



# DensGlass<sup>®</sup>

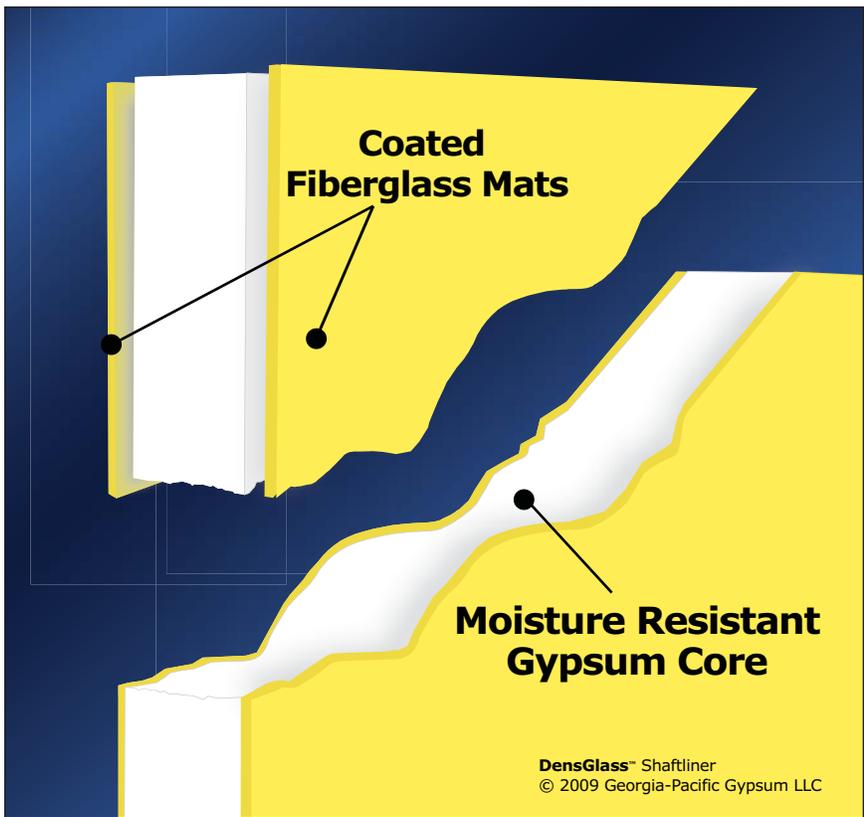
Shaftliner

For elevator shafts,  
stairwells and mechanical  
service areas.



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

**Product Overview**



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

- 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 details, visit [www.gpgypsum.com](http://www.gpgypsum.com)

When tested, as manufactured, in accordance with ASTM D 3273, DensGlass 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 Shaftliner is listed as a GREENGUARD microbial resistant product by a leading third-party organization, GREENGUARD Environmental Institute. This listing means DensGlass 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 D 6329, a testing standard set by ASTM International, which develops testing guidelines and procedures for building materials, products, systems and services.

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## DensGlass® 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® Shaftliner shaftwall/stairwell assemblies save space, go up quickly and don't delay construction during cold weather.

Space-saving DensGlass 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 the 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 the systems ideal for furred chases and interior partitions where fire ratings are required for exterior walls and access is restricted. Engineered for durability, the systems withstand the air-pressure surges of high-speed elevators as well as the lateral impact of stairway doors.

### Built-In Economy

The 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 the 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 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" (64 mm) steel framing system retains the popular 3-1/2" (89 mm) 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" (64 mm) stud provides a 1-1/2" (38 mm) 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" (610 mm) o.c. maximum with our special shaftliner panels.

Manufacturers of steel components for use in the Georgia-Pacific Gypsum shaftwall/stairwell system include CLARKWESTERN 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

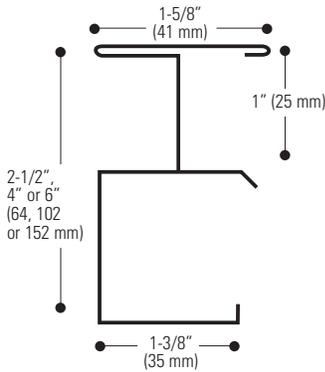
1. Lay out per construction drawings. Secure J track as perimeter framing on floor and plumb to ceiling and sides. Attach with suitable fasteners, spaced not more than 24" (610 mm) o.c.
2. Plan the stud layout 24" (610 mm) o.c. and adjust the spacing at either end so that the terminal stud will not fall closer than 8" (203 mm) from the end.
3. Erect the first 1" (25.4 mm) DensGlass® Shaftliner panel, cut 3/4" (19 mm) 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" (41 mm) Type S screws 24" (610 mm) o.c. or bend out tabs in J track to secure panels in place. DensGlass 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" (19 mm) less than the overall height, into the top and bottom J tracks and fit tightly over the previously installed 1" (25.4 mm) panel.
5. Install the next 1" (25.4 mm) DensGlass 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" (41 mm) Type S screws or tabs from the J track at 24" (610 mm) o.c.
7. For doors, ducts or other large penetrations or openings, install J track as perimeter framing. Use 20-gauge (30 mils) track with a 3" (76 mm) back leg for elevator doors and block cavity with 12" (305 mm) wide gypsum board filler strips for doors exceeding 7'-0" (2134 mm) height.
8. 1" (25.4 mm) DensGlass Shaftliner panels may be abutted, spliced or stacked within the cavity. The shorter panel should be minimum 2' (610 mm) 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" (12.7 mm) ToughRock® Fireguard C™ or 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ gypsum board horizontally with 1" (25 mm) Type S or S-12 screws spaced 24" (610 mm) o.c. (5/8" (15.9 mm) ToughRock® Fireguard® or 5/8" (15.9 mm) DensArmor Plus® Fireguard® gypsum board may be used in lieu of 1/2" (12.7 mm) ToughRock Fireguard C gypsum board, if desired). The horizontal joints should be offset from any splice joints in the shaftliner panels by at least 12" (305 mm). Install the face layer vertically with 1-5/8" (41 mm) Type S or S-12 screws spaced 12" (305 mm) o.c. (All edge and end joints should be offset from the base layer by 24" (610 mm) o.c.)
10. For the 621 Series, finished both sides, each side may be installed either horizontally or vertically with 1" (25 mm) Type S or S-12 screws spaced 12" (305 mm) o.c. around the perimeter and 12" (305 mm) o.c. in the field. Offset edges and ends on opposite sides 24" (610 mm) o.c.
11. For the 622 1-hour system, finished one side, apply the 5/8" (15.9 mm) ToughRock Fireguard or DensArmor Plus Fireguard gypsum board vertically with 1" (25 mm) Type S or S-12 screws spaced 8" (203 mm) o.c. around the perimeter and 12" (305 mm) 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](http://www.gpgypsum.com) and look under CAD drawings.
14. For UL V473, finished one side, install the base layer of 5/8" (15.9 mm) ToughRock Fireguard or 5/8" (15.9 mm) DensArmor Plus Fireguard horizontally or vertically with 1" (25 mm) Type S screws spaced 24" (610 mm) o.c. Face layer shall be applied vertically, attached with 1-5/8" (41 mm) Type S screws spaced 12" (305 mm) o.c. (All end and edge joints should be offset from the base layer by 24" (610 mm) o.c.)

