SHAFT WALL FRAMING

Event: MASFA Dinner Presentation

Date: Thursday, September 7, 2023

Location: Union Jack's – Columbia, MD

Disclaimer: This presentation is not intended to highlight specific shaft wall stud/track manufacturers, gypsum board manufacturers, or any proprietary product(s). Documents, photographs, and illustrations used herein are for educational purposes and not intended to support specific products and/or assemblies.

SPEAKER INTRODUCTIONS

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AWCI ASSOCIATION OF THE WALL AND CEILING INDUSTRY

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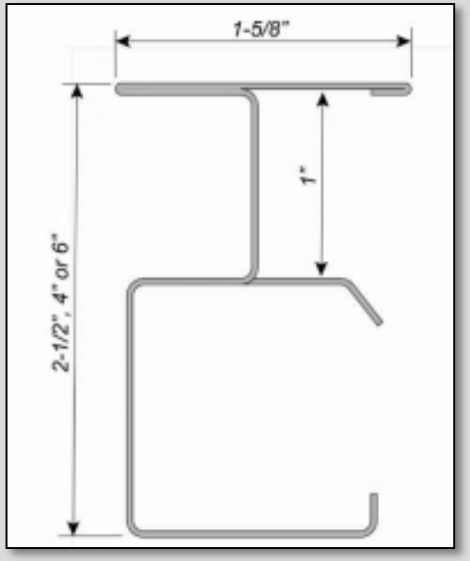
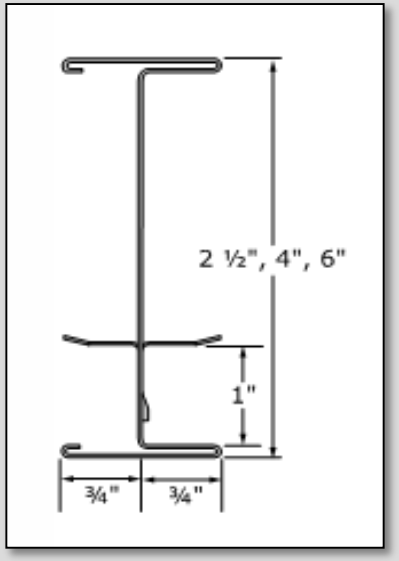
LEARNING OBJECTIVES

- SHAFT WALL STUD & TRACK PROFILES AVAILABLE
- DESIGN AND INSTALLATION STANDARDS
- DESIGN AND INSTALLATION ISSUES AND OBSTACLES
- SAFETY DURING SHAFT WALL CONSTRUCTION

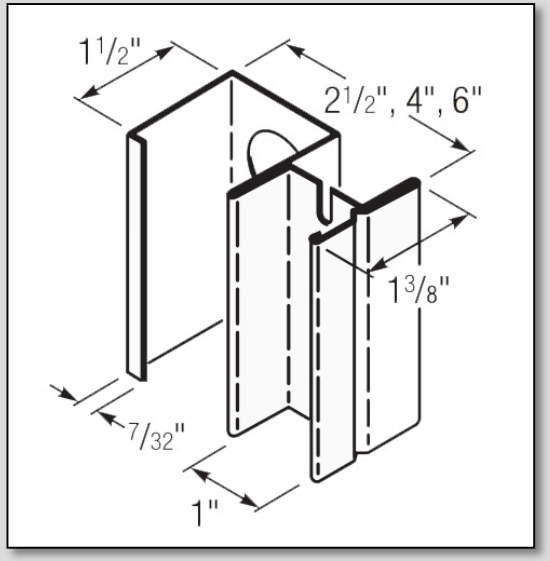
SHAFT WALL STUD PROFILE AND SIZES



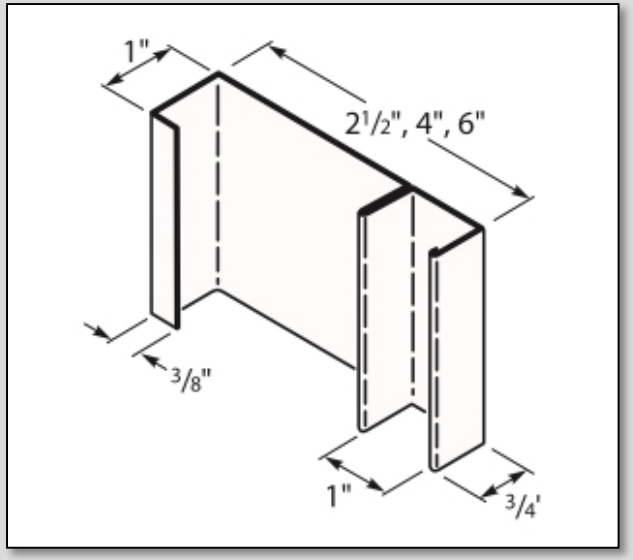
CT Profile



I Profile



CH Profile



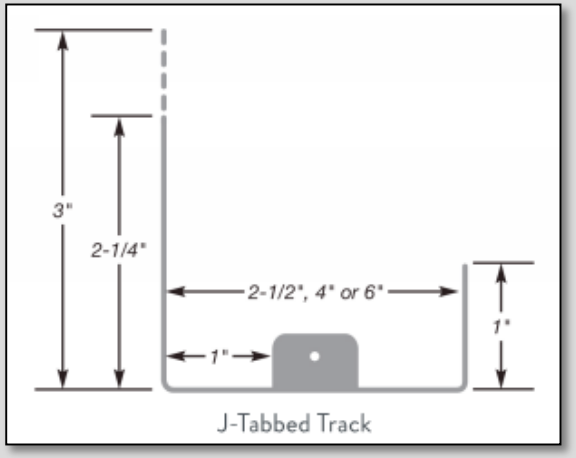
E Profile*

Thicknesses range from 18 MIL and 22 MIL (25 GA) to
33 MIL (20 GA) to 43 MIL (18 GA)

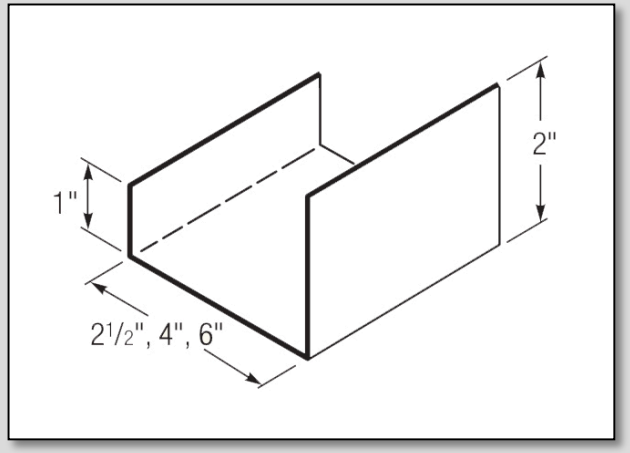
- Slight variation in thicknesses – see respective manufacturer for material thicknesses offered

*** Check with manufacturer(s) for availability**

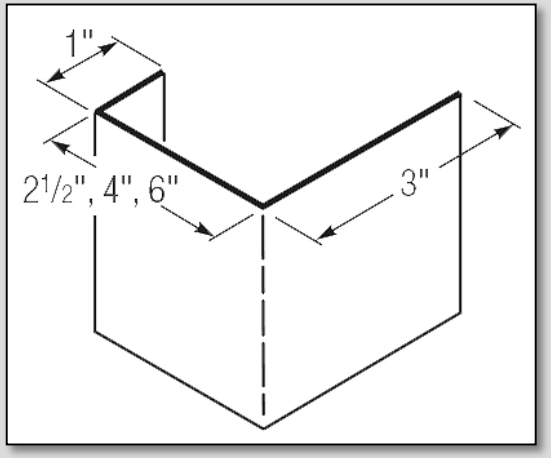
SHAFT WALL TRACK PROFILE AND SIZES



Tabbed J-Track



J-Runner

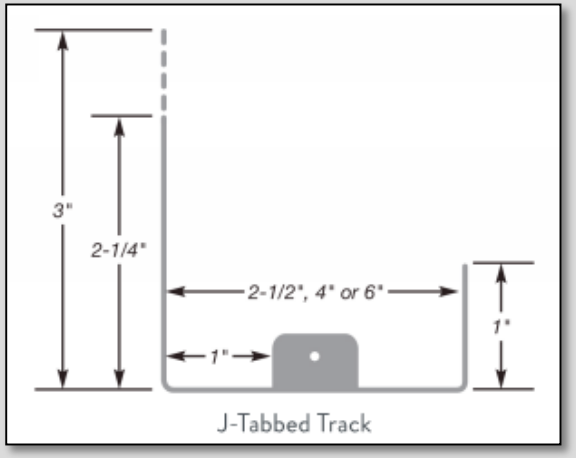


Jamb-Strut

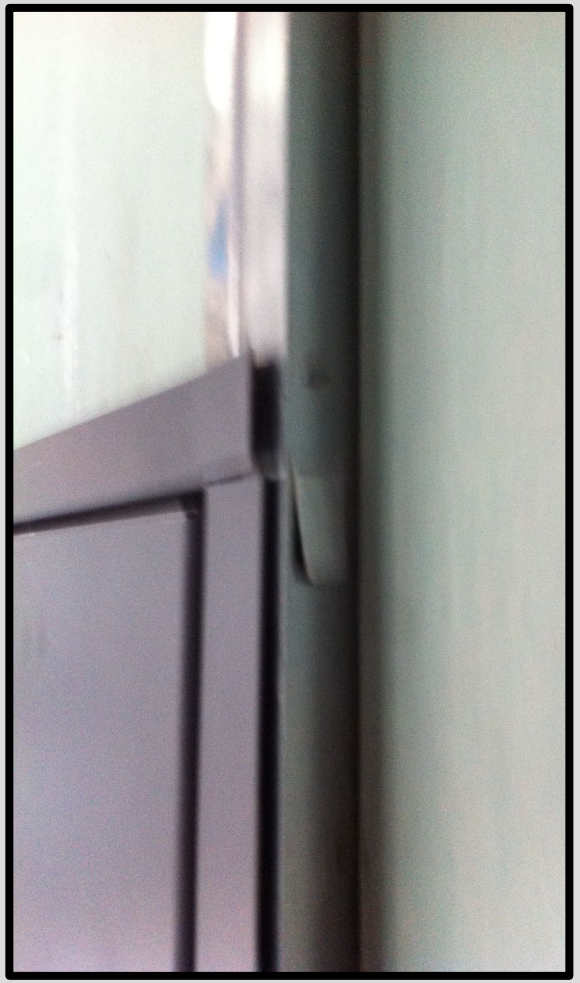
Thicknesses range from 18 MIL and 22 MIL (25 GA) to 33 MIL (20 GA) to 43 MIL (18 GA)

- Slight variation in thicknesses – see respective manufacturer for material thicknesses offered

