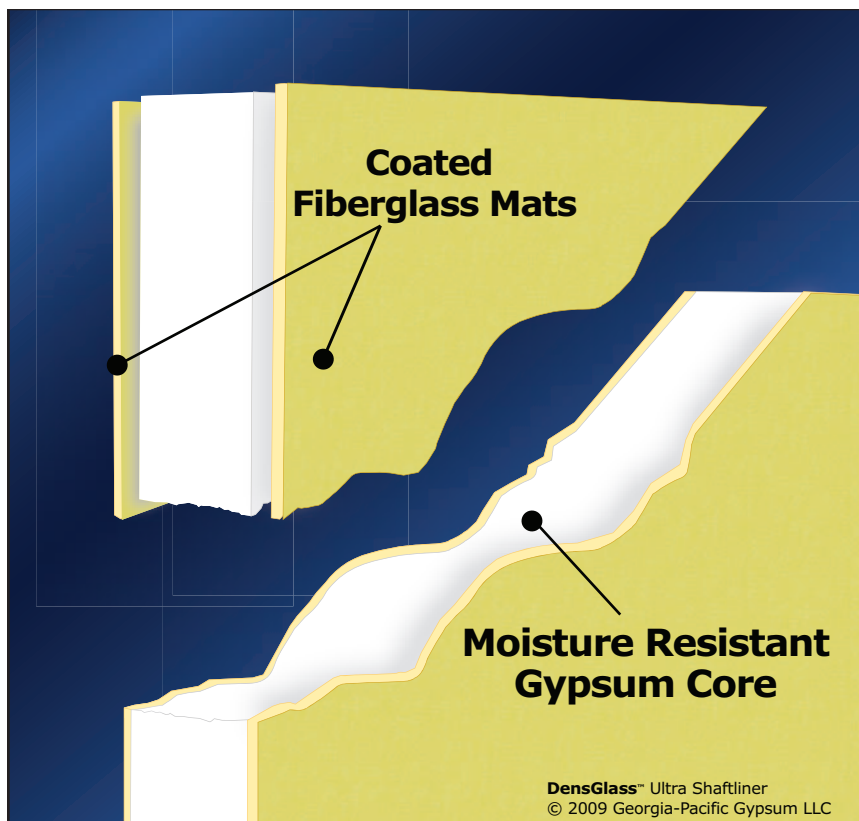


**MOISTURE- AND MOLD-RESISTANT HIGH-PERFORMANCE SOLUTIONS FOR
SHAFTWALL/STAIRWELL SYSTEMS**



Product Overview



DensGlass™ Ultra Shaftliner has fiberglass mats for superior mold and moisture resistance compared to paper-faced shaftliners.

Table of Contents

Product Overview.....	2
Installation Instructions.....	4
Recommendations.....	5
Designs for Vertical Membranes.....	6
Designs for Horizontal Membranes.....	7
Maximum Horizontal Spans.....	8
Maximum Section Properties.....	8
Limiting Heights.....	9
HVAC Details.....	9
Door-Frame Details.....	10
Wall-Frame Details.....	11
Rails/Chute/Beam Details.....	12
Architectural Specifications.....	13
Limitations.....	15
Commonly Used Metric Conversions.....	15

- Fiberglass mats eliminate a potential food source for mold and may reduce remediation and scheduling delays associated with paper-faced shaftliners.
- Replaces traditional paper-faced shaftliner.
- Backed with a 12-month limited warranty against in-place weather exposure damage (delamination, deterioration and decay).*

*For complete warranty, visit www.gpgypsum.com

When tested, as manufactured, in accordance with ASTM D 3273, DensGlass Ultra Shaftliner 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, Dens™ Brand gypsum products provide increased mold resistance compared to standard paper-faced wallboard.

DensGlass Ultra Shaftliner is listed as a GREENGUARD microbial resistant product by a leading third-party organization, GREENGUARD Environmental Institute. This listing means DensGlass Ultra Shaftliner, which features fiberglass mats instead of paper facings used on the surface of traditional gypsum board products, resists mold growth. The microbial resistant test is based on ASTM Standard D 6329-98, a testing standard set by ASTM International, which develops testing guidelines and procedures for building materials, products, systems and services.

CAUTION: For product fire, safety and use information, go to gp.com/safetyinfo.

2 • For latest information and updates: **Technical Service Hotline 1.800.225.6119** or www.gpgypsum.com

DensGlass™ Ultra Shaftliner Panel

As building technology has become more sophisticated over the years, Georgia-Pacific Gypsum has evolved to keep in step with the changing gypsum industry. We recognized decades ago the need in high-rise construction to decrease construction time, increase safety around shafts, eliminate the weight of masonry, increase seismic safety and decrease construction costs overall. We developed our shaftwall and stairwell assemblies with those goals in mind.

In signature buildings around the world, our lightweight, maintenance-free shaftwall/stairwell enclosures serve as the perfect substitute for heavy and expensive masonry construction in building cores. In addition, DensGlass™ Ultra Shaftliner shaftwall/stairwell assemblies save space, go up quickly and don't delay construction during cold weather.

Space-saving DensGlass Ultra Shaftliner shaftwall/stairwell enclosures are designed for elevator and air shafts, stairwells and mechanical services in industrial areas where greater heights are common and as firewalls between office, warehouse and manufacturing areas. They are also used as horizontal membranes for corridor and stairway ceilings and across mechanical equipment where fire ratings are required and normal suspension support may be difficult.

Easy Installation

Because our shaftwall assemblies are built from one side only, there's no need to access the inside of the shaft. The strong, C-T, C-H or I steel members go up quickly. Most configurations require only two steel components and two types of gypsum board. That makes our systems ideal for furred chases and interior partitions where fire ratings are required for exterior walls and access is restricted. Engineered for durability, our systems withstand the air-pressure surges of high-speed elevators as well as the lateral impact of stairway doors.

Built-In Economy

Our shaftwall/stairwell systems typically cost 20 percent less than masonry. Cost savings can be even greater when masonry requires a finish. Contractors also save money, since our shaftwall/stairwell enclosures don't require expensive structural framing or concrete construction.

Building Code Compliance

Georgia-Pacific Gypsum shaftwall/stairwell enclosures meet the requirements of building codes of major jurisdictions throughout North America.

Reliable Steel Components

The two primary framing components in the DensGlass Ultra Shaftliner shaftwall/stairwell system are slotted C-T, C-H or I studs and J tracks, manufactured from galvanized steel that meets the requirements of ASTM C 645 and A 924.

The 2-1/2" steel framing system retains the popular 3-1/2" wall thickness with a two-hour fire rating to accommodate standard door framing dimensions. The Series 620 stud offers a unique feature — slotting in the web of the stud. Tests have demonstrated that these slots effectively improve resistance to thermal and noise transmissions.