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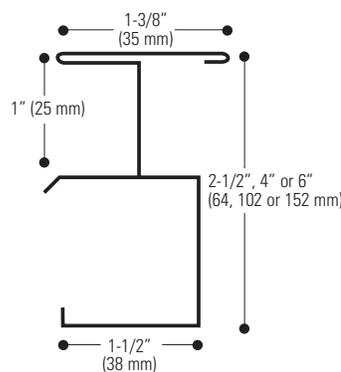
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See individual fire test listings for approved studs. (Drawings are not to scale.)

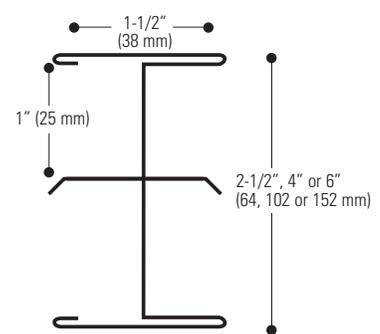
**C-T Stud Detail**



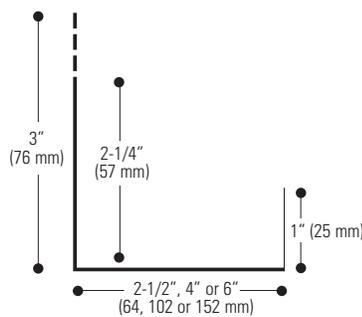
**C-H Stud Detail**



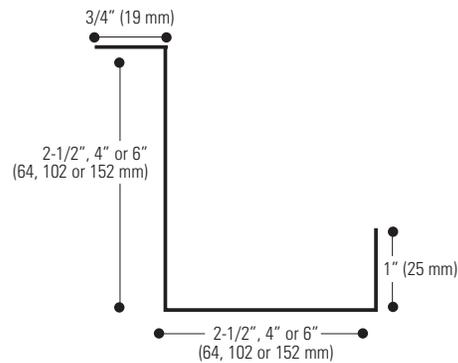
**I Stud Detail**



**J Track**



**J-L Corner**



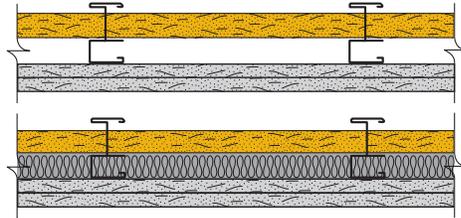
**Recommendations**

- Use a fastening plate to secure the J track whenever fasteners are closer than 4" (102 mm) 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" (19 mm) less than the height of the opening.
- Cut 1" (25.4 mm) DensGlass® Shaftliner panel 3/4" (19 mm) 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" (12.7 mm) ToughRock® Fireguard 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 (18 mils) steel framing. Use Type S-12 screws for 20-gauge (30 mils) (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

Design assemblies for illustrative purposes only. Consult appropriate fire resistance directory for assembly information. See Fire Safety Caution on back panel.

### UL V473 2-Hour Fire Rating



STC = 47 based on RAL TL 89 – 379

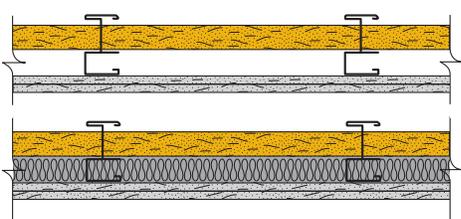
Test Reference: UL V473

Approx. Weight: 9 psf (44 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T or C-H studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished one side. Components: 1" (25.4 mm) DensGlass® Shaftliner panel, C-T studs and two layers of 5/8" (15.9 mm) DensArmor Plus® Fireguard® or 5/8" (15.9 mm) ToughRock® Fireguard® gypsum board installed horizontally for base layer and vertically for face layer. Edges and ends offset 24" (610 mm) o.c.

C-T or C-H Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	3-3/4" (95 mm)	5-1/4" (133 mm)	7-1/4" (184 mm)

### Series 620 2-Hour Fire Rating



STC = 47 RAL TL 89 – 379

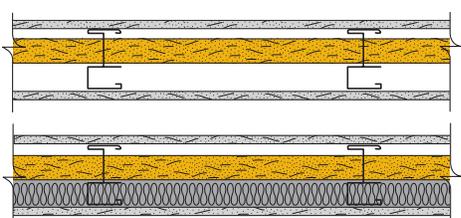
Test Reference: GA WP 7074, WHI GP/WA 120-01

Approx. Weight: 9 psf (44 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T, C-H or I studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished one side. Components: 1" (25.4 mm) DensGlass Shaftliner panel, C-T studs and two layers of 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ or 1/2" (12.7 mm) ToughRock® Fireguard C™ gypsum board installed horizontally for base layer and vertically for face layer. Edges and ends offset 24" (610 mm) o.c.