SHAFT WALL TRACK PROFILE AND SIZES



Tabbed J-Track



Not always used as tracks:

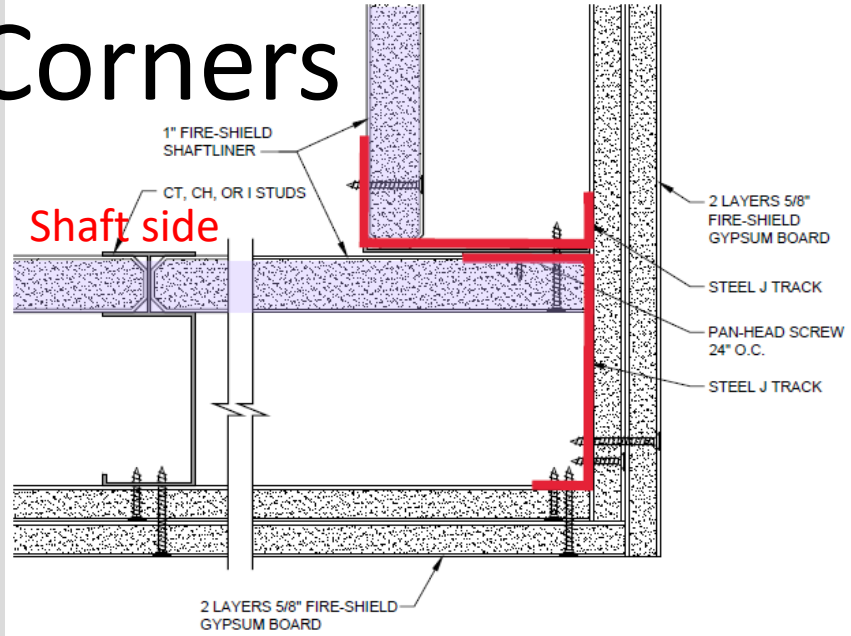
- Jamb studs
- Headers
- Corners

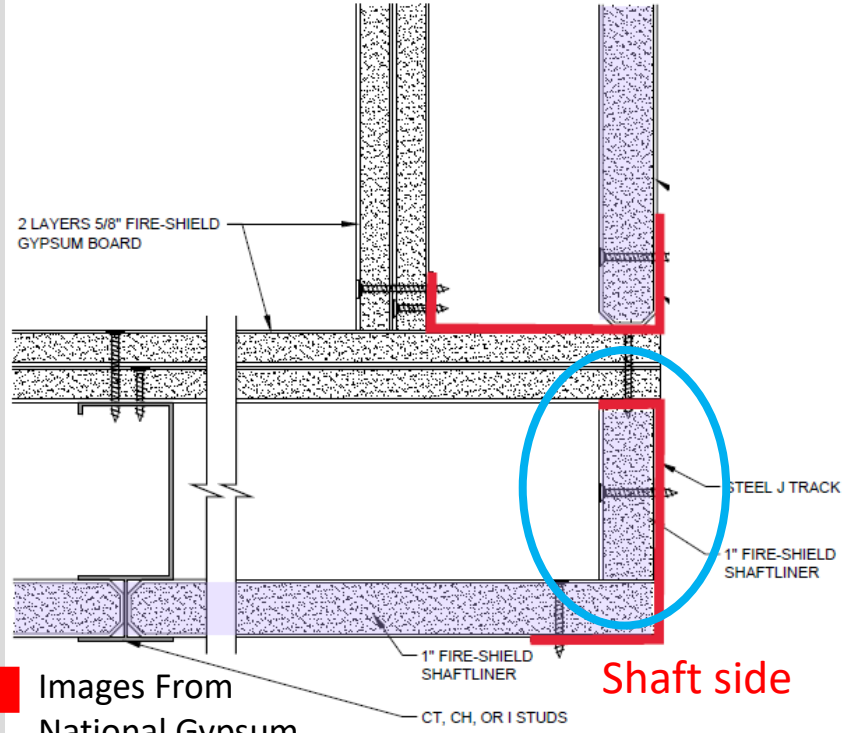
Tabbed Track used for Jambs

Double back-to-back members

- Screwed together: connection requirements?
- Most installations: tabs not used: screwed board to far flange.

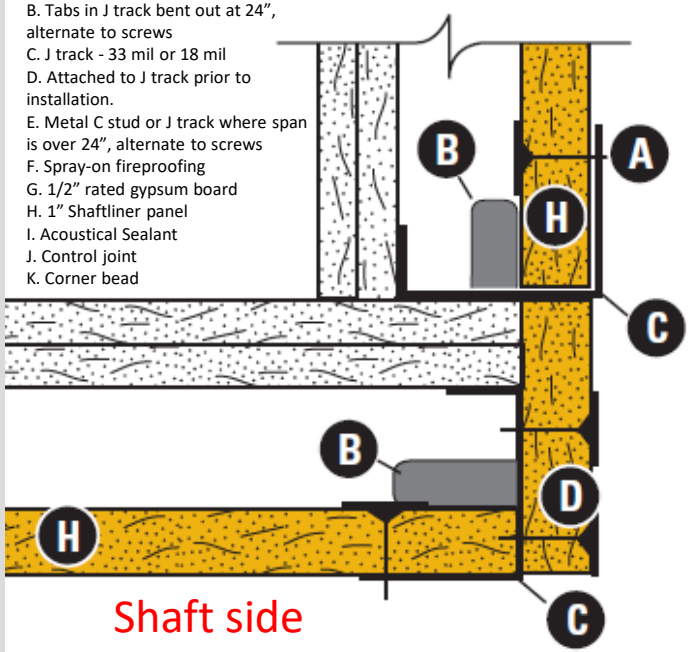
Corners

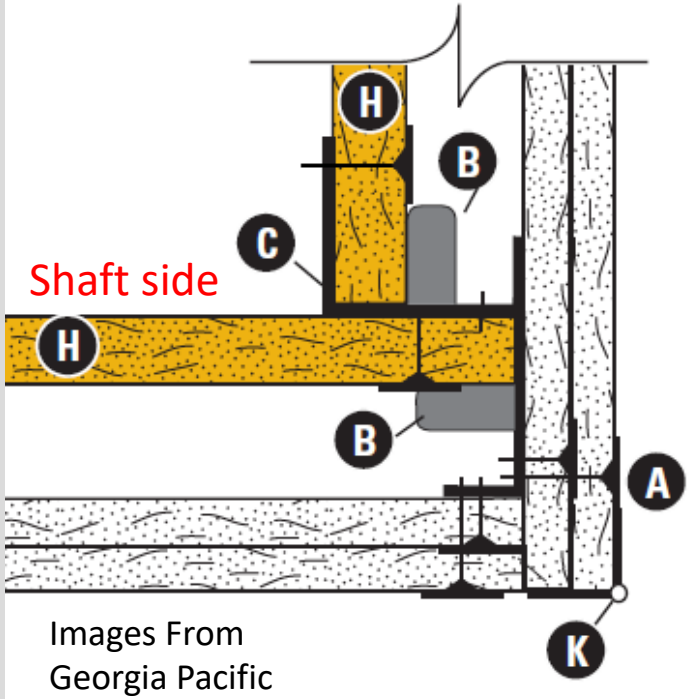




Images From National Gypsum

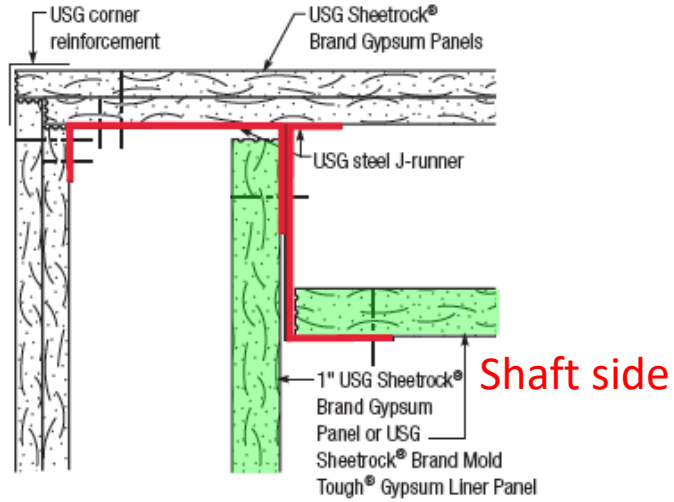
A. Alternate to bending tabs: use 1-5/8" Type S screws at 24" (610 mm) o.c.
B. Tabs in J track bent out at 24", alternate to screws
C. J track - 33 mil or 18 mil
D. Attached to J track prior to installation.
E. Metal C stud or J track where span is over 24", alternate to screws
F. Spray-on fireproofing
G. 1/2" rated gypsum board
H. 1" Shaftliner panel
I. Acoustical Sealant
J. Control joint
K. Corner bead





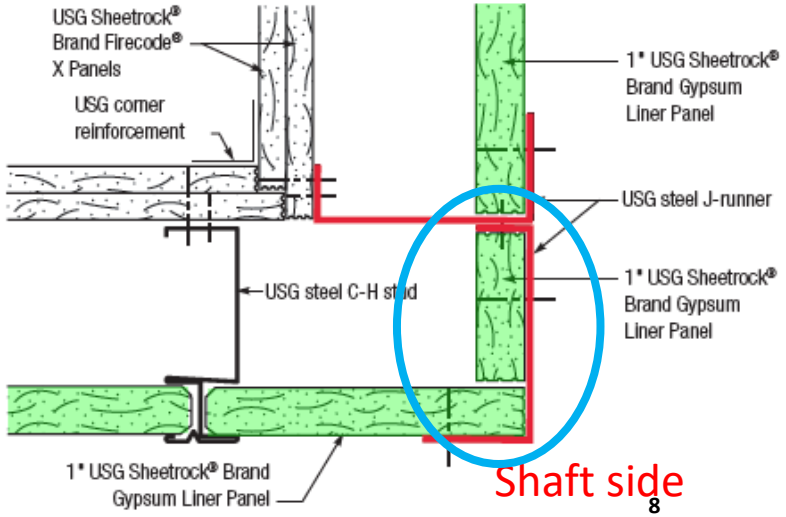
Images From Georgia Pacific

Outside Corner



Images From USG

Inside Corner



Some questions about shaft wall

- Is it shaft wall (2 words) or is it shaftwall (1 word)?
- Can I stack shaft wall?
- Can I change the stud spacing from the traditional 24” o.c.?
- Can I get shaftwall studs that are thicker than 43 mils, or deeper than 6”?
- Can I use shaft wall in exterior applications?