The 2-1/2" stud provides a 1-1/2" air cavity for services. Studs are friction-fitted between top and bottom J tracks. Use J tracks for all closure details, including duct and door openings, abutments, intersections, etc. No other special metal components are required.

Studs are automatically spaced 24" o.c. maximum with our special shaftliner panels.

Manufacturers of steel components for use in the Georgia-Pacific Gypsum shaftwall/stairwell system include CLARK WESTERN Building Systems and Telling Industries.

The data relating to fire- and sound-tested assemblies is based on the characteristics, properties and performance of materials and systems obtained under controlled test conditions as set forth under the appropriate ASTM standard, such as E 119 (fire), E 90 (sound) or E 72 (structural).

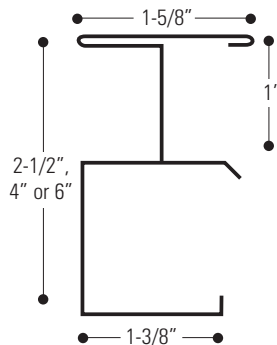
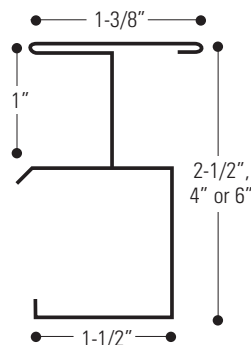
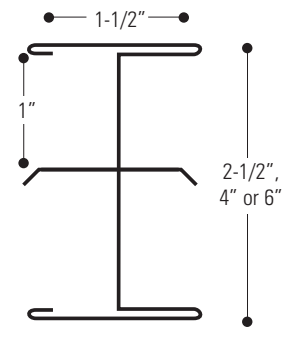
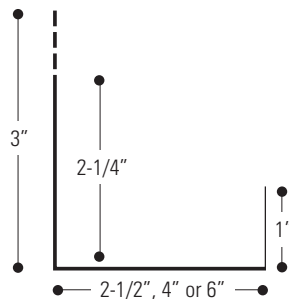
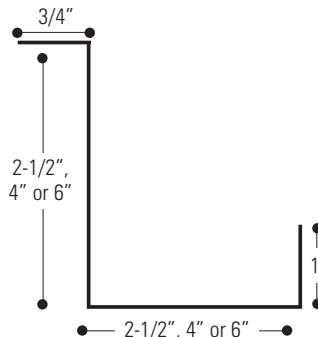
Installation Instructions

1. Lay out per construction drawings. Secure J track as perimeter framing on floor and plumb to ceiling and sides. Attach with suitable fasteners, spaced not more than 24" o.c.
2. Plan the stud layout 24" o.c. and adjust the spacing at either end so that the terminal stud will not fall closer than 8" from the end.
3. Erect the first 1" DensGlass™ Ultra Shaftliner panel, cut 3/4" less than the total height of the framed section. Plumb the panel flush against the web of the J track and secure with 1-5/8" Type S screws 24" o.c. or bend out tabs in J track to secure panels in place. DensGlass Ultra Shaftliner panels can be installed with either side facing out, however some authorities may require labeling to be visible.
4. Insert a C-T, C-H or I stud, cut 3/4" less than the overall height, into the top and bottom J tracks and fit tightly over the previously installed 1" panel.
5. Install the next 1" DensGlass Ultra Shaftliner panel inside the J tracks and within the tabs of the C-T, C-H or I stud. Note that the edges of the panel are beveled to help guide the panel into the slotted and tabbed section of the stud.
6. Progressively install succeeding studs and panels as described above until the wall section is enclosed. The final panel section may be secured with 1-5/8" Type S screws or tabs from the J track at 24" o.c.
7. For doors, ducts or other large penetrations or openings, install J track as perimeter framing. Use 20-gauge track with a 3" back leg for elevator doors and block cavity with 12" wide gypsum board filler strips for doors exceeding 7'-0" height.
8. 1" DensGlass Ultra Shaftliner panels may be abutted, spliced or stacked within the cavity. The shorter panel should be minimum 2' long or longer to engage two stud tabs on each panel edge. Joints of adjacent panels should be alternately stacked or staggered to prevent a continuous horizontal joint. **NOTE: Fire tests were conducted without back blocking of shaftliner joints. To create a tighter joint, we recommend factory cut edges back to back.**
9. For the 620 Series, finished one side, install the base layer of 1/2" ToughRock® Fireguard® Type C or 1/2" DensArmor Plus® Fireguard® Type C gypsum board horizontally with 1" Type S or S-12 screws spaced 24" o.c. (5/8" ToughRock Fireguard Type X or 5/8" DensArmor Plus Fireguard Type X gypsum board may be used in lieu of 1/2" ToughRock Fireguard Type C gypsum board, if desired). The horizontal joints should be offset from any splice joints in the shaftliner panels by at least 12". Install the face layer vertically with 1-5/8" Type S or S-12 screws spaced 8" o.c. (All edge and end joints should be offset from the base layer by 24" o.c.)
10. For the 621 Series, finished both sides, each side may be installed either horizontally or vertically with 1" Type S or S-12 screws spaced 8" o.c. Offset edges and ends on opposite sides 24" o.c.
11. For the 622 1-hour system, finished one side, apply the 5/8" ToughRock Fireguard Type X or DensArmor Plus Fireguard Type X gypsum board vertically with 1" Type S or S-12 screws spaced 8" o.c. around the perimeter and 12" o.c. in the field.
12. When used as HVAC ducts, consult with HVAC engineer regarding level of caulking and sealant required. All joints on face layers are to be taped and finished and fasteners finished with joint compound meeting ASTM C 475. All penetration openings are to be filled with ToughRock® Fire-Halt® Sealant or other firestopping sealants.
13. For more information on firestopping through penetrations in shaftwall systems, contact Technical Services at 1-800-225-6119 or visit our Web site at www.gpgypsum.com and look under CAD drawings.
14. For UL V473, finished one side, install the base layer of 5/8" ToughRock Fireguard Type X or 5/8" DensArmor Plus Fireguard Type X horizontally or vertically with 1" Type S screws spaced 24" o.c. Face layer shall be applied vertically, attached with 1-5/8" Type S screws spaced 12" o.c. (All end and edge joints should be offset from the base layer by 24" o.c.).

CAUTION: For product fire, safety and use information, go to gp.com/safetyinfo.

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See individual fire test listings for approved studs.