C-T, C-H or I Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	3-1/2" (89 mm)	5" (127 mm)	7" (178 mm)

### Series 621 2-Hour Fire Rating



STC = 45 RAL TL 89 – 380

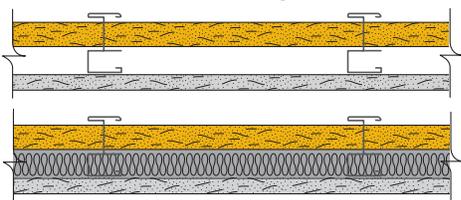
Test Reference: GA WP 7073, WHI GP/WA 120-02

Approx. Weight: 9 psf (44 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T, C-H or I studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished both sides with 1/2" (12.7 mm) DensArmor Plus Fireguard C or 1/2" (12.7 mm) ToughRock Fireguard C gypsum board installed horizontally or vertically. Edges and ends offset 24" (610 mm) o.c.

C-T, C-H or I Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	3-1/2" (89 mm)	5" (127 mm)	7" (178 mm)

### Series 622 1-Hour Fire Rating



STC = 39, est.

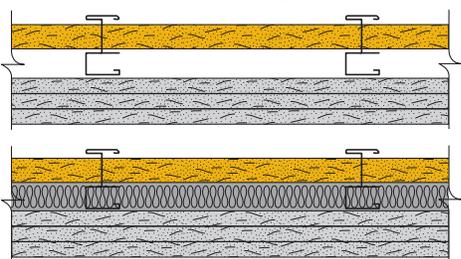
Test Reference: GA WP 7001, WHI GP/WA 60-01

Approx. Weight: 7 psf (34 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T, C-H or I studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished one side. Components: 1" (25.4 mm) DensGlass Shaftliner panel, studs and one layer of 5/8" (15.9 mm) ToughRock Fireguard or 5/8" (15.9 mm) DensArmor Plus Fireguard gypsum board installed vertically.

C-T, C-H or I Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	3-1/8" (79 mm)	4-5/8" (118 mm)	6-5/8" (168 mm)

### Series 630 3-Hour Fire Rating



STC = 47 Based on RAL TL 89 – 379

Test Reference: GA WP 7452, WHI GP/WA 180-01

Approx. Weight: 12 psf (59 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T, C-H or I studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished one side. Components: 1" (25.4 mm) DensGlass Shaftliner panel, studs and three layers of 5/8" (15.9 mm) ToughRock Fireguard C gypsum board installed horizontally or vertically. Edges and ends offset 24" (610 mm) o.c.

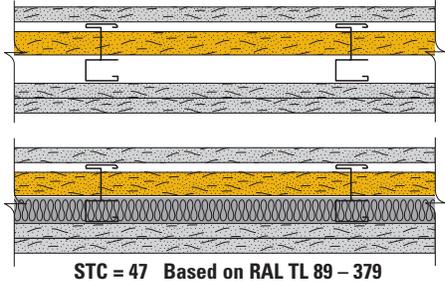
C-T, C-H or I Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	4-3/8" (111 mm)	5-7/8" (149 mm)	7-7/8" (200 mm)

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## Design Summary Vertical *continued*

### Series 631 3-Hour Fire Rating



Test Reference: Based on GA WP 7452, WHI GP/WA 180-01

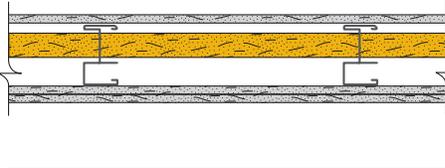
Approx. Weight: 12 psf (59 kg/m<sup>2</sup>)

Fiberglass sound insulation thickness is 1" (25 mm), 2-1/2" (64 mm) and 3-1/2" (89 mm) for C-T, C-H or I studs of 2-1/2" (64 mm), 4" (102 mm) and 6" (152 mm) respectively. Finished both sides with 5/8" (15.9 mm) ToughRock® Fireguard C™ gypsum board installed horizontally or vertically. Edges and ends offset 24" (610 mm) o.c.

C-T, C-H or I Stud	2-1/2" (64 mm)	4" (102 mm)	6" (152 mm)
Wall Thickness	4-3/8" (111 mm)	5-7/8" (149 mm)	7-7/8" (200 mm)

## Design Summary Horizontal

### Series 623 2-Hour Fire Rating

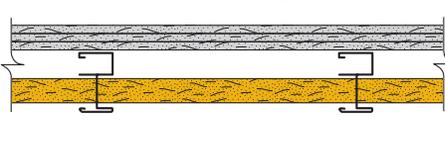


Test Reference: WHI-495-PSH-0128

Approx. Weight: 11 psf (54 kg/m<sup>2</sup>)

Designed for ceiling or duct shaft and composed of 1" (25.4 mm) DensGlass® Shaftliner panel supported by 2-1/2" (64 mm), 4" (102 mm) or 6" (152 mm) C-T studs and three layers of 1/2" (12.7 mm) ToughRock Fireguard C or 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ gypsum board.

### Series 624 2-Hour Fire Rating

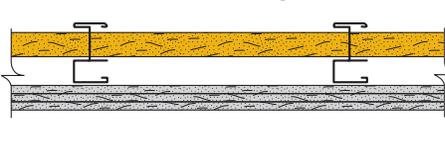


Test Reference: WHI-495-PSH-0153 & WHI-495-PSH-0197

Approx. Weight: 11 psf (54 kg/m<sup>2</sup>)

Designed to separate a room from structure or space above and composed of 1" (25.4 mm) DensGlass Shaftliner panel supported by 2-1/2" (64 mm), 4" (102 mm) or 6" (152 mm) C-T studs and three layers of 1/2" (12.7 mm) ToughRock Fireguard C or 1/2" (12.7 mm) DensArmor Plus Fireguard C gypsum board.

### Series 627 2-Hour Fire Rating



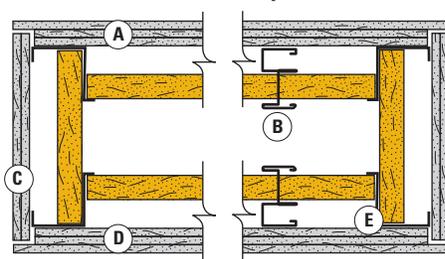
Test Reference: WHI-495-PSH-0183 & WHI-495-PSH-0196, WHI Design GP/CC 120-01

Approx. Weight: 11 psf (54 kg/m<sup>2</sup>)

Designed to separate a room from structure or space above and composed of 1" (25.4 mm) DensGlass Shaftliner panel supported by 2-1/2" (64 mm), 4" (102 mm) or 6" (152 mm) C-T studs and three layers of 1/2" (12.7 mm) ToughRock Fireguard C or 1/2" (12.7 mm) DensArmor Plus Fireguard C gypsum board.