REFERENCE STANDARDS

2021 International Building Code – Chapter 7 – Fire and Smoke Protection Features

- ASTM E119 – *Standard Methods of Fire Tests of Building Construction and Materials*
- UL 263 – *Fire Tests of Building Construction and Materials*

2021 International Building Code – Chapter 25 – Gypsum Board, Gypsum Panel Products, and Plaster

- Table 2506.2 – Cold-formed steel studs and track, nonstructural → AISI S220
- Migrated from ASTM C645 to AISI S220 (Started with 2015 IBC)

American Iron and Steel Institute

REFERENCE STANDARDS

American Iron and Steel Institute

AISI S220 – North American Standard for Cold-Formed Steel Nonstructural Framing

- *Nonstructural Member* – A member in a steel-framed system that is not part of the gravity load-resisting system, lateral force-resisting system or building envelope.

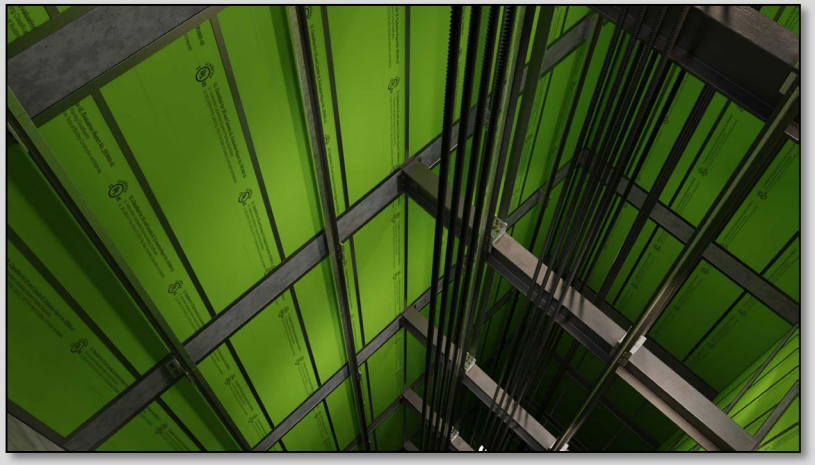
AISI S220 – A1.2 Applicability

1. Limited to a transverse (out-of-plane) load of not more than 10 lb/ft^2
    - Exception: Pressurized air plenums, ceilings and elevator shaft enclosures permitted to have not more than 15 lb/ft^2
2. Limited to a superimposed axial load, exclusive of sheathing materials, of not more than 100 lb/ft **
3. Limited to a superimposed axial load of not more than 200 lbs **

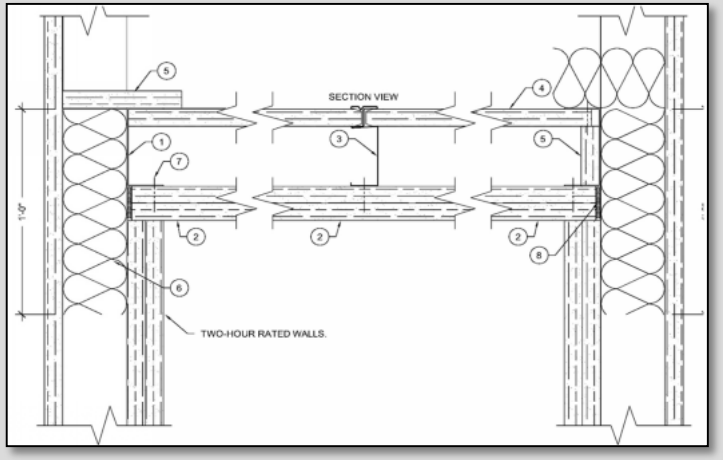
** 3rd Party Evaluation/Compliance reports will list superimposed vertical loading of zero pounds for shaft wall framing systems.

COMMON SHAFT WALL APPLICATIONS

Elevator shafts



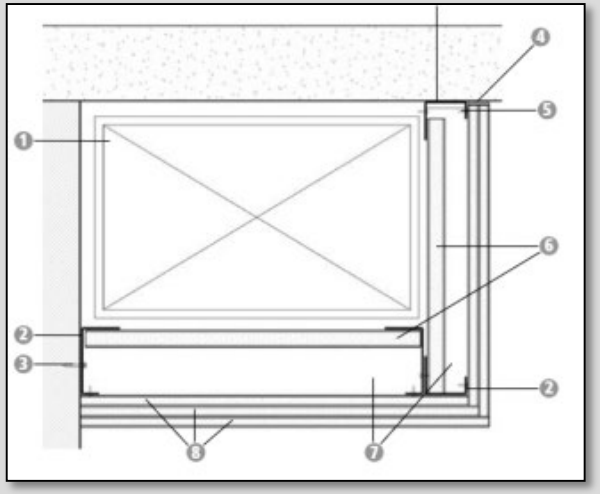
Corridor Ceilings



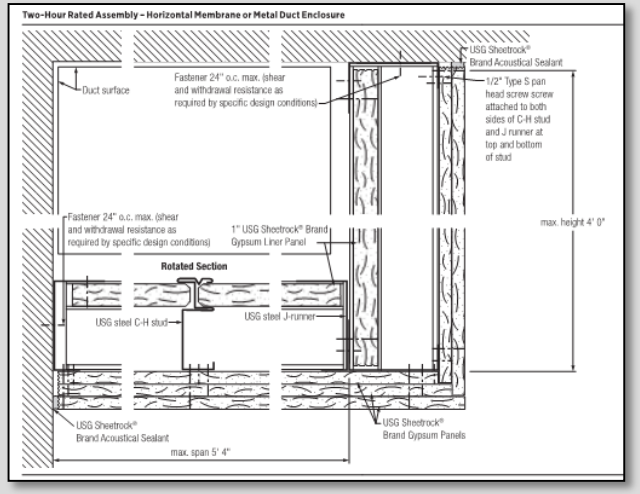
United States Gypsum – Code Compliance Report

Stair Walls

Duct Enclosures



National Gypsum – Shaft Wall Catalog



United States Gypsum – Shaft Wall Catalog

SHAFT WALL SYSTEM EXAMPLES

2. **Steel Studs —**

Systems A, B, E, G and I

"I" -shaped studs fabricated from min 25 MSG galv steel, min 2-1/2 in. deep, 1-1/2 in. wide. Studs contain 3/4 in. wide by 2-1/4 in. high holding tabs spaced 2-3/4 in. OC. Cut to lengths 5/8 in. less than floor-to-ceiling height and spaced 24 in.

Systems C, D, F, H and J

"C-T" -shaped studs, min 2-1/2 in. deep, 1-1/2 in. wide, fabricated from min 25 MSG galv steel. Cut to lengths 5/8 in. less than floor-to-ceiling height and spaced 24 in. or

"C-H" - shaped studs, min 2-1/2 in. deep, fabricated from min 25 MSG galv steel. Cut to lengths 5/8 in. less than floor-to-ceiling height and spaced 24 in. OC.

2A. **Steel Studs —** (Not Shown) — Alternate to Item 2, "E" - shaped studs installed back to back in place of "C-H" - shaped studs (Item 2) "E" - shaped studs secured together with steel screws spaced a maximum 12 in. OC. Fabricated from min 25 MSG (min 20 MSG when Item 5A is used) galv steel, min 2-1/2 in. deep, with one leg 1 in. long and two legs 3/4 in. long. Shorter legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 to 1/2 in. less than floor to ceiling heights.

UL U417

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2. **Steel Studs —** "I" shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel, spaced 24 in. OC. Vertically restrained walls require studs to be cut 1/2 in. less than floor to ceiling height.

2A. **Steel Studs —** (Not Shown) — "C-H" -shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel, spaced 24 in. OC. Vertically restrained walls require studs to be cut 1/2 in. less than floor to ceiling height.

2B. **Steel Studs —** (Not Shown) — "C-T" - shaped studs, min 2-1/2 in. deep by 1-1/2 in. wide, fabricated from min 25 MSG galv steel, spaced 24 in. OC. Vertically restrained walls require studs to be cut 1/2 in. less than floor to ceiling height.

UL U499

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2. **Steel Studs —** "C-H" - shaped studs, min 2-1/2 in. deep (min 4 in. deep when System C is used), fabricated from min 25 MSG (min 20 MSG when Items 2D, 4A, 4B, 4C, 4D or 7 is used) galv steel. Cut to lengths 3/8 to 1/2 in. less than floor-to-ceiling height and spaced 24 in. or 600 mm OC (max 16 in. OC when Items 4A, 4B, 4C, or 4D are used).

2A. **Steel Studs —** (Not Shown) — "E" - shaped studs installed back to back in place of "C-H" - shaped studs (Item 2) "E" - shaped studs secured together with steel screws spaced a maximum 12 in. OC. Fabricated from min 25 MSG (min 20 MSG when Item 2D, 4A, 4B or 7 is used) galv steel, min 2-1/2 in. deep (min 4 in. deep when System C is used), with one leg 1 in. long and two legs 3/4 in. long. Shorter legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 to 1/2 in. less than floor to ceiling heights.

UL U415

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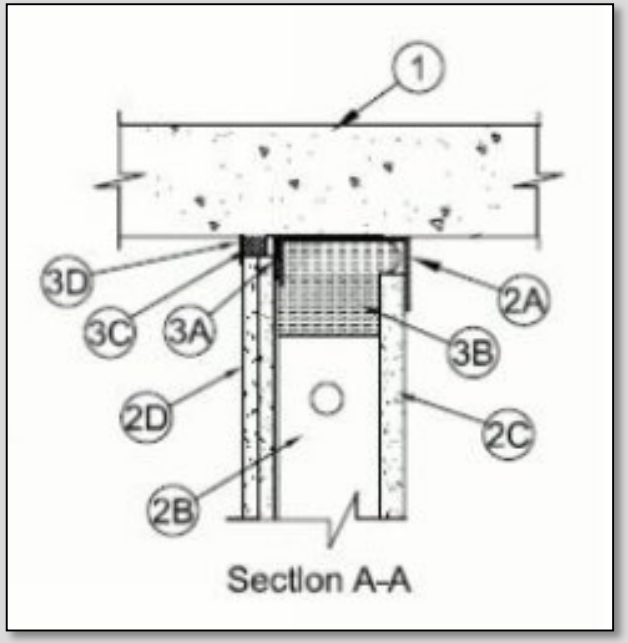
SHAFT WALL HEAD-OF-WALL EXAMPLES



3. **Joint System — Max separation between bottom of floor and top of gypsum board (at time of installation) is 1/4 to 3/4 in. (6 to 19 mm). The joint system is designed to accommodate a max 80 percent compression or max 33% extension from its installed width. —**

A. **Fill, Void or Cavity Material* —** For nom 1/4 in. (6 mm) joints at time of installation, one of the following min 0.029 in. (0.74 mm) tracks shall be used: J-shaped track having one 2 in. (51 mm) leg and one 3 in. (76 mm) unequal solid leg or U-shaped track with one 3 in. (76 mm) solid leg and one 3 in. (76 mm) slotted leg. Optional, either track includes J retaining flange formed of 3 in. (76 mm) solid leg. Track provided with a nom 3/4 in. (19 mm) wide intumescent strip affixed to the top of the leg or slotted leg facing the finished side of wall. Gypsum board to overlap a min of 1/2 in. (13 mm) over the intumescent strip. Track to be secured to bottom side of floor assembly with steel concrete anchors spaced a max of 24 in. (610 mm) OC.