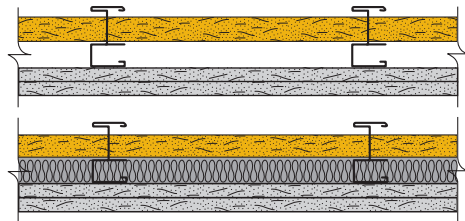
C-T Stud**C-H Stud Detail****I Stud Detail****I-Stud****J Track****J-L Corner**

Recommendations

- Use a fastening plate to secure the J track whenever fasteners are closer than 4" to the edge. Setting the plate at the time of concrete construction will avoid spalling by mechanical fasteners.
- Cut C-T, C-H or I studs 3/4" less than the height of the opening.
- Cut 1" DensGlass™ Ultra Shaftliner panel 3/4" less than the height of the opening.
- In structural steel-frame construction, install J track sections before applying spray-on fireproofing.
- Items to be anchored to the wall (cabinets, sinks, handrails, etc.) should be fastened to the C-T, C-H or I studs or to plates secured behind or between layers of 1/2" ToughRock® Fireguard® Type C gypsum board. (See illustration on page 12.)
- Joint compounds should be applied at ambient temperatures above 50°F (10°C) with adequate ventilation.
- Use Type S screws for 25-gauge steel framing. Use Type S-12 screws for 20-gauge (or heavier) steel framing.
- It is important that the job structural engineer approves the type, size and maximum spacing of track fasteners to meet the design load requirements.

Design Summary Vertical

UL V473



STC = 47 based on RAL TL 89 – 379

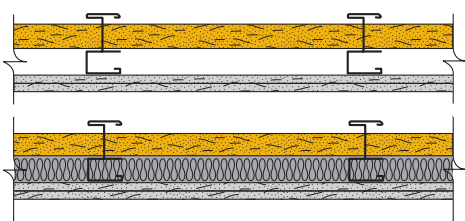
Test Reference: UL V473

Approx. Weight: 9 psf

Fiberglass sound insulation thickness is 1", 2-1/2" and 3-1/2" for C-T or C-H 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 5/8" DensArmor Plus® Fireguard® Type X or 5/8" ToughRock® Fireguard® Type X gypsum board installed horizontally for base layer and vertically for face layer. Edges and ends offset 24" o.c.

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

Series 620 2-Hour Fire Rating



STC = 47 RAL TL 89 – 379

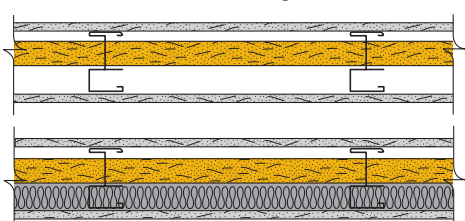
Test Reference: GA File # WP 7074, WHI Design, GP/WA 120-01

Approx. Weight: 9 psf

Fiberglass 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® Type C or 1/2" ToughRock® Fireguard® Type C gypsum board installed horizontally for base layer and vertically for face layer. 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



STC = 45 RAL TL 89 – 380

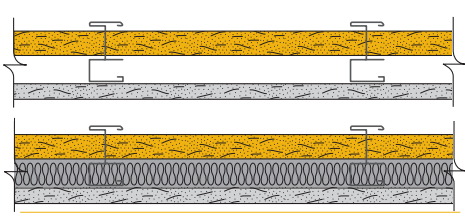
Test Reference: GA File # WP 7073, WHI Design, GP/WA 120-02

Approx. Weight: 9 psf

Fiberglass 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 Type C or 1/2" ToughRock Fireguard Type C gypsum board 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 622 1-Hour Fire Rating



STC = 39, est.

Test Reference: GA File # WP 7001, WHI Design, GP/WA 60-01

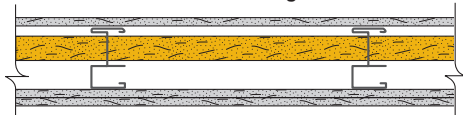
Approx. Weight: 7 psf

Fiberglass 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, studs and one layer of 5/8" ToughRock Fireguard Type X or 5/8" DensArmor Plus Fireguard Type X gypsum board installed vertically.

C-T, C-H or I Stud	2-1/2"	4"	6"
Wall Thickness	3-1/8"	4-5/8"	6-5/8"

Design Summary Horizontal

Series 623 2-Hour Fire Rating

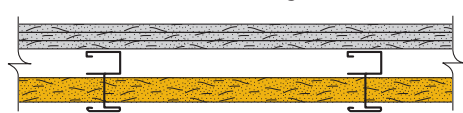


Test Reference: WHI-495-PSH-0128

Approx. Weight: 11 psf

Designed for ceiling or duct shaft and composed of 1" DensGlass™ Ultra Shaftliner panel supported by 2-1/2", 4" or 6" C-T studs and three layers of 1/2" ToughRock® Fireguard® Type C or 1/2" DensArmor Plus® Fireguard® Type C gypsum board.

Series 624 2-Hour Fire Rating

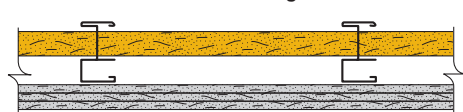


Test Reference: WHI-495-PSH-0153 & WHI-495-PSH-0197

Approx. Weight: 11 psf

Designed to separate a room from structure or space above and composed of 1" DensGlass Ultra Shaftliner panel supported by 2-1/2", 4" or 6" C-T studs and three layers of 1/2" ToughRock Fireguard Type C or 1/2" DensArmor Plus Fireguard Type C gypsum board.

Series 627 2-Hour Fire Rating



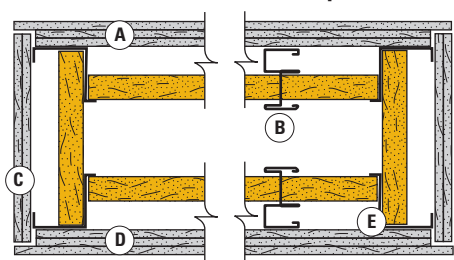
Test Reference: WHI-495-PSH-0183 & WHI-495-PSH-0196, WHI Design GP/CC 120-01

Approx. Weight: 11 psf

Designed to separate a room from structure or space above and composed of 1" DensGlass Ultra Shaftliner panel supported by 2-1/2", 4" or 6" C-T studs and three layers of 1/2" ToughRock Fireguard Type C or 1/2" DensArmor Plus Fireguard Type C gypsum board.

2-Hour Use for 620, 623, 624 & 627 for Horizontal Membranes and Ducts

DensGlass™ Ultra Shaftliner Components



A. 624

B. C-T, C-H or I stud

C. 620

D. 627

E. J-L corner or back to back J

1/2" DensArmor Plus Fireguard Type C, 1/2" ToughRock Fireguard Type C, 5/8" DensArmor Plus Fireguard Type X and 5/8" ToughRock Fireguard Type X gypsum boards are manufactured to meet or exceed applicable sections of ASTM C 1658 and ASTM C 1396.