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

### DensGlass® 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" (12.7 mm) DensArmor Plus Fireguard C, 1/2" (12.7 mm) ToughRock Fireguard C, 5/8" (15.9 mm) DensArmor Plus® Fireguard® and 5/8" (15.9 mm) ToughRock® Fireguard® 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" (25.4 mm) DensGlass 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" (606 mm) with double beveled edges. DensGlass 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" (41 mm) Type S screws 24" (610 mm) 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.

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## 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" (64 mm)	25 (18 mils)	9' 4" (2845 mm)	8' 2" (2489 mm)	8' 8" (2642 mm)	7' 7" (2311 mm)	8' 1" (2464 mm)	7' 1" (2159 mm)
2-1/2" (64 mm)	20 (30 mils)	11' 1" (3378 mm)	9' 8" (2946 mm)	10' 4" (3150 mm)	9' 0" (2743 mm)	9' 8" (2946 mm)	8' 5" (2565 mm)
4" (102 mm)	25 (18 mils)	13' 2" (4013 mm)	11' 6" (3505 mm)	12' 4" (3759 mm)	10' 9" (3277 mm)	11' 6" (3505 mm)	10' 0" (3048 mm)
4" (102 mm)	20 (30 mils)	15' 6" (4724 mm)	13' 7" (4140 mm)	14' 7" (4445 mm)	12' 9" (3886 mm)	13' 7" (4140 mm)	11' 10" (3607 mm)
6" (152 mm)	25 (18 mils)	17' 11" (5461 mm)	15' 8" (4775 mm)	16' 9" (5105 mm)	14' 7" (4445 mm)	15' 7" (4750 mm)	13' 7" (4140 mm)
6" (152 mm)	20 (30 mils)	21' 1" (6426 mm)	18' 6" (5639 mm)	19' 9" (6020 mm)	17' 3" (5258 mm)	18' 6" (5639 mm)	16' 2" (4928 mm)

Span calculations based on stud properties. Use 20-gauge (30 mils) 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 <sub>x</sub>	S <sub>x</sub> (C)	S <sub>x</sub> (T)
2-1/2" (64 mm) – 25 gauge (18 mils)	0.0179	0.470	0.118	0.132	0.095	0.118
2-1/2" (64 mm) – 20 gauge (30 mils)	0.0329	0.820	0.218	0.242	0.175	0.217
4" (102 mm) – 25 gauge (18 mils)	0.0179	0.580	0.145	0.374	0.171	0.207
4" (102 mm) – 20 gauge (30 mils)	0.0329	1.020	0.267	0.687	0.341	0.380
6" (152 mm) – 25 gauge (18 mils)	0.0179	0.715	0.181	0.957	0.299	0.347
6" (152 mm) – 20 gauge (30 mils)	0.0329	1.260	0.333	1.759	0.543	0.637

T = Minimum Uncoated Base Steel Thickness (inches) I<sub>x</sub> = Moment of Inertia (inches)

W = Weight (pounds per linear foot) S<sub>x</sub>(C) = Section Modulus 'C' flange (inches)

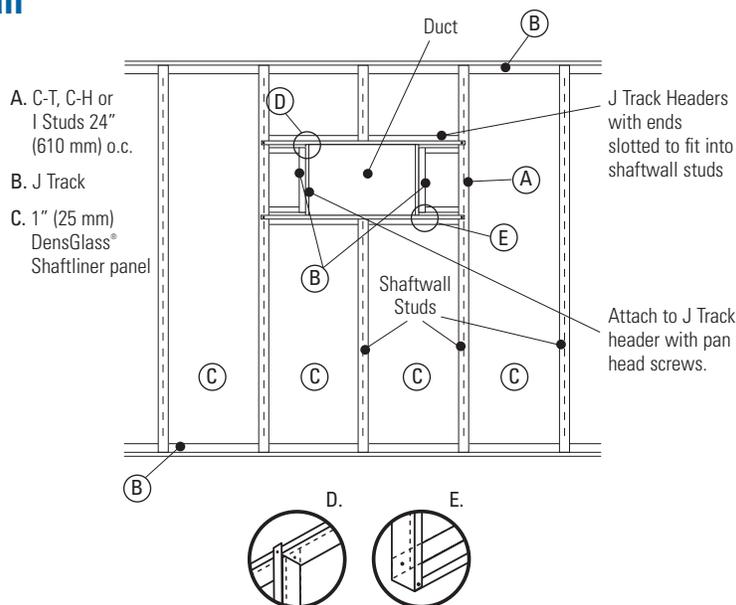
A = Sectional Area (inches) S<sub>x</sub>(T) = Section Modulus 'T' flange (inches)