CLARKDIETRICH BUILDING SYSTEMS — BlazeFrame JRE1 or SSE1 Series

UL HW-D-0793 – UL 2079 5th Edition

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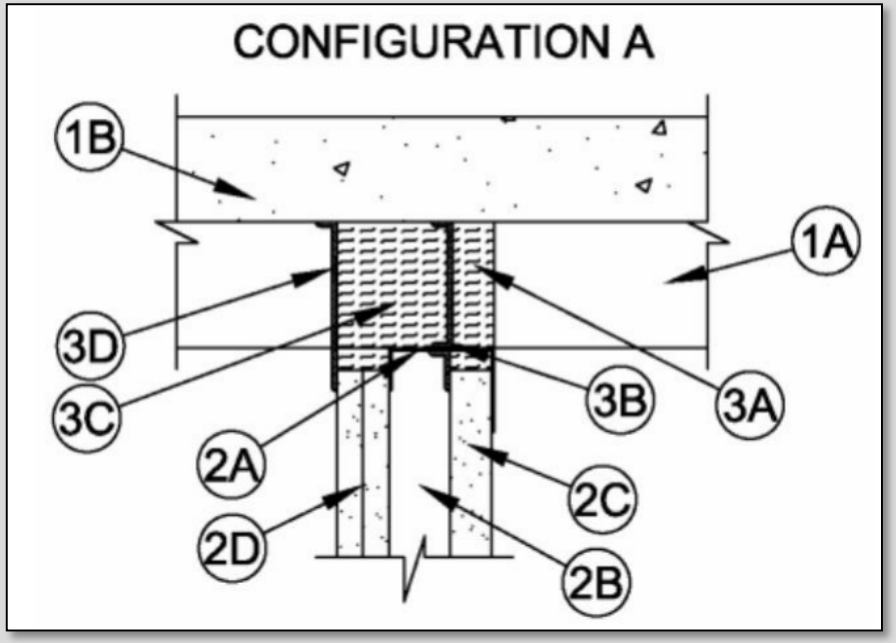

A2. **Light Gauge Framing* - Slotted Ceiling Track — (for use in Configuration A Only)** As an alternate to Item 2A, slotted ceiling track shall consist of galv steel channels with slotted flanges. Slotted ceiling track sized to accommodate steel "C-H" studs (Item 2C). Attached to concrete at ceiling with steel fasteners spaced max 12 in. OC (305 mm).

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK, SLPTRK325

CEMCO, LLC — ST, CST325

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

UL HW-D-0548 – UL 2079 5th Edition

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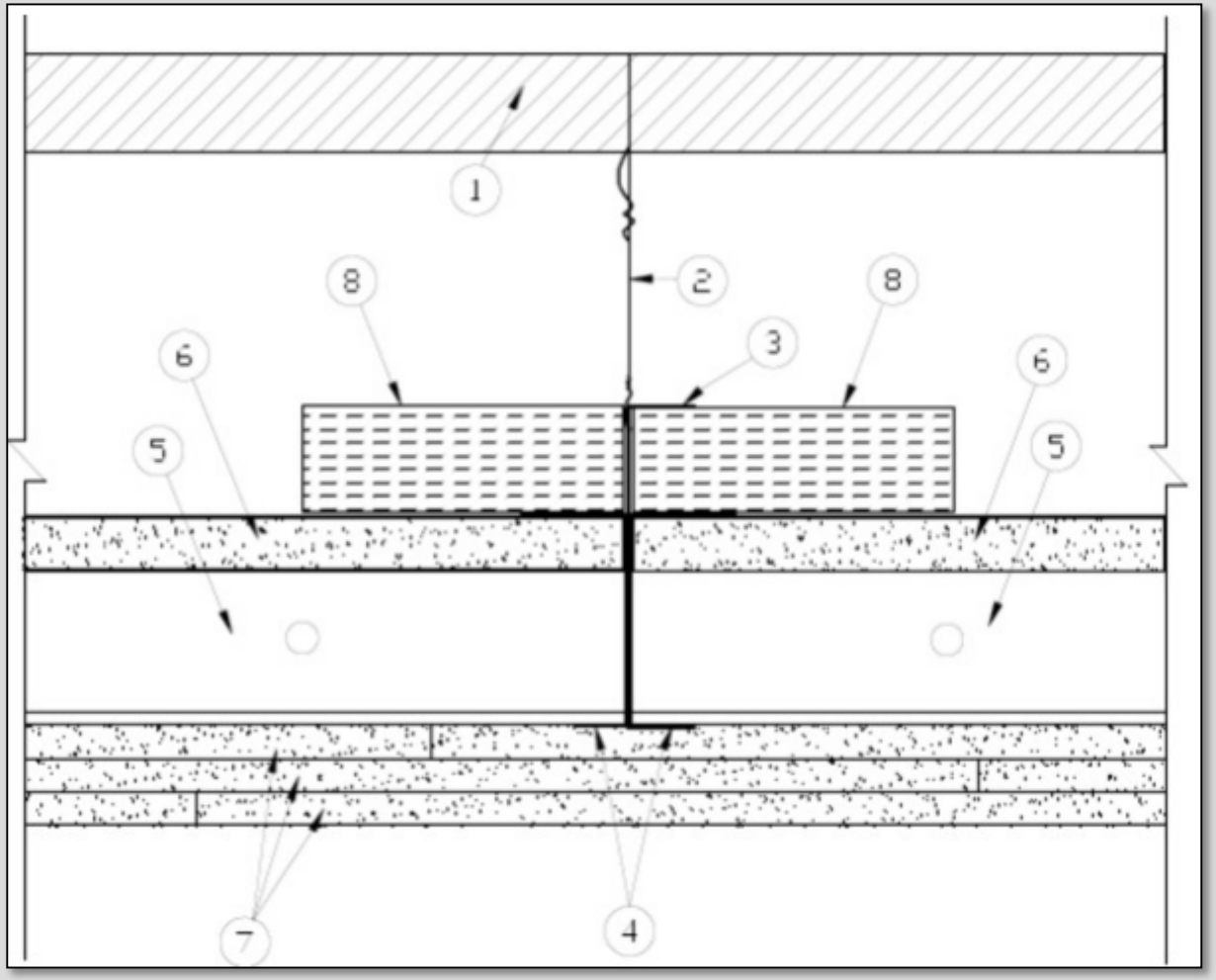
SHAFT WALL CEILING SYSTEM EXAMPLE



UL G586

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2. **Hanger Wire —** Min. 8 gauge steel wire, hung from holes punched in C-Channel (Item 3). Hanger wire spaced nominally 24 in. OC.

3. **C-Channel —** C Shaped Steel channel, min 6 in. deep. Channels fabricated from minimum No. 25 MSG galv steel with minimum 1-1/4" legs.

4. **J-Track —** "J" shaped track fabricated from minimum No. 20 MSG galv steel, min. 4 in. wide with unequal legs of 2 in. and 1 in. Used to support C-T Studs (Item 4). Secured to both sides of C-Channel (Item 3) and edges of adjacent wall assembly so that 2 in. leg is on top and 1 in. leg on bottom (facing finished gypsum side of ceiling), flush with bottom leg of C-Channel (Item 3). J-Track secured to C-Channel and wall assembly with 1/2 in. Type S screws spaced 24 in. OC along centerline of J-Tracks. Where J-Tracks form a butt joint, screws placed at both top and bottom of both sides of butt joint.

5. **Steel Studs —** "CT" shaped studs, nominal 1-1/2 in. wide by min 4 in. deep, fabricated from min. No. 20 MSG galv steel. Studs fit into J-Track (Item 4) and fastened at top and bottom with 1/2 in. Type S screws. "T" shaped section of studs face upward for installation of Gypsum Board liner panels (Item 6). "C" shaped section of studs face downward for attachment of Gypsum Board (Item 7). Bottom screws fastened through bottom leg of J-Track into stud. Top screws fastened through top of studs into top leg of J-Track. Maximum unsupported length of studs not to exceed 96 in.

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Keyword

v472 Search

UL Category Control Number

Click to view and filter values

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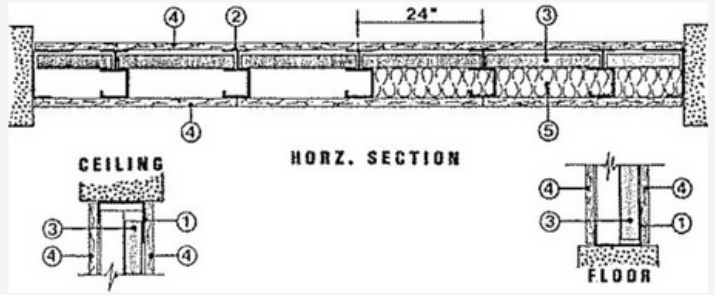
▸ 4 Results :: *Keyword: v472*

Action Display: Images

Document Name	UL CCN Description	Related Images
BXUV.V472	Fire-resistance Ratings - CAN/ULC-S101 Certified for Canada Fire-resistance Ratings - ANSI/UL 263	
CKNX.R3660	Gypsum Board	
CKNX7.R3660	Gypsum Board Certified for Canada	
CCAZ.R15890	Fiber, Sprayed	

« 1 »

1 of 1

Feedback

the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.

- Only products which bear UL's Mark are considered Certified.