These products may be used for other related corridor and party walls, often eliminating the need to stock more than one type at the job site. Depending on the fire rating, one or more layers are installed on the C-T studs with drywall screws. Screws are not required to secure either layer to the top or bottom J tracks. Refer to the sections covering specific fire ratings for the number of layers required and the detailed attachment procedures.

1" DensGlass Ultra Shaftliner panels are manufactured to meet or exceed ASTM C 1658 and ASTM C 1396. Panels are made in a normal width of 23-7/8" with double beveled edges. DensGlass Ultra Shaftliner panels install easily within the flanges of the C-T studs. Screws may be installed at the top J track to hold the panel in place.

Drive 1-5/8" Type S screws 24" o.c. maximum through the shaftliner to the J track at corner and abutments or use the turnout tabs to secure the panel in place.

These details are typical uses of the 620 wall system, as well as the 624 and 627 systems for horizontal membranes for 2-hour ceiling and duct protection.

Maximum Horizontal Spans

When used as a horizontal membrane, the stud length should not exceed those in the following table.

C-T Stud	Nominal Gauge	Series 622 1-Hour*		Series 620 2-Hour*		Series 623/624/627 2-Hour	
		L/240	L/360	L/240	L/360	L/240	L/360
2-1/2"	25	9' - 4"	8' - 2"	8' - 8"	7' - 7"	8' - 1"	7' - 1"
2-1/2"	20	11' - 1"	9' - 8"	10' - 4"	9' - 0"	9' - 8"	8' - 5"
4"	25	13' - 2"	11' - 6"	12' - 4"	10' - 9"	11' - 6"	10' - 0"
4"	20	15' - 6"	13' - 7"	14' - 7"	12' - 9"	13' - 7"	11' - 10"
6"	25	17' - 11"	15' - 8"	16' - 9"	14' - 7"	15' - 7"	13' - 7"
6"	20	21' - 1"	18' - 6"	19' - 9"	17' - 3"	18' - 6"	16' - 2"

Span calculations based on stud properties. Use 20-gauge J track.

*Based on Model Building Code interpretation (ICBO ER-2541) for use in corridor ceilings and stair soffits.

Maximum Section Properties

Based on AISI Specifications for the Design of Cold-Formed Steel Structural Members.

C-T Stud Size	T	W	A	I _x	S _x (C)	S _x (T)
2-1/2"-25 gauge	0.0179	0.470	0.118	0.132	0.095	0.118
2-1/2"-20 gauge	0.0329	0.820	0.218	0.242	0.175	0.217
4"-25 gauge	0.0179	0.580	0.145	0.374	0.171	0.207
4"-20 gauge	0.0329	1.020	0.267	0.687	0.341	0.380
6"-25 gauge	0.0179	0.715	0.181	0.957	0.299	0.347
6"-20 gauge	0.0329	1.260	0.333	1.759	0.543	0.637

T = Minimum Uncoated Base Steel Thickness (inches)

W = Weight (pounds per linear foot)

A = Sectional Area (inches)

I_x = Moment of Inertia (inches)

S_x(C) = Section Modulus 'C' flange (inches)

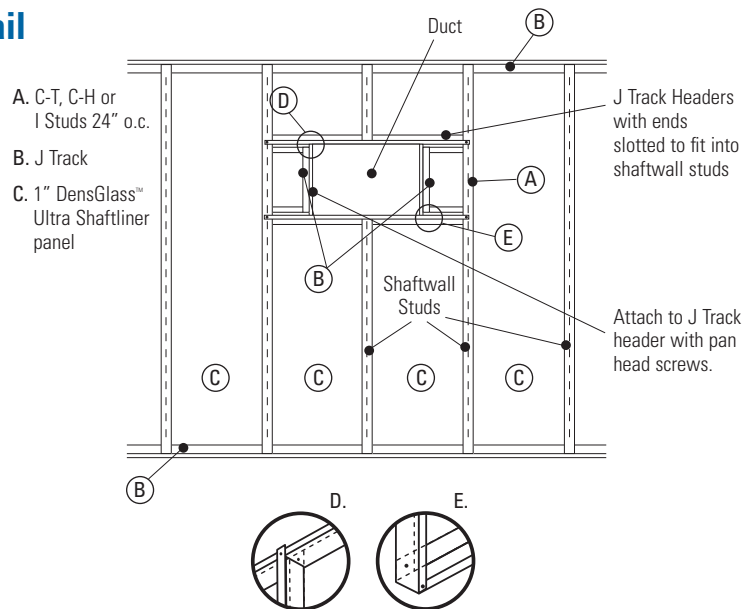
S_x(T) = Section Modulus 'T' flange (inches)

Limiting Heights for 1-, 2- and 3-Hour Systems

C-T Stud Depth	Stud & Track Gauge	Design Deflection Limit	Uniform Load (PSF)							
			For 1-hr.*				For 2- to 3-hr.**			
			5	7.5	10	15	5	7.5	10	15
2.5"	25	L/120	14' - 2"	12' - 5"	11' - 3"	9' - 4"	15' - 6"	13' - 3"	11' - 6"	9' - 5"
		L/180	12' - 5"	10' - 10"	9' - 10"	8' - 7"	13' - 7"	11' - 10"	10' - 9"	9' - 5"
		L/240	11' - 3"	9' - 10"	8' - 11"	7' - 10"	12' - 4"	10' - 9"	9' - 9"	8' - 6"
		L/360	9' - 10"	8' - 7"	7' - 10"	6' - 10"	10' - 9"	9' - 5"	8' - 6"	7' - 6"
2.5"	20	L/120	15' - 10"	13' - 10"	12' - 6"	10' - 11"	17' - 4"	15' - 1"	13' - 9"	12' - 0"
		L/180	13' - 10"	12' - 1"	10' - 11"	9' - 7"	15' - 1"	13' - 2"	12' - 0"	10' - 6"
		L/240	12' - 6"	10' - 11"	9' - 11"	8' - 8"	13' - 9"	12' - 0"	10' - 11"	9' - 6"
		L/360	10' - 11"	9' - 7"	8' - 8"	7' - 7"	12' - 0"	10' - 6"	9' - 6"	8' - 4"
4"	25	L/120	19' - 1"	15' - 11"	13' - 10"	11' - 3"	19' - 7"	15' - 11"	13' - 10"	11' - 3"
		L/180	16' - 8"	14' - 6"	13' - 2"	11' - 3"	18' - 3"	15' - 11"	13' - 10"	11' - 3"
		L/240	15' - 1"	13' - 2"	12' - 0"	10' - 6"	16' - 7"	14' - 5"	13' - 2"	11' - 3"
		L/360	13' - 2"	11' - 6"	10' - 6"	9' - 2"	14' - 5"	12' - 8"	11' - 6"	11' - 3"
4"	20	L/120	21' - 8"	18' - 11"	17' - 2"	15' - 0"	23' - 8"	20' - 8"	18' - 9"	15' - 6"
		L/180	18' - 11"	16' - 6"	15' - 0"	13' - 1"	20' - 8"	18' - 1"	16' - 5"	14' - 4"
		L/240	17' - 2"	15' - 0"	13' - 8"	11' - 11"	18' - 9"	16' - 5"	14' - 11"	13' - 0"
		L/360	15' - 0"	13' - 1"	11' - 11"	10' - 5"	16' - 5"	14' - 4"	13' - 0"	11' - 5"
6"	25	L/120	22' - 7"	18' - 9"	16' - 3"	12' - 0"	22' - 11"	18' - 9"	16' - 3"	12' - 0"
		L/180	19' - 9"	17' - 3"	15' - 8"	12' - 0"	21' - 8"	18' - 9"	16' - 3"	12' - 0"
		L/240	17' - 11"	15' - 8"	14' - 3"	12' - 0"	19' - 8"	17' - 2"	15' - 7"	12' - 0"
		L/360	15' - 8"	13' - 8"	12' - 5"	10' - 10"	17' - 2"	15' - 0"	13' - 8"	11' - 11"
6"	20	L/120	27' - 4"	23' - 11"	21' - 8"	19' - 0"	30' - 0"	26' - 2"	23' - 7"	19' - 3"
		L/180	23' - 11"	21' - 11"	19' - 0"	16' - 7"	26' - 2"	22' - 11"	20' - 9"	18' - 2"
		L/240	21' - 8"	19' - 0"	17' - 3"	15' - 1"	23' - 9"	20' - 9"	18' - 11"	16' - 6"
		L/360	19' - 0"	16' - 7"	15' - 1"	13' - 2"	20' - 9"	18' - 2"	16' - 6"	14' - 5"