## 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" (64 mm)	25 (18 mils)	L/120	14' 2" (4318 mm)	12' 5" (3785 mm)	11' 3" (3429 mm)	9' 4" (2845 mm)	15' 6" (4724 mm)	13' 3" (4037 mm)	11' 6" (3505 mm)	9' 5" (2870 mm)
		L/180	12' 5" (3785 mm)	10' 10" (3302 mm)	9' 10" (2997 mm)	8' 7" (2616 mm)	13' 7" (4140 mm)	11' 10" (3607 mm)	10' 9" (3277 mm)	9' 5" (2870 mm)
		L/240	11' 3" (3429 mm)	9' 10" (2997 mm)	8' 11" (2718 mm)	7' 10" (2388 mm)	12' 4" (3759 mm)	10' 9" (3277 mm)	9' 9" (2972 mm)	8' 6" (2591 mm)
		L/360	9' 10" (2997 mm)	8' 7" (2616 mm)	7' 10" (2388 mm)	6' 10" (2083 mm)	10' 9" (3277 mm)	9' 5" (2870 mm)	8' 6" (2591 mm)	7' 6" (2286 mm)
2.5" (64 mm)	20 (30 mils)	L/120	15' 10" (4826 mm)	13' 10" (4216 mm)	12' 6" (3810 mm)	10' 11" (3327 mm)	17' 4" (5283 mm)	15' 1" (4597 mm)	13' 9" (4191 mm)	12' 0" (3658 mm)
		L/180	13' 10" (4216 mm)	12' 1" (3683 mm)	10' 11" (3327 mm)	9' 7" (2921 mm)	15' 1" (4597 mm)	13' 2" (4013 mm)	12' 0" (3658 mm)	10' 6" (3200 mm)
		L/240	12' 6" (3810 mm)	10' 11" (3327 mm)	9' 11" (3027 mm)	8' 8" (2642 mm)	13' 9" (4191 mm)	12' 0" (3658 mm)	10' 11" (3327 mm)	9' 6" (2896 mm)
		L/360	10' 11" (3327 mm)	9' 7" (2921 mm)	8' 8" (2642 mm)	7' 7" (2311 mm)	12' 0" (3658 mm)	10' 6" (3200 mm)	9' 6" (2896 mm)	8' 4" (2540 mm)
4" (102 mm)	25 (18 mils)	L/120	19' 1" (5817 mm)	15' 11" (4851 mm)	13' 10" (4216 mm)	11' 3" (3429 mm)	19' 7" (5969 mm)	15' 11" (4851 mm)	13' 10" (4216 mm)	11' 3" (3429 mm)
		L/180	16' 8" (5080 mm)	14' 6" (4470 mm)	13' 2" (4013 mm)	11' 3" (3429 mm)	18' 3" (5563 mm)	15' 11" (4851 mm)	13' 10" (4216 mm)	11' 3" (3429 mm)
		L/240	15' 1" (4597 mm)	13' 2" (4013 mm)	12' 0" (3658 mm)	10' 6" (3200 mm)	16' 7" (5055 mm)	14' 5" (4394 mm)	13' 2" (4013 mm)	11' 3" (3429 mm)
		L/360	13' 2" (4013 mm)	11' 6" (3505 mm)	10' 6" (3200 mm)	9' 2" (2794 mm)	14' 5" (4394 mm)	12' 8" (3861 mm)	11' 6" (3505 mm)	11' 3" (3429 mm)
4" (102 mm)	20 (30 mils)	L/120	21' 8" (6604 mm)	18' 11" (5766 mm)	17' 2" (5232 mm)	15' 0" (4572 mm)	23' 8" (7214 mm)	20' 8" (6299 mm)	18' 9" (5715 mm)	15' 6" (4724 mm)
		L/180	18' 11" (5766 mm)	16' 6" (5029 mm)	15' 0" (4572 mm)	13' 1" (3988 mm)	20' 8" (6299 mm)	18' 1" (5518 mm)	16' 5" (5004 mm)	14' 4" (4369 mm)
		L/240	17' 2" (5232 mm)	15' 0" (4572 mm)	13' 8" (4166 mm)	11' 11" (3632 mm)	18' 9" (5715 mm)	16' 5" (5004 mm)	14' 11" (4547 mm)	13' 0" (3962 mm)
		L/360	15' 0" (4572 mm)	13' 1" (3988 mm)	11' 11" (3632 mm)	10' 5" (3175 mm)	16' 5" (5004 mm)	14' 4" (4369 mm)	13' 0" (3962 mm)	11' 5" (3480 mm)
6" (152 mm)	25 (18 mils)	L/120	22' 7" (6883 mm)	18' 9" (5715 mm)	16' 3" (4953 mm)	12' 0" (3658 mm)	22' 11" (6985 mm)	18' 9" (5715 mm)	16' 3" (4953 mm)	12' 0" (3658 mm)
		L/180	19' 9" (6020 mm)	17' 3" (5258 mm)	15' 8" (4775 mm)	12' 0" (3658 mm)	21' 8" (6604 mm)	18' 9" (5715 mm)	16' 3" (4953 mm)	12' 0" (3658 mm)
		L/240	17' 11" (5461 mm)	15' 8" (4775 mm)	14' 3" (4343 mm)	12' 0" (3658 mm)	19' 8" (5994 mm)	17' 2" (5232 mm)	15' 7" (4750 mm)	12' 0" (3658 mm)
		L/360	15' 8" (4775 mm)	13' 8" (4166 mm)	12' 5" (3785 mm)	10' 10" (3302 mm)	17' 2" (5232 mm)	15' 0" (4572 mm)	13' 8" (4166 mm)	11' 11" (3632 mm)
6" (152 mm)	20 (30 mils)	L/120	27' 4" (8331 mm)	23' 11" (6985 mm)	21' 8" (6604 mm)	19' 0" (5791 mm)	30' 0" (9144 mm)	26' 2" (7976 mm)	23' 7" (7188 mm)	19' 3" (5867 mm)
		L/180	23' 11" (6985 mm)	21' 11" (6680 mm)	19' 0" (5791 mm)	16' 7" (5055 mm)	26' 2" (7976 mm)	22' 11" (6985 mm)	20' 9" (6325 mm)	18' 2" (5537 mm)
		L/240	21' 8" (6604 mm)	19' 0" (5791 mm)	17' 3" (5258 mm)	15' 1" (4597 mm)	23' 9" (7239 mm)	20' 9" (6325 mm)	18' 11" (5766 mm)	16' 6" (5029 mm)
		L/360	19' 0" (5791 mm)	16' 7" (5055 mm)	15' 1" (4597 mm)	13' 2" (4013 mm)	20' 9" (6325 mm)	18' 2" (5537 mm)	16' 6" (5029 mm)	14' 5" (4394 mm)