RESOURCES

Guide Info (BXUV)

Guide Info (BXUV7)

TAGS

Add Tag

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States

Design Criteria and Allowable Variances

See General Information for Fire-Resistance Ratings - CAN/ULC-S101 Certified for Canada

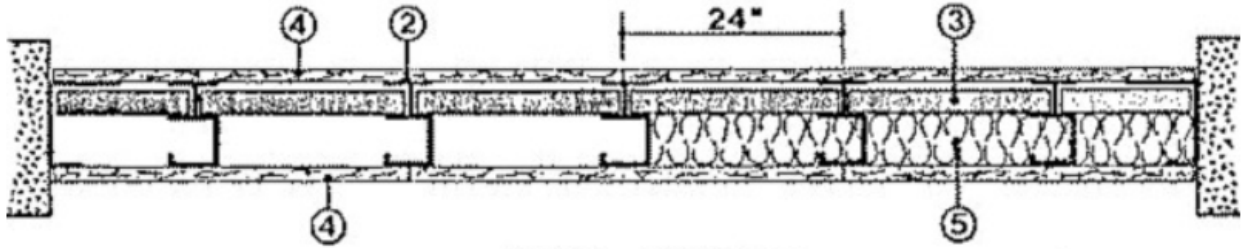
Design Criteria and Allowable Variances

Design No. **V472**

August 4, 2023

Nonbearing Wall Rating — 2 Hr

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



CEILING HORZ. SECTION

Feedback

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DETAILS

Name
BXUV.GuideInfo - Fire-resistance Ratings - ANSI/UL 263

Document Type
Guide Info

Associated UL Category
BXUV

RESOURCES

View UL Certified Products

TAGS

Add Tag

Document | Related Information

Fire-resistance Ratings - ANSI/UL 263

Guide Information for Fire-resistance Ratings

Design Information Section

The Design Information Section supplements the individual published designs and is organized as follows:

I. INTRODUCTION

1. Rapid-rise Fire Test
2. Definitions

II. GENERAL

1. Metric Dimensions	12. Dampers
2. Loading of Test Specimens	13. Wood Structural Panels
3. Finish Ratings	14. Blanket Insulation
4. Nails and Screws	15. Sound Transmission Class (STC)
5. Interior and Exterior Applications	16. Impact Insulation Class (IIC)
6. Exposed Interior Finishes	17. Penetrations
7. Radiant Heating Cable and Panels	18. Curtain Wall/Floor Protection Systems
8. Coating Materials	19. Fire-resistant Joint Systems
9. Gypsum Board	20. Fire Doors, Frames and Hardware
10. Gypsum Board Joint Treatment (Taping)	21. Glazing, Wired Glass and Glass Blocks
11. Plaster	22. Exterior Wall Systems

III. FLOOR-CEILINGS AND ROOF-CEILINGS

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Feedback

GuideInfo for Fire-resistance Ratings ANSI/UL 263

- Applies to ALL fire ratings, “unless noted in individual designs
- 6 sections:

I. INTRODUCTION
II. GENERAL
III. FLOOR-CEILINGS & ROOF-CEILINGS
IV. BEAMS
V. COLUMNS
VI. WALLS & PARTITIONS

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GuideInfo for Fire-resistance Ratings ANSI/UL 263

- Under section VI Walls & Partitions:

1. Gypsum Board	7. Gypsum Board Joint Treatment (Taping)
2. Mineral Fiber Insulation	8. Nonmetallic Electrical Outlet Boxes
3. Wood Stud Wall Assemblies	9. Metallic Electrical Outlet Boxes
4. Steel Stud Wall Assemblies	10. Exterior wall application
5. Metal Thickness	11. Concrete Masonry Units
6. Wood Structural Panels	

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GuideInfo for Fire-resistance Ratings ANSI/UL 263

- Under section VI Walls & Partitions:

1. Gypsum Board
2. Mineral Fiber Insulation
3. Wood Stud Wall Assemblies
4. Steel Stud Wall Assemblies
5. Metal Thickness
6. Wood Structural Panels

Section VI General (applies to both wood and steel studs):

- Ratings apply with fire from either side
- Hourly rating of a loadbearing assembly applies when used as non-loadbearing
- The size of studs is a minimum.
- The spacing of studs is a maximum.
- Spacing between parallel rows of studs (like in chase walls) is minimum.

4. Steel Stud Wall Assemblies:

- Dimensions of studs are minimums.
  - Includes web depth, flange width, lip length, etc.
- Thicknesses of studs are minimums. (see also section 5)
- Yield strengths are minimum.
- Spacing is maximum.

All of the above are **unless specified in individual designs**.

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GuideInfo for Fire-resistance Ratings ANSI/UL 263

- Under section VI Walls & Partitions:

1. Gypsum Board
2. Mineral Fiber Insulation
3. Wood Stud Wall Assemblies
4. Steel Stud Wall Assemblies
5. Metal Thickness
6. Wood Structural Panels

Shown as **MSG** in individual designs.

The minimum thickness for load-bearing steel studs is based upon ASTM C955, "Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks) and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases." The color code denoted by the ASTM Standard is also shown below. For load-bearing steel studs, the minimum bare-metal thickness should be as follows:

Gauge	Color Code	Min Thickness Bare Metal, in.
20	White	0.0329
18	Yellow	0.0428
16	Green	0.0538
14	Orange	0.0677

For non-load-bearing studs, the minimum thickness is based upon ASTM C645. The color code denoted by the ASTM Standard is also shown below. For non-load-bearing steel studs, the minimum bare-metal thickness should be as follows.

Gauge	Color Code	Min Thickness Bare Metal, in.
25	None	0.0179
22	Black	0.0269
20	White	0.0329
18	None	0.0428
16	None	0.0538

Unless otherwise indicated in the individual designs, the above minimum metal thickness tables apply where a metal gauge designation is stated. Metal gauges are no longer referenced in ASTM Standards. It is still an industry practice to specify steel components by gauge. Because many of the designs contained herein refer to metal gauge, the following information should be used as a guide where field questions occur. The tables shown herein should be used as a reference and the code authority should be consulted if discrepancies exist between these tables and a local code requirement. Due to structural considerations and fire-performance considerations, the minimum thickness tables are different for steel deck (floor or roof), load-bearing studs and non-load-bearing studs.

SHAFT WALL LIMITATIONS

- Published limiting heights and spans are tested in accordance with AISI S916 (Per **Section D – Testing of AISI S220**) or an *approved* test method (ICC-ES AC86)
- Deflections limited to L/120, L/180, L/240 and L/360
- Lateral live load pressures range from 5.0 PSF to 15.0 PSF
- 6” maximum stud depth
- Fire/Smoke and Height limitations tested with spacing at 24” on center
- No axial load other than self-weight

SHAFT WALL LIMITATIONS

- Interior non-loadbearing – Superimposed vertical load is zero pounds
  - Studs cut 3/8 in. to 1/2 in. less than floor to ceiling height
- Corridor ceiling system – Superimposed vertical load is zero pounds
- For “CT” Studs* and “I” Studs*
  - **NO STACKING**
  - **NO SPLICING** – Full length and in one piece
    - Exception – J-runner when attached to structure
  - Simple span members – **NO INTERMEDIATE SUPPORT**
- For “CH” Studs* and “E” Studs* and “Double-E” Studs*
  - Stacking/By-Pass Applications are permitted
    - Equal story height and same components for entire height of wall
    - All dimensions, gauges, attachment points and number and size of fasteners determined by architect and/or structural engineer of record for the project
    - Approval required by Authority Having Jurisdiction (AHJ)

***Consult with respective stud manufacturer to better understand their product limitations**

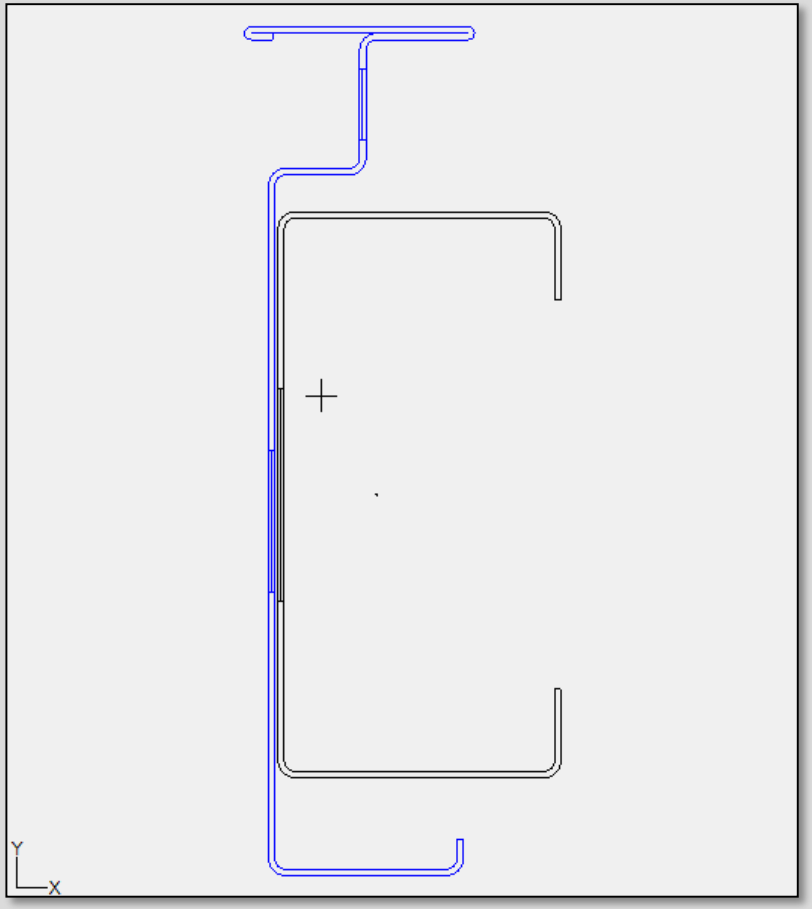
BUT……..

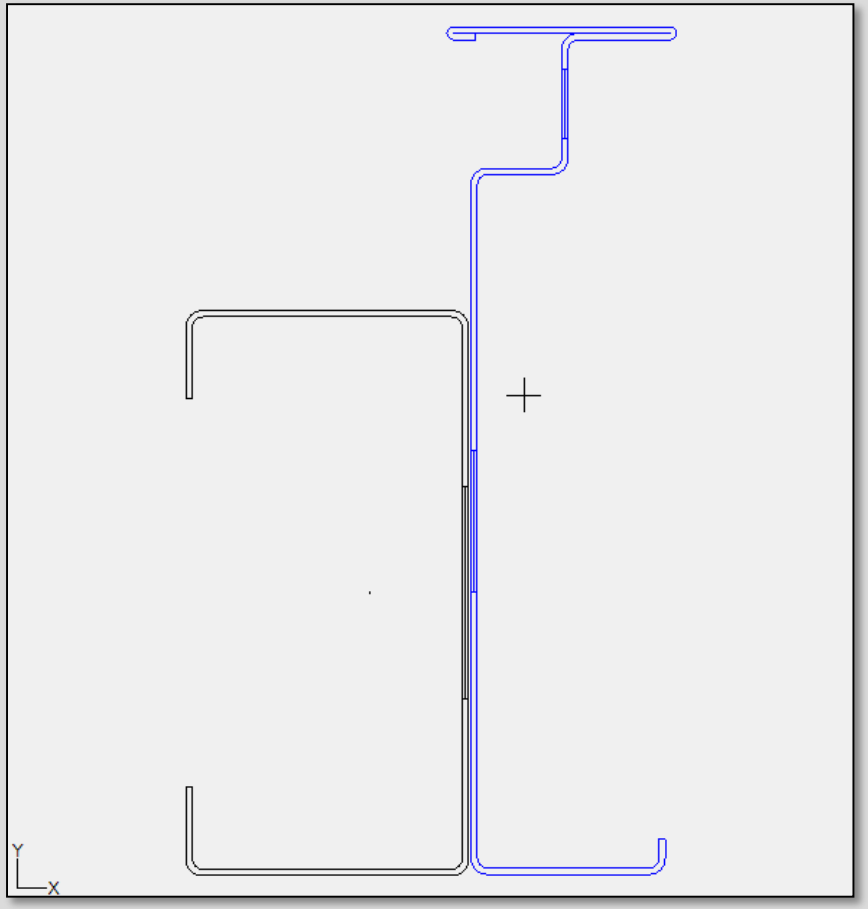
DESIGN AND/OR FIELD CONDITIONS DO NOT ALWAYS MEET TESTING. SO THEN WHAT?