* 1-Hr. Rated Series 622 ** 2-Hr. Rated Series 620 or 621 & 3-Hr. Rated Series 630 or 631.

HVAC Duct Detail



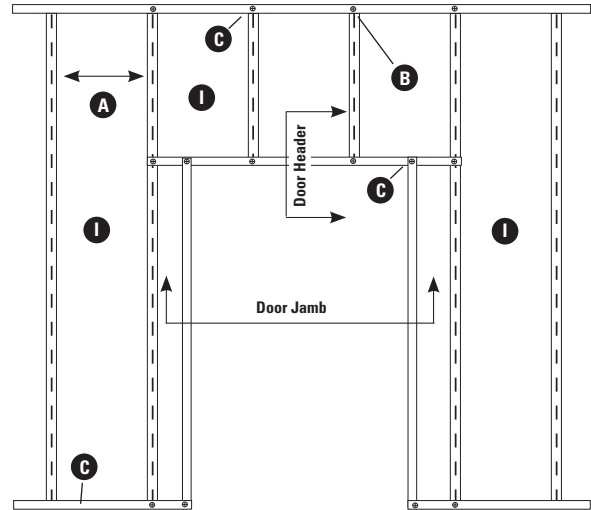
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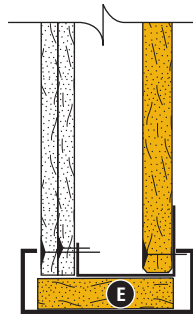
Door Frame Details

There are numerous elevator door frame combinations and special conditions that cannot be detailed beyond general conditions in this catalog. The interface of the shaftwall system and elevator door frame should be addressed in the shop drawings of the elevator and/or frame manufacturer literature.

- A. C-T, C-H or I studs 24" o.c.
- B. Pan head screws on both sides of door framing
- C. J track
- D. Alternate to bending tabs: use 1-5/8" type S screws at 24" o.c.
- E. Gypsum board filler strips may be required where jambs are in place prior to walls
- F. 20-gauge J track
- G. 20-gauge J track screwed to jamb anchor clips
- H. Solid gypsum board filler strips as required for frames
- I. 1" DensGlass™ Ultra Shaftliner panel
- J. Tabs in J track
- K. 1/2" DensArmor Plus® Fireguard® Type C interior panel or 1/2" ToughRock® Fireguard® Type C gypsum board
- L. Acoustical Sealant
- M. Power actuated fasteners 24" o.c.

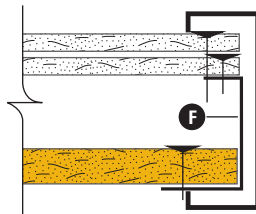


Door Header

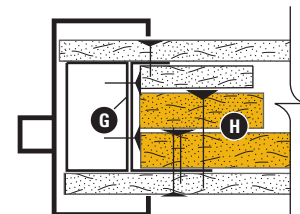
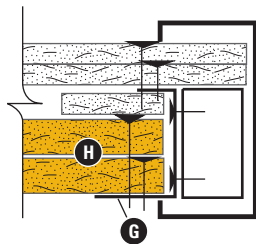
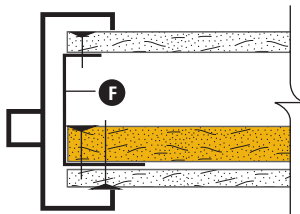