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

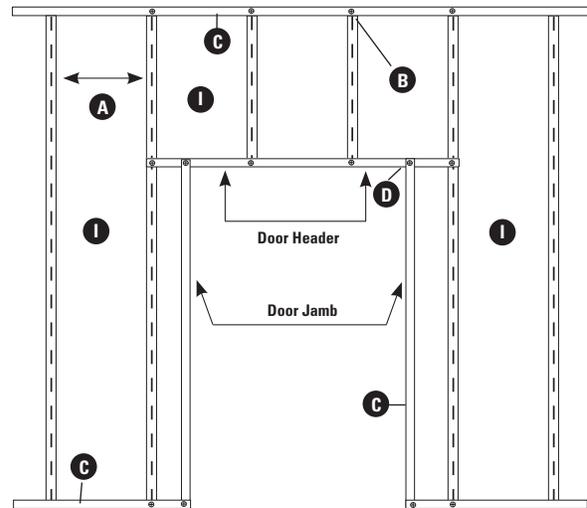
## HVAC Duct Detail



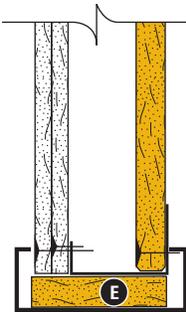
## Door Frame Details

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" (610 mm) o.c.
- B. Pan head screws on both sides of door framing
- C. J track
- D. Alternate to bending tabs: use 1-5/8" (41 mm) Type S screws at 24" (610 mm) o.c.
- E. Gypsum board filler strips may be required where jambs are in place prior to walls
- F. 20-gauge (30 mils) J track
- G. 20-gauge (30 mils) J track screwed to jamb anchor clips
- H. Solid gypsum board filler strips as required for frames
- I. 1" (25 mm) DensGlass® Shaftliner panel
- J. 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ interior panel or 1/2" (12.7 mm) ToughRock® Fireguard® gypsum board
- K. Acoustical Sealant
- L. Power actuated fasteners 24" (610 mm) o.c.



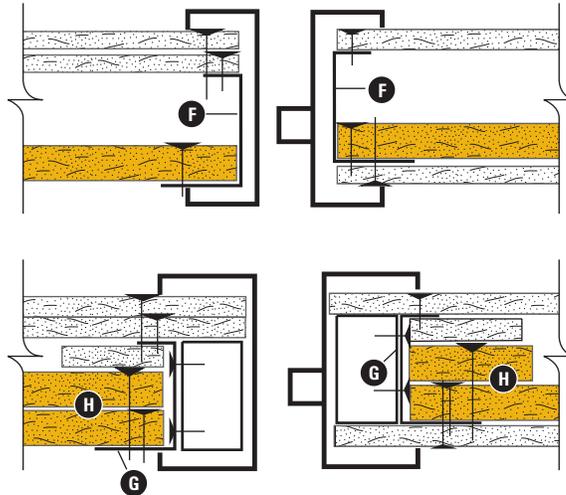
### Door Header



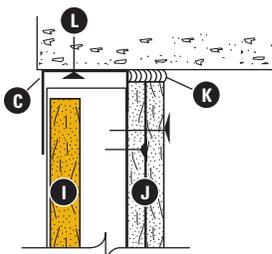
### Door Jamb, Typical

620 Series

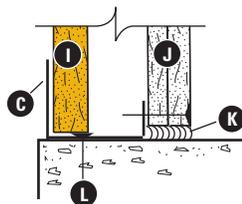
621 Series



### View of Top of Wall



### View of Base

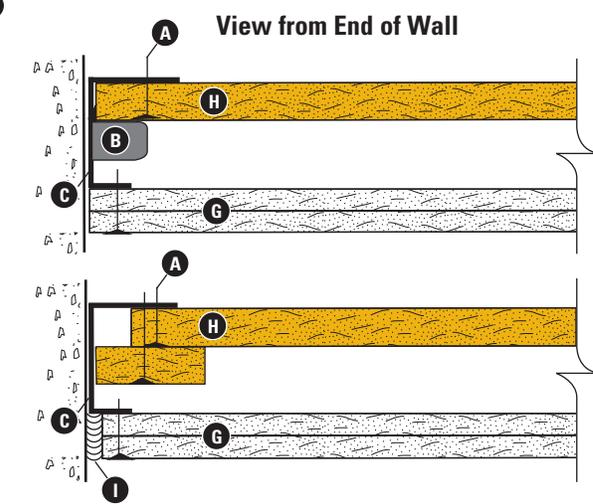
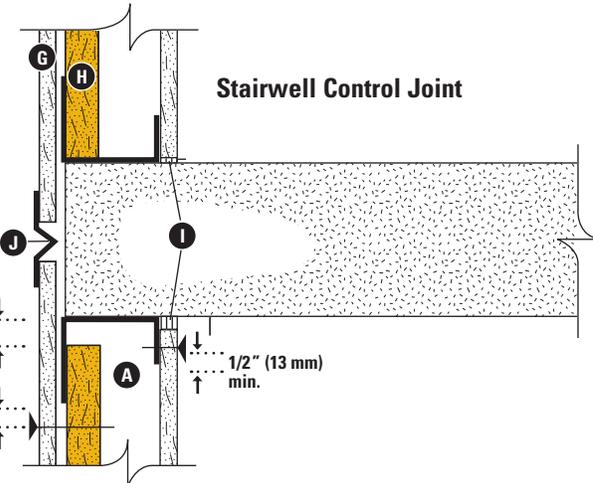
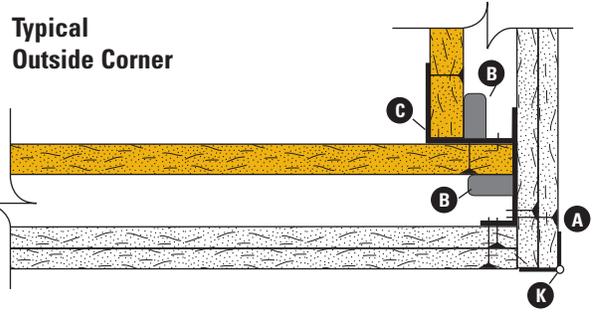
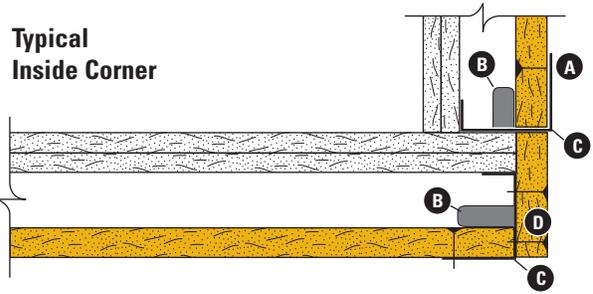
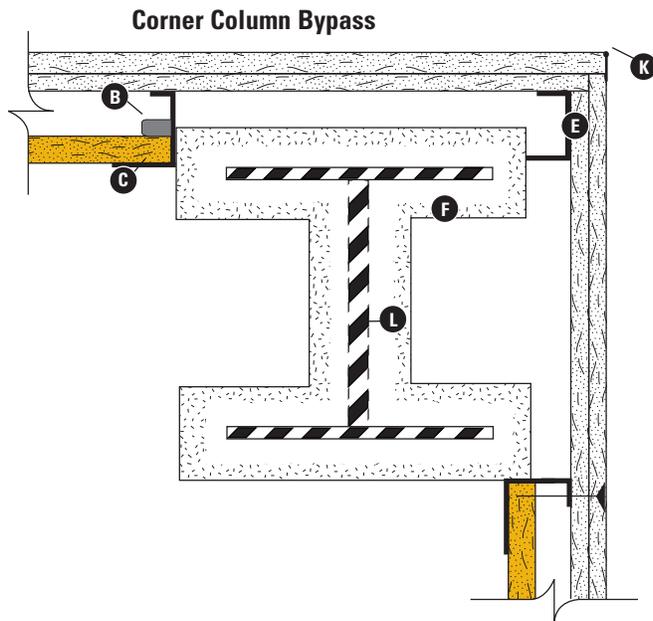
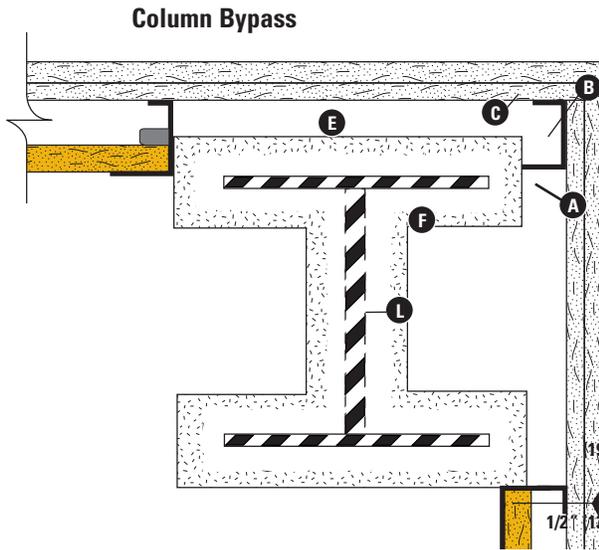