SCENARIO #1: PROJECT SHAFT WALL HEIGHT EXCEEDS LIMITING HEIGHT

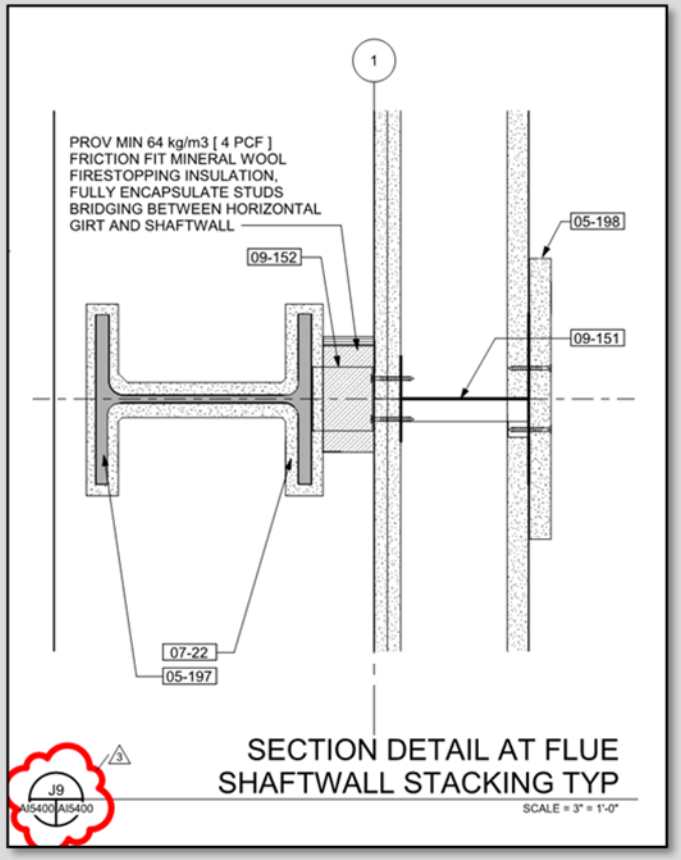
- **Example: 2-Story lobby elevator shaft wall**
  - **Reduce shaft wall stud spacing from 24” to 12”?**
    - **Doubles the tested stiffness = New limiting height is approximately 1.26 times the tested limiting height**
    - **Fire test is done at 24” on center – what does adding more steel do to the system? Increase thermal transfer?**
    - **Will most likely need supporting documentation from specialty engineer, shaft wall stud manufacturer and/or gypsum board manufacturer**
    - **Architect and/or Authority Having Jurisdiction (AHJ) needs to approve**
  - **Sister “C” shape member within wall cavity?**
    - **Restriction on web size of C-stud**
    - **Affects on the system by adding more steel? Is thermal increase significant enough to fail test?**
    - **Will most likely need supporting documentation from specialty engineer, shaft wall stud manufacturer and/or gypsum board manufacturer**
    - **Architect and/or Authority Having Jurisdiction (AHJ) needs to approve**
  - **Intermediate steel support to reduce heights?**
    - **Viable option – adds additional material cost and who is responsible for install? Contractor? GC?**

SCENARIO #1: PROJECT SHAFT WALL HEIGHT EXCEEDS LIMITING HEIGHT





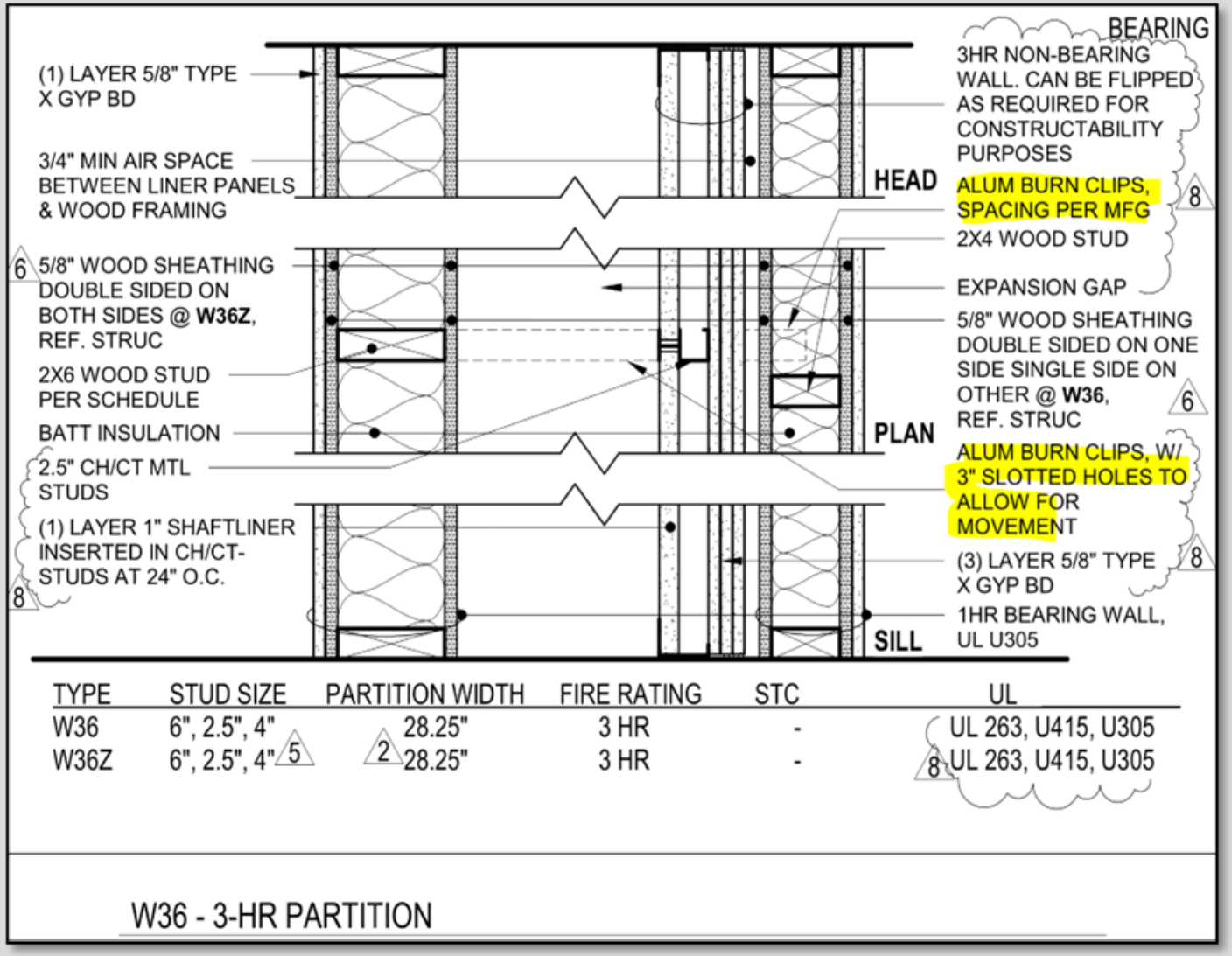
SCENARIO #2: PROJECT SHAFT WALL BY-PASSES FLOOR LEVELS



Issues/Concerns:

- **Shaft wall by-passes intermediate supporting location(s)**
  - **No fire test standard at intermediate supports**
  - **Most 3rd party certification reports and manufacturers will not support**
  - **CH profile has internal testing and will be supported with limitations**
- **Shaft wall is stacked and/or spliced**
  - **Certified fire testing is single span, full length members**
  - **Most 3rd party certification reports and manufacturers will not support**
  - **CH profile has internal testing for stacked walls and will be supported with limitations**

SCENARIO #2: PROJECT SHAFT WALL BY-PASSES FLOOR LEVELS CONTINUED



SCENARIO #2: PROJECT SHAFT WALL BY-PASSES FLOOR LEVELS

Resolution:

- **Consult shaft wall stud and gypsum board manufacturers**
- **Add miscellaneous steel**
- **Consult Fire Engineer or Fire Consultant**
- **Architect and/or AHJ give final direction**