Door Jamb, Typical

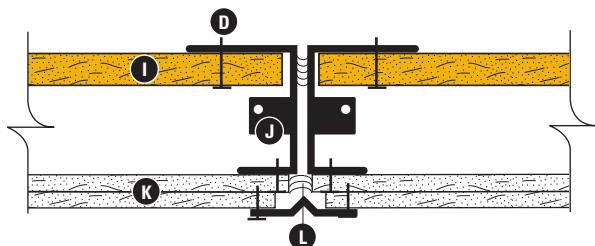
620 Series



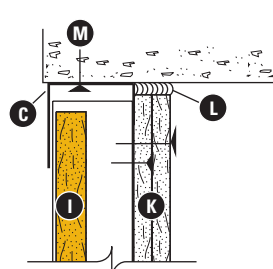
621 Series



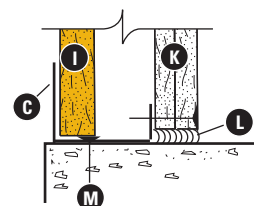
Control Joint



View of Top of Wall



View of Base



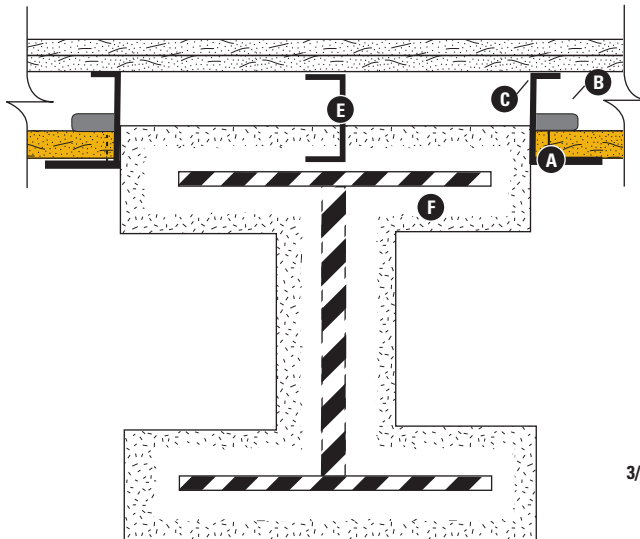
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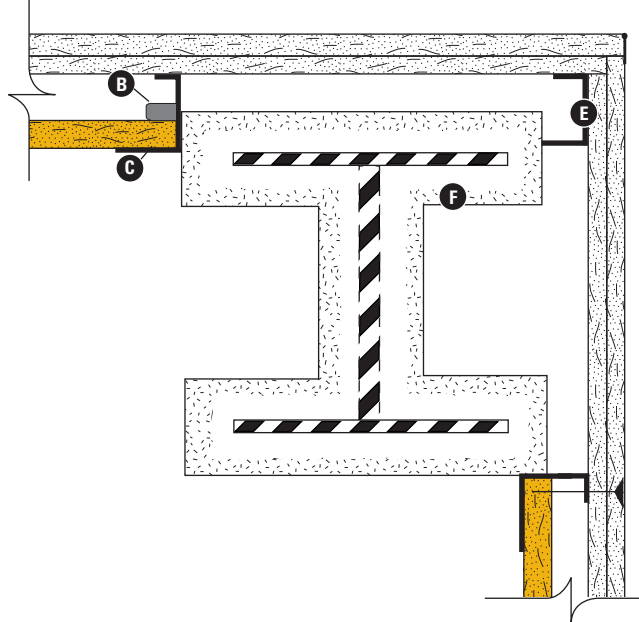
Wall Frame Details

- A. Alternate to bending tabs: use 1-5/8" type S screws at 24" o.c.
- B. Tabs in J track bent out at 24"
- C. J track
- D. Attached to J track prior to installation.
- E. Metal C stud or J track where span is over 24"
- F. Spray-on fireproofing
- G. 1/2" DensArmor Plus® Fireguard® Type C or 1/2" ToughRock® Fireguard® Type C gypsum board
- H. 1" DensGlass™ Ultra Shaftliner panel
- I. Acoustical Sealant
- J. Control joint
- K. Corner bead

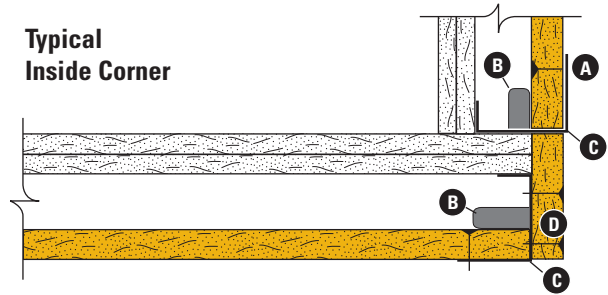
Column Bypass



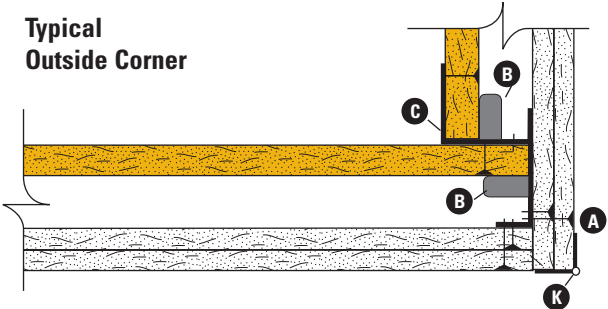
Corner Column Bypass



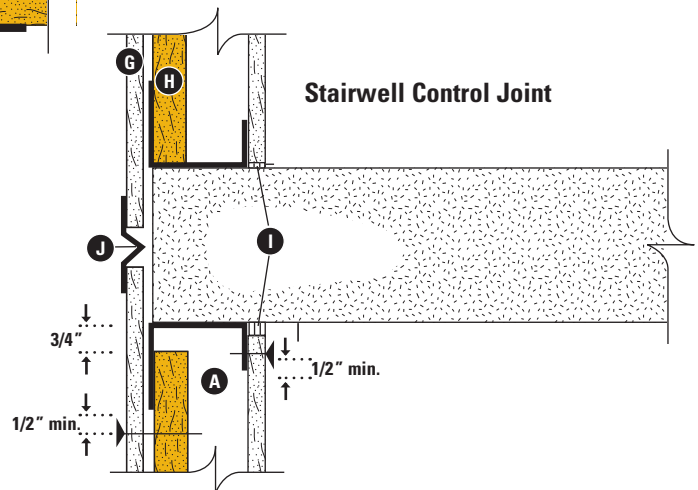
Typical Inside Corner



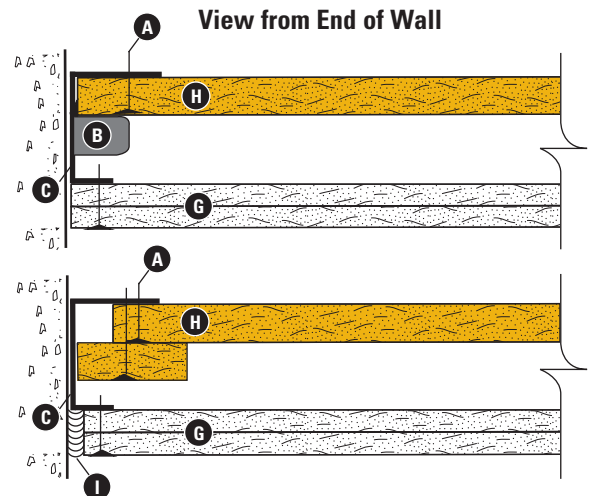
Typical Outside Corner



Stairwell Control Joint



View from End of Wall



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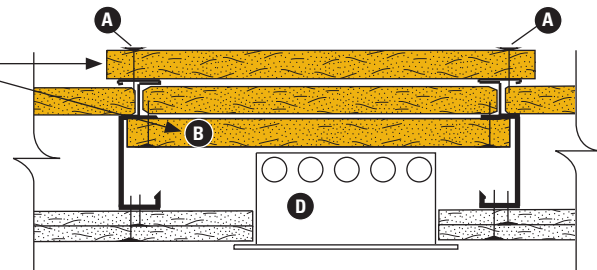
Rails/Chute/Beam Details

- A. 1" DensGlass™ Ultra Shaftliner panel
- B. Alternate attachment inside shaft
- C. 1/2" DensArmor Plus® Fireguard® Type C or 1/2" ToughRock® Fireguard® Type C gypsum board
- D. Typical call indicator box
- E. Spray-on fireproofing
- F. Fasteners 24" o.c.
- G. J track
- H. Handrail
- I. 6" wide 16-gauge steel backing plate screwed to C-T Studs