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## Wall Frame Details

- A. Alternate to bending tabs: use 1-5/8" (41 mm) Type S screws at 24" (610 mm) o.c.
- B. Tabs in J track bent out at 24" (610 mm), alternate to using screws
- C. J track
- D. Attached to J track prior to installation.
- E. Metal C stud or J track where span is over 24" (610 mm), alternate to using screws
- F. Spray-on fireproofing
- G. 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ or 1/2" (12.7 mm) ToughRock® Fireguard C™ gypsum board
- H. 1" DensGlass® Shaftliner panel
- I. Acoustical Sealant
- J. Control joint
- K. Corner bead
- L. Column

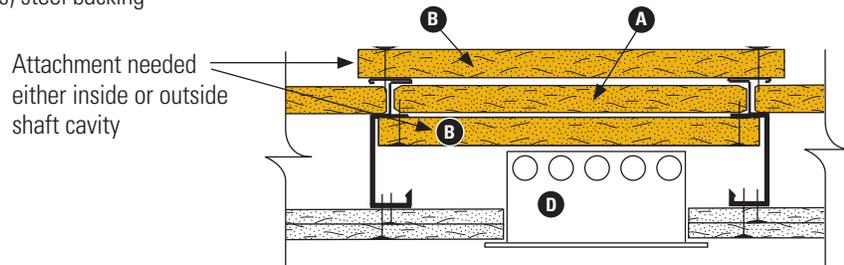


## Rails/Chute/Beam Details

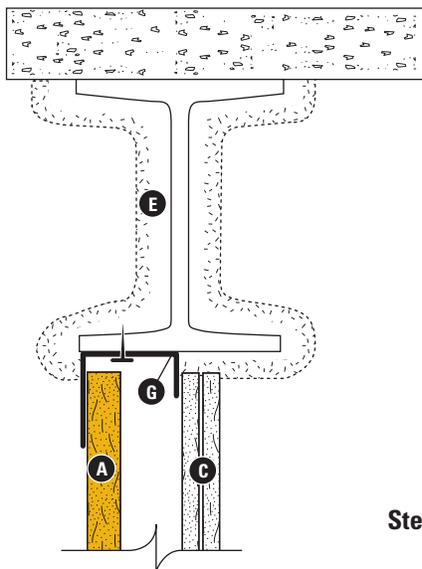
- A. 1" (25.4 mm) DensGlass® Shaftliner panel
- B. Additional attachment of 1" (25.4 mm) DensGlass Shaftliner panel, inside or outside item A
- C. 1/2" (12.7 mm) DensArmor Plus® Fireguard C™ or 1/2" (12.7 mm) ToughRock® Fireguard C™ gypsum board
- D. Typical call indicator box
- E. Spray-on fireproofing
- F. Fasteners 24" (610 mm) o.c.
- G. J track
- H. Handrail
- I. 6" (152 mm) wide 16-gauge (54 mils) steel backing plate screwed to C-T Studs

### Call Box/Outlet Box/Mail Chute

4" (102 mm) minimum height behind box and screw attached to tabs or flanges of C-T studs or J track.