SCENARIO #2: PROJECT SHAFT WALL BY-PASSES FLOOR LEVELS

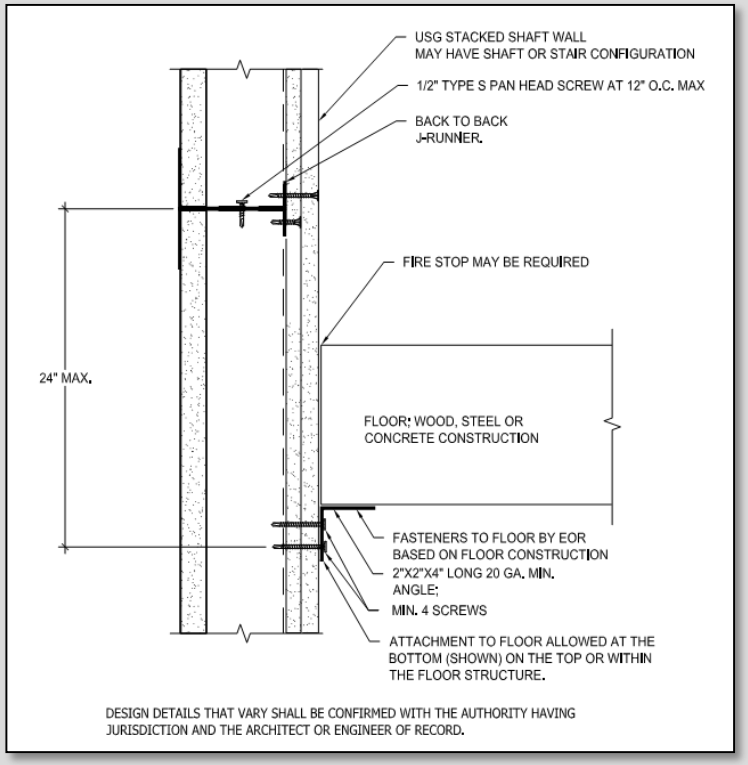


Image provided by United States Gypsum

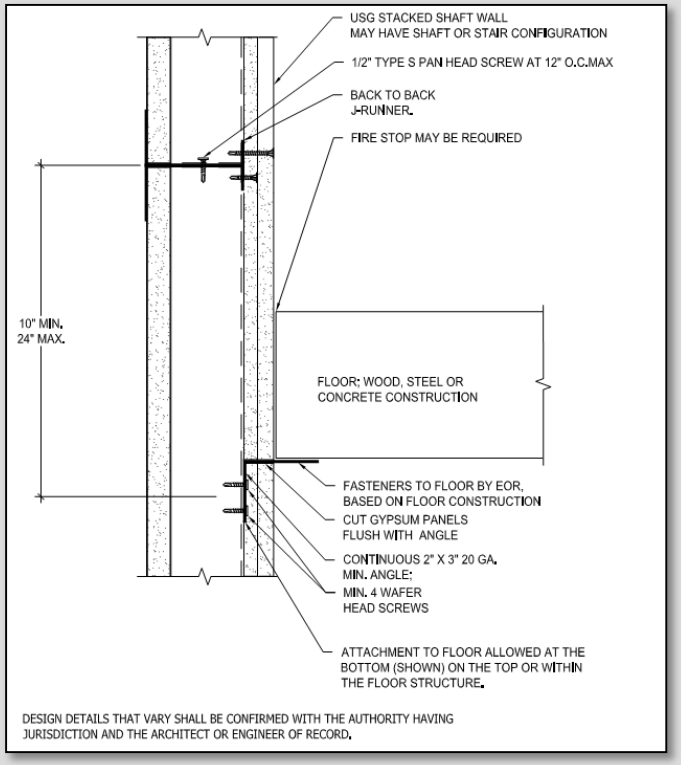


Image provided by United States Gypsum

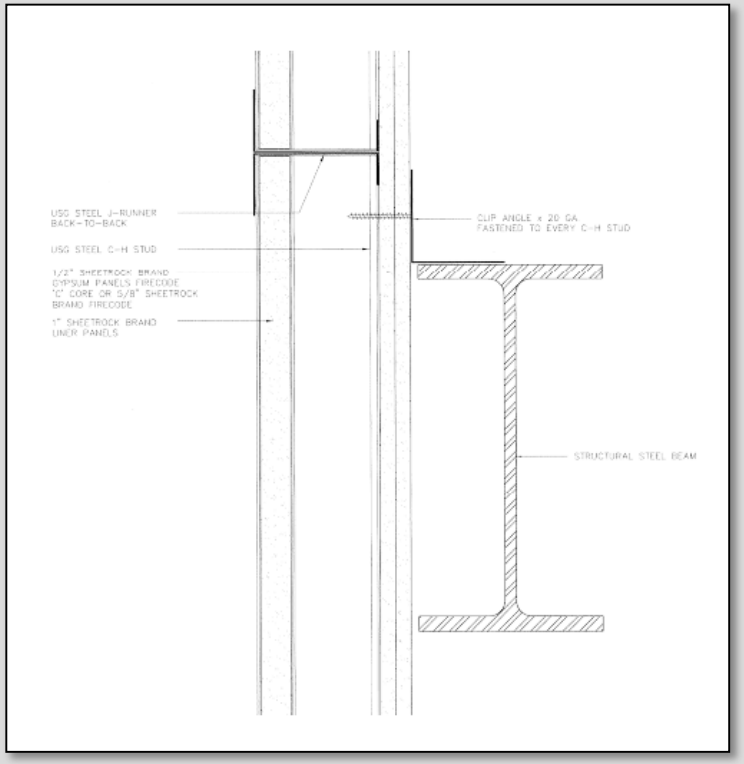


Image provided by United States Gypsum

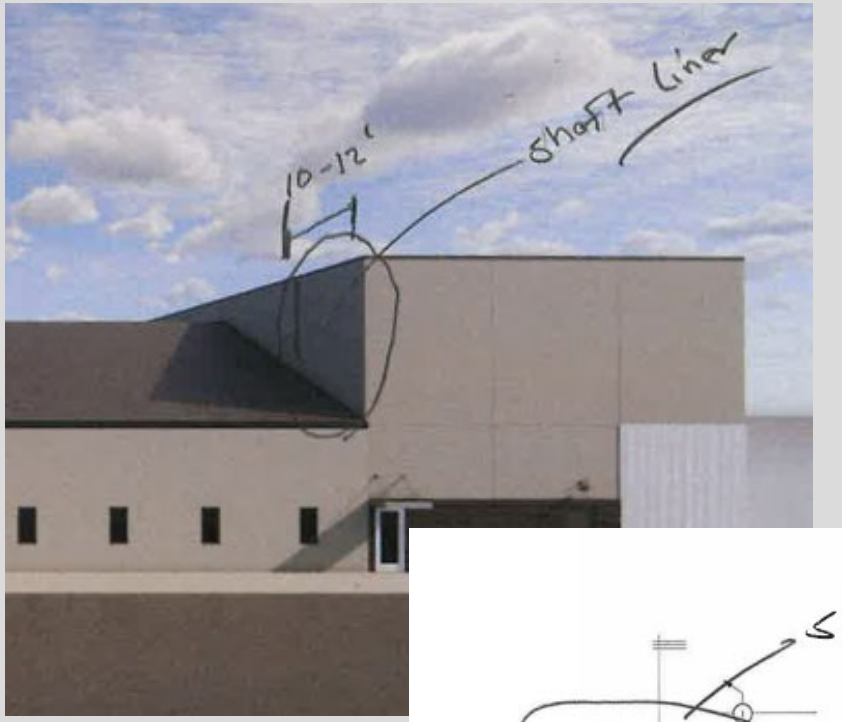
SCENARIO #3: PROJECT SHAFT WALL EXPOSED TO EXTERIOR ELEMENTS

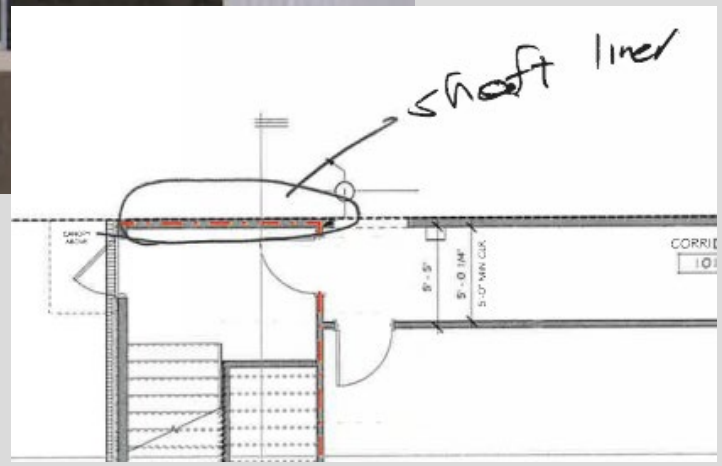
Concerns:

- **Tested up to a lateral pressure of 15 PSF**
- **Galvanized coating (G40 or G40EQ standard)**
- **Building envelope (air/vapor/moisture barrier) issues**

Resolution:

- **Consult shaft wall stud and gypsum board manufacturers**
- **Add miscellaneous steel**
- **Consult Fire Engineer or Fire Consultant**
- **Architect and/or AHJ give final direction**





SAFETY AND SHAFT WALL INSTALLATION: VERTICAL CHASES, ELEVATORS, STAIRS

SAFETY AND SHAFT WALL INSTALLATION: VERTICAL CHASES, ELEVATORS, STAIRS

- Fall Protection: Typically in place before you start
- Job Hazard Analysis (JHA) specific to job site. typically coordinated with the general contractor (GC).
  - During shaft wall construction
  - At end of day or shift when installation is not fully complete
  - After installation: safeguarding openings
- After complete: blocking elevator doorways.

What is the safety requirement?

- Occupational Safety and Health Administration (OSHA) 1926.501(b)(2)(i)
- Each employee who is constructing a leading edge 6 feet or more above lower levels shall be protected from falling by:
  - guardrail systems,
  - safety net systems, or
  - personal fall arrest systems.
- 1926.501(b)(3) *Hoist areas.* Each employee in a hoist area shall be protected from falling 6 feet (1.8 m) or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system.

Guardrails

- Top edge must be 39” to 45” above floor
- Midrails must be midway between top and floor
- Options for mesh and balusters
- Load: must be capable of resisting 200 pounds within 2” of top of rail
  - In any direction
  - At any point along the top rail
  - Without allowing guardrail to deflect below 39 inches

Although it has nothing to do with shaftwall…

Guardrails: Pre-installed on Panels

Guardrails

- Constructed inside shaft
- In-place during wall construction
- Attached to slab & intermediate columns

BLOCKING ELEVATOR DOORS: HOISTWAY SAFETY

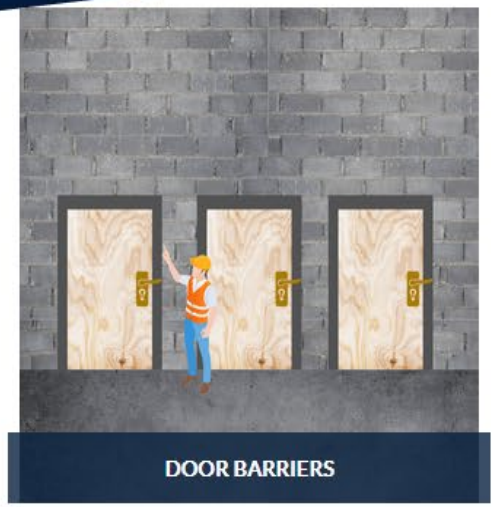
- National Elevator Industry, Inc. (NEII) has preliminary information at www.nationalelevatorindustry.org/hoistway-safety/

HOISTWAY SAFETY INITIATIVE

NEII's Safety Committee identified three industry best practice barriers that can be incorporated into the management of construction sites which will not only prevent items from being dropped into the hoistway, but will also protect individuals working or walking near a hoistway when they might trip or slip. There is no "one size fits all" so three options allow the application of the most appropriate barrier for each job.

MESH NETTING

A heavy-duty mesh barrier is affixed to the hoistway door frame and hung acros[redacted]e opening along with wooden railings and toe guards.



DOOR BARRIERS

A solid wooden "box" (which can be flat or several inches deep) attached to each hoistway opening with a door and lock.

LOBBYING

Solid barriers enclose an area with several elevators secured with locked doors.