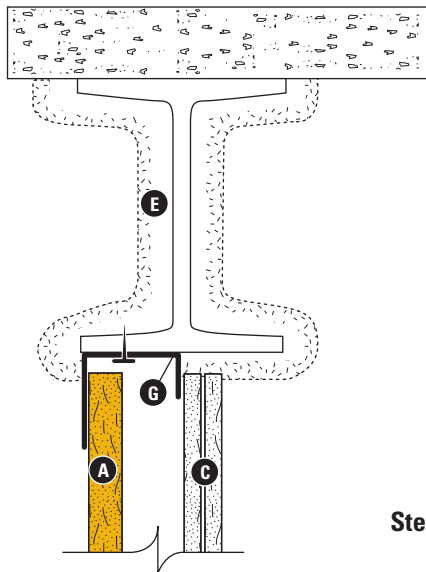
Call Box/Outlet Box/Mail Chute

4" minimum height behind box and screw attached to tabs or flanges of C-T studs or J track.

Attachment needed either inside or outside shaft cavity

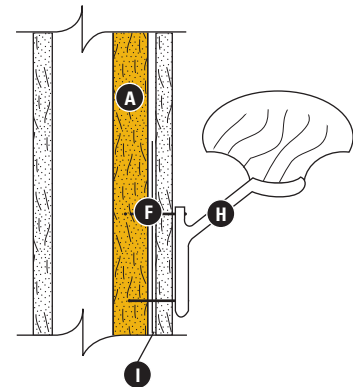


Steel Beam

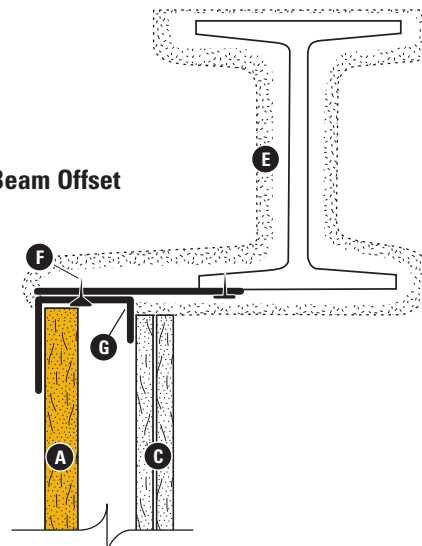


Heavy-Duty Handrail

Backing for attachment of a wide variety of items in commercial and industrial usage typically uses 16-gauge steel strips attached to the framing. Special loads should be given particular attention.



Steel Beam Offset



CAUTION: For product fire, safety and use information, go to gp.com/safetyinfo.

Architectural Specifications

Part 1 – General

1.0 Description of Work

The types of work herein specified include, but are not limited to, shaftwall partition systems.

1.1 Quality Assurance

Where shaftwall systems with fire resistance ratings are indicated, provide DensGlass™ Ultra Shaftliner panels. Provide fire resistance rated assemblies identical to those indicated by reference to WHI (Warnock Hersey International) numbers and UL (Underwriters Laboratories) or in listing of other testing agencies acceptable to authorities having jurisdiction.

1.2 Qualifications

All shaftwall framing, shaftliner, gypsum board and joint treatment materials shall be manufactured or provided by Georgia-Pacific Gypsum or, in the case of the steel framing components, be provided by a steel manufacturer authorized by Georgia-Pacific Gypsum unless otherwise indicated. All materials shall be installed in accordance with printed installation instructions as required by the testing agency.

1.3 Submittals

Product Data: Submit Georgia-Pacific Gypsum's descriptive literature for each shaftwall component indicating materials, dimensions, finishes and other data required to show compliance with the specifications.

1.4 Delivery, Storage and Handling

Deliver materials in original packages, containers or bundles bearing Georgia-Pacific Gypsum's brand name and identification. Store materials level, inside, under cover. Keep materials dry and protect from weather and damage from construction operations and other causes. Handle shaftwall system components to prevent damage to edges, ends or surfaces. Protect metal accessories, framing and trim from bending and damage. Product also may be wrapped in temporary factory-applied plastic packaging (plastic wrap) that **must** be removed upon receipt. **Failure to remove the plastic shipping covers and plastic wrap may result in entrapment of condensation or moisture, which may cause application problems.**

1.5 Project Conditions

Comply with the requirements of gypsum board application standards and recommendations of Georgia-Pacific Gypsum for environmental conditions before, during and after application of DensGlass Ultra Shaftliner panels and gypsum board. Heat corridor or shaft when outdoor temperature is below 50°F for a period of 48 hours prior to, during and following installation of joint treatment materials. Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

Part 2 – Products

2.0 Materials

A. Metal framing:

1. J Track:

Galvanized steel, conforming to ASTM C 645 manufactured by CLARKWESTERN Building Systems and Telling Industries
Width: 2-1/2", 4" and 6"

Gauge: 20 at elevator doors and masonry cavities and 25 standard elsewhere.

2. C-T studs:

Galvanized steel, conforming to ASTM C 645 manufactured by CLARKWESTERN Building Systems and Telling Industries
Width: 2-1/2", 4" and 6"

Gauge: 20 and 25

B. 1" DensGlass™ Ultra Fireguard® Type X Shaftliner Panels, conforming to ASTM C 1658 or ASTM C 1396.

C. 1/2" or 5/8" ToughRock® Fireguard® Type C gypsum board, 1/2" DensArmor Plus® Fireguard® Type C gypsum board, 5/8" DensArmor Plus Fireguard Type X or 5/8" ToughRock Fireguard Type X meeting the relevant physical property requirements of ASTM C 36, ASTM C 1396 and ASTM C 1658.

D. Fasteners: For 25-gauge framing – Type S screws. For 20-gauge framing – Type S-12 screws.

E. Joint tape: Georgia-Pacific Gypsum tape for reinforcing joints.

F. Joint compound: Georgia-Pacific Gypsum Ready Mix All Purpose Joint Compounds for bedding tape, finishing joints, spotting fasteners.

Architectural Specifications

Part 3 – Execution

3.0 Installation

Follow Georgia-Pacific Gypsum recommendations for installation of metal framing and gypsum board for shaftwall systems.

3.1 Installation of J track, C-T, C-H or I studs and 1" Shaftliner Panels:

Lay out shaftwall in locations indicated on construction drawings.

Anchor J track perimeter framing at abutting horizontal and vertical construction.

Anchor with approved fasteners spaced maximum 24" o.c.

Apply non-hardening, flexible sealant in a continuous application at the perimeter.