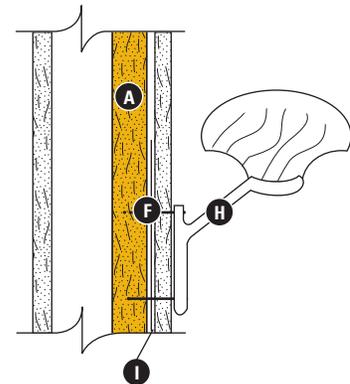


### Steel Beam

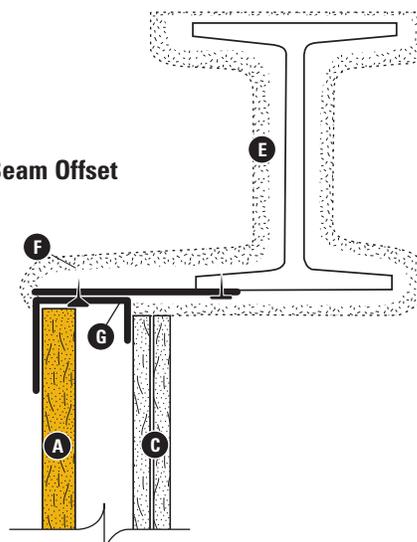


### Heavy-Duty Handrail

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



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## 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® 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. Reference GA 801 for storage information. **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 Shaftliner panels and gypsum board. Heat corridor or shaft when outdoor temperature is below 50°F (10°C) 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" (64 mm), 4" (102 mm) and 6" (152 mm)  
Gauge: 20 (30 mils) at elevator doors and masonry cavities and 25 (18 mils) 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" (64 mm), 4" (102 mm) and 6" (152 mm)  
Gauge: 20 and 25 (30 and 18 mils)

##### B. 1" (25.4 mm) DensGlass Shaftliner Panels, conforming to ASTM C 1658 or ASTM C 1396.

##### C. 1/2" (12.7 mm) or 5/8" (15.9 mm) ToughRock® Fireguard C™ gypsum board, 1/2" (12.7 mm) DensArmor Plus® Fireguard® gypsum board, 5/8" (15.9 mm) DensArmor Plus Fireguard or 5/8" (15.9 mm) ToughRock® Fireguard® meeting the relevant physical property requirements of ASTM C 1658, ASTM C 1396 and ASTM C 36.

##### D. Fasteners: For 25-gauge (18 mils) framing – Type S screws. For 20-gauge (30 mils) 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.

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## 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" (25 mm) DensGlass® 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" (610 mm) o.c.

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

Space C-T, C-H, I studs at 24" (610 mm) o.c. Adjust the spacing at ends of shaftwall construction so end studs are minimum 8" (203 mm) from the ends.

Install the first DensGlass Shaftliner panel. The panel length shall be 3/4" (19 mm) 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, C-H, I stud into the top and bottom J tracks and fit tightly over the previously installed 1" (25 mm) panel. Allow equal clearance between track and stud at top and bottom J track. The stud length shall be 3/4" (19 mm) less than the total height of the framed section.

Install the second 1" (25 mm) DensGlass Shaftliner panel inside the J track and within the tabs of the C-T, C-H, I 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" (305 mm) o.c. with tabs from the J track, or 1-5/8" (41 mm) screws.

Where wall heights exceed the standard or available length of DensGlass Shaftliner, the panels shall be cut and stacked. The shorter panels shall be minimum 24" (610 mm) long and of sufficient length to engage two stud tabs. Joints of adjacent panels shall be offset at least 12" (305 mm).

For doors, ducts or other large penetrations or openings, install J track as perimeter framing. Use 20-gauge (30 mils) track with a 3" (76 mm) back leg for elevator doors and block cavity. Install 12" (305 mm) wide gypsum filler strips for doors exceeding 7'-0" (2135 mm) height.

#### 3.2 Installation of Gypsum Board:

A. DensGlass Shaftliner shaftwall system finished one side:

Install the base layer of gypsum board horizontally with approved fasteners spaced 24" (610 mm) o.c. and 3" (76 mm) from all edges. Offset the horizontal joints minimum 12" (305 mm) 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" (305 mm) o.c. and 6" (152 mm) from all edges. Offset edge and end joints from the base layer at least 24" (610 mm).

B. Stairwell system, finished both sides:

Install gypsum board on both sides, either horizontally or vertically. Attach gypsum board with approved fasteners spaced 12" (305 mm) o.c. and 6" (152 mm) from all edges. Offset edges and ends of gypsum board on opposite sides minimum 24" (610 mm).

C. Finishing of Gypsum Board:

Refer to ASTM C 840 or GA 214.

#### 3.3 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 Board Thickness

1/4 in. – 6 mm  
 1/2 in. – 12.7 mm  
 5/8 in. – 15.9 mm  
 1 in. – 25.4 mm

#### Gypsum Board Width

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

#### Gypsum Board 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

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<b>DensGlass® Sheathing</b>	The original and universal standard of exterior gypsum sheathing offers superior weather resistance, with a 12-month weather exposure limited warranty. Look for the familiar GOLD color.
<b>DensShield® Tile Backer</b>	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.
<b>DensDeck® Roof Boards</b>	Fiberglass mat roof board used as the ideal thermal barrier and cover board to improve resistance to wind uplift, hail, foot traffic, fire, moisture and mold in a broad range of commercial roofing applications. Look for green DensDeck Prime and DensDeck DuraGuard, too.
<b>DensGlass® Shaftliner</b>	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.
<b>DensArmor Plus® High-Performance Interior Panel</b>	High-performance interior panel accelerates scheduling because it can be installed before the building is dried-in. 12-month weather exposure limited warranty. GREENGUARD Indoor Air Quality Certified,® GREENGUARD Children & SchoolsSM Certified and CHPS™ listed for low emissions. GREENGUARD listed for microbial resistance.
<b>DensArmor Plus® Abuse-Resistant Interior Panel</b>	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,® GREENGUARD Children & SchoolsSM Certified and CHPS™ listed for low emissions. GREENGUARD listed for microbial resistance.
<b>DensArmor Plus® Impact-Resistant Interior Panel</b>	Even greater durability with an embedded impact-resistant mesh for the ultimate resistance in high traffic areas. Ideal for healthcare facilities, schools and correctional institutions. GREENGUARD Indoor Air Quality Certified,® GREENGUARD Children & SchoolsSM Certified and CHPS™ listed for low emissions. GREENGUARD listed for microbial resistance.



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Gypsum

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CANADA Georgia-Pacific Canada, ULC

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### 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.

### 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.