BLOCKING HOISTWAY OPENINGS

- www.nationalelevatorindustry.org/hoistway-safety/

BLOCKING HOISTWAY OPENINGS: LOBBYING

- www.nationalelevatorindustry.org/hoistway-safety/

JAMBS AT ELEVATOR DOORS

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 - ~~20~~ (33 mils) or ~~25 gauge~~ (18 mils), as required

D. Intersection Detail

E. Gypsum board filler strips may be required where jambs are in place prior to walls to allow proper fastening of gypsum board J-track

F. 20-gauge (33 mils) J track

G. 20-gauge (33 mils) J track screwed to jamb anchor clips

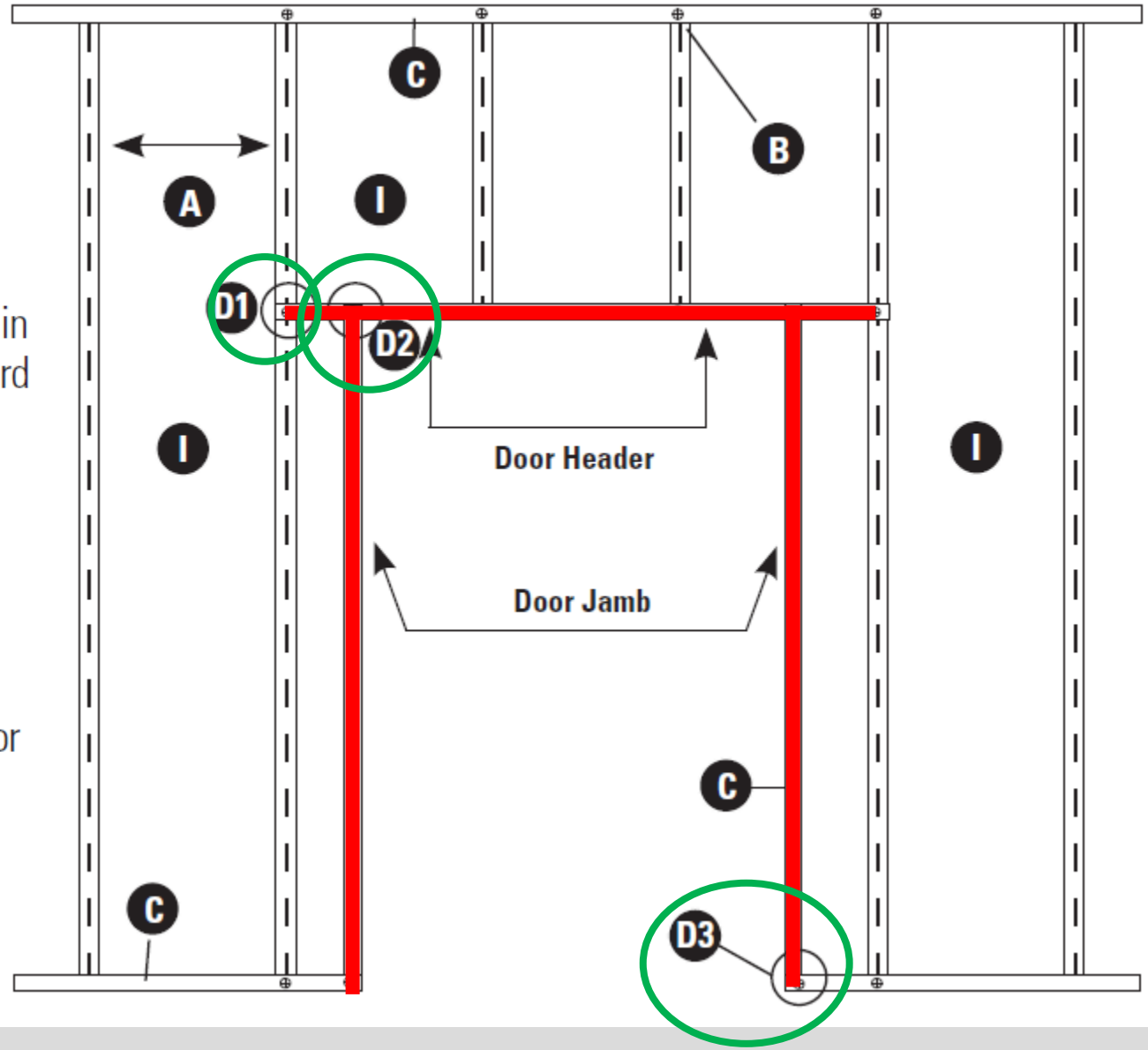
H. Solid gypsum board filler strips as required for frames

I. 1" (25.4 mm) DensGlass® Shaftliner panel

J. 1/2" (12.7 mm) DensArmor Plus® Fireguard C® interior panel or 1/2" (12.7 mm) ToughRock® Fireguard C® gypsum board

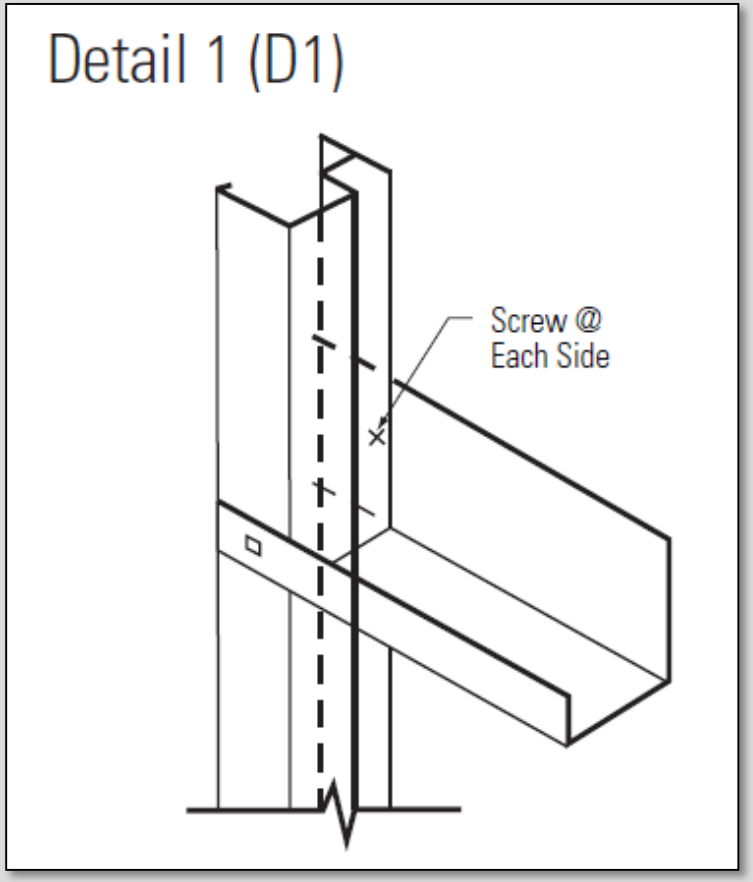
K. Acoustical Sealant

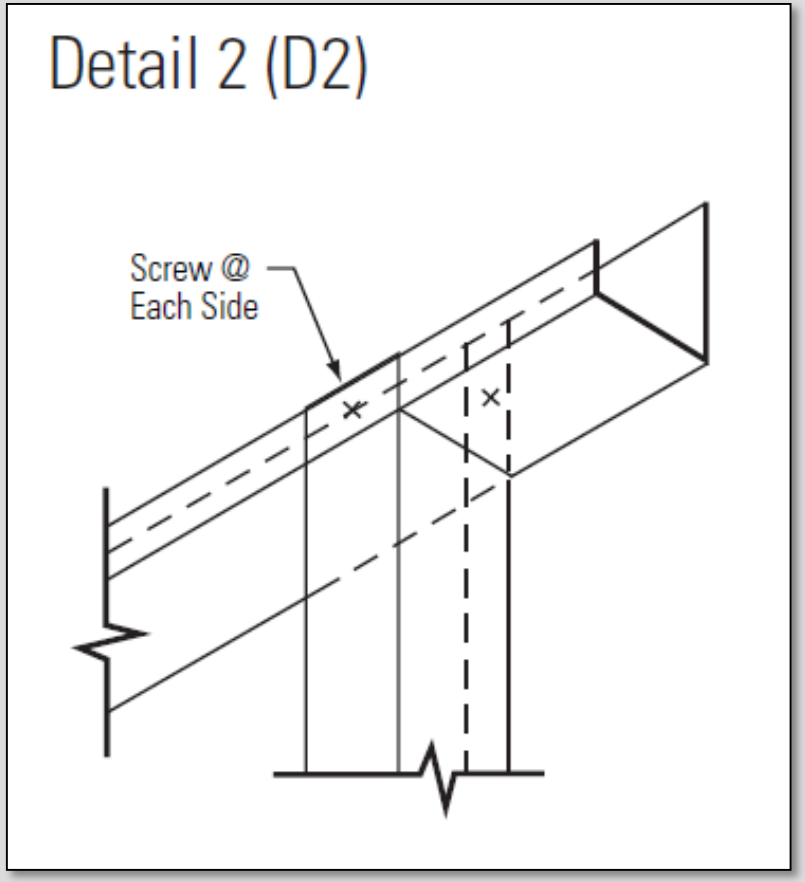
L. Power actuated fasteners 24" (610 mm) o.c.

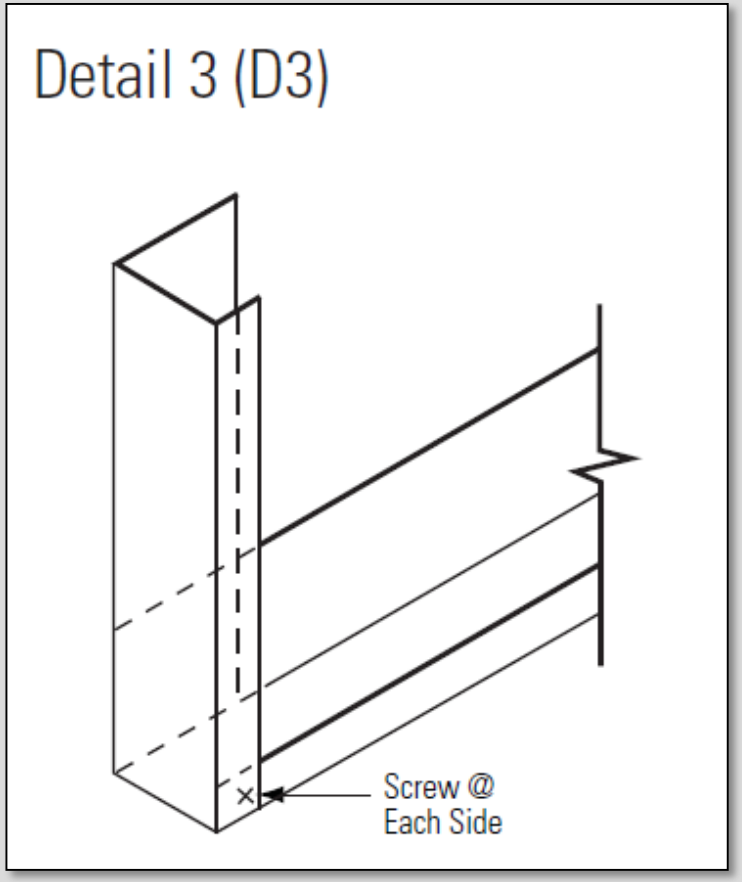


From Georgia Pacific Shaft Wall Catalog

JAMBS AT ELEVATOR DOORS