Space C-T studs at 24" o.c. Adjust the spacing at ends of shaftwall construction so end studs are minimum 8" from the ends.

Install the first DensGlass™ Ultra Shaftliner panel. The panel length shall be 3/4" less than the total height of the framed section. Plumb the panel against the web of the J track and bend out tabs in J track to secure the panel in place.

Insert a C-T stud into the top and bottom J tracks and fit tightly over the previously installed 1" panel. Allow equal clearance between track and stud at top and bottom J track. The stud length shall be 3/4" less than the total height of the framed section.

Install the second 1" DensGlass Ultra Shaftliner panel inside the J track and within the tabs of the C-T stud.

Install succeeding studs and panels in the same manner as described for the first and second panels until the wall section is complete.

Anchor the final panel section at 12" o.c. with tabs from the J track, or 1-5/8" screws.

Where wall heights exceed the standard or available length of DensGlass Ultra Shaftliner, the panels shall be cut and stacked. The shorter panels shall be minimum 24" long and of sufficient length to engage two stud tabs. Joints of adjacent panels shall be offset at least 12".

For doors, ducts or other large penetrations or openings, install J track as perimeter framing. Use 20-gauge track with a 3" back leg for elevator doors and block cavity. Install 12" wide gypsum filler strips for doors exceeding 7'-0" height.

3.2 Installation of Gypsum Board:

A. DensGlass Ultra Shaftliner shaftwall system finished one side:

Install the base layer of gypsum board horizontally with approved fasteners spaced 24" o.c. and 3" from all edges. Offset the horizontal joints minimum 12" from any splice joints in the shaftliner panels. Install the face layer of gypsum board vertically to the framing with approved fasteners spaced minimum 12" o.c. and 6" from all edges. Offset edge and end joints from the base layer at least 24".

B. Stairwell system, finished both sides:

Install gypsum board on both sides, either horizontally or vertically. Attach gypsum board with approved fasteners spaced 12" o.c. and 6" from all edges. Offset edges and ends of gypsum board on opposite sides minimum 24".

3.3 Finishing:

Apply a non-hardening, flexible sealant continuous at all perimeter edges, abutments with dissimilar materials and penetrations in the facing layer.

Tape and finish all joints at face layers with tape and joint compound and finish fastener heads with joint compound meeting ASTM C 475.

3.4 Protection of Work:

Repair damaged work to be indistinguishable from adjacent work. Replace work that cannot be repaired as required.

Limitations

Non-load-bearing; not to be used as an unlined air supply duct.

Not designed for exposure to constant high-moisture conditions or direct water after building is complete.

Elevator door assemblies require support independent of shaftwall partitions.

Good construction practice calls for partition control joints to coincide with that of the building structure.

Limiting loads and heights not to exceed design specification or data provided herein or by metal component supplier.

Provide flexible sealant/caulk at partition perimeters and penetrations to avoid air leakage/whistling and dust collection.

COMMONLY USED METRIC CONVERSIONS

Gypsum Panel Thickness

1/4 in. – 6.4 mm
1/2 in. – 12.7 mm
5/8 in. – 15.9 mm
1 in. – 25.4 mm

Gypsum Panel Width

2 ft. – 610 mm
4 ft. – 1219 mm
32 in. – 813 mm

Gypsum Panel Length

4 ft. – 1219 mm
5 ft. – 1524 mm
8 ft. – 2438 mm
9 ft. – 2743 mm
10 ft. – 3048 mm
12 ft. – 3658 mm

Framing Spacing

16 in. – 406 mm
24 in. – 610 mm

Fastener Spacing

2 in. – 51 mm
2.5 in. – 64 mm
7 in. – 178 mm
8 in. – 203 mm
12 in. – 305 mm
16 in. – 406 mm
24 in. – 610 mm

Temperature

40°F – 5°C
50°F – 10°C
125°F – 52°C

The Dens™ Brand of High-Performance Gypsum Products from Georgia-Pacific

DensGlass™ Exterior Sheathing (formerly DensGlass Gold® Exterior Sheathing)	The original and universal standard of superior weather resistance, with a 12-month weather exposure limited warranty. Look for the familiar GOLD color.
DensShield® Tile Backer	Acrylic-coated tile backer stops moisture at the surface. Lightweight and strong, built for speed on the job site. IBC/IRC Code Compliant. GREENGUARD listed for microbial resistance.
DensDeck® Roof Boards	Fiberglass mat coverboard with a track record of resistance <i>against</i> wind uplift, hail, foot traffic, fire, moisture and mold, in a broad range of applications. Look for green DensDeck® Prime and DensDeck® DuraGuard too.
DensGlass™ Ultra Shaftliner	Specially-designed panels for moisture-prone vertical or horizontal shafts, interior stairwells and area separation wall assemblies. 12-month weather exposure limited warranty. GREENGUARD listed for microbial resistance.
DensArmor Plus® High-Performance Interior Panel	High-performance interior panel that accelerates scheduling because it can be installed before the building is dried-in. Six-month weather exposure limited warranty. GREENGUARD Indoor Air Quality Certified® for low VOC emissions. GREENGUARD listed for microbial resistance.
DensArmor Plus® Abuse-Resistant Interior Panel (formerly DensArmor Plus® Abuse Guard®)	Same benefits as DensArmor Plus® High-Performance Interior Panel with added resistance to scuffs, abrasions and surface indentations. Ideal for healthcare facilities and schools. GREENGUARD Indoor Air Quality Certified® for low VOC emissions. GREENGUARD listed for microbial resistance.
DensArmor Plus® Impact-Resistant Interior Panel (formerly DensArmor Plus® High Impact)	Even greater durability with an embedded impact-resistant mesh for the ultimate performance in high traffic areas. Ideal for healthcare facilities, schools and correctional institutions.



SALES INFORMATION AND ORDER PLACEMENT

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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**

Georgia-Pacific Gypsum LLC Technical Hotline
U.S.A. and Canada: **1-800-225-6119**



Some of our products have been certified by Scientific Certification Systems (SCS). SCS is an internationally recognized third-party evaluation, testing and certification organization. Its program spans a wide cross-section of the economy, including manufacturing and retailing, consumer products, the energy industry, and the home improvement and construction sectors. For details on specific Georgia-Pacific Gypsum products and plants, please contact our Technical Hotline at 800-225-6119.

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UPDATES AND CURRENT INFORMATION

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LIMITATION OF REMEDIES AND DAMAGES

Unless otherwise stated in our written 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 (10) days after discovery of a product defect/circumstance giving rise to a claim.

CAUTION: For product fire, safety and use information, go to gp.com/safetyinfo.

HANDLING AND USE

CAUTION: This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas. For additional product fire, safety and use information go to www.gp.com/safetyinfo or call 1-800-225-6119.

FIRE SAFETY CAUTION:

Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product

as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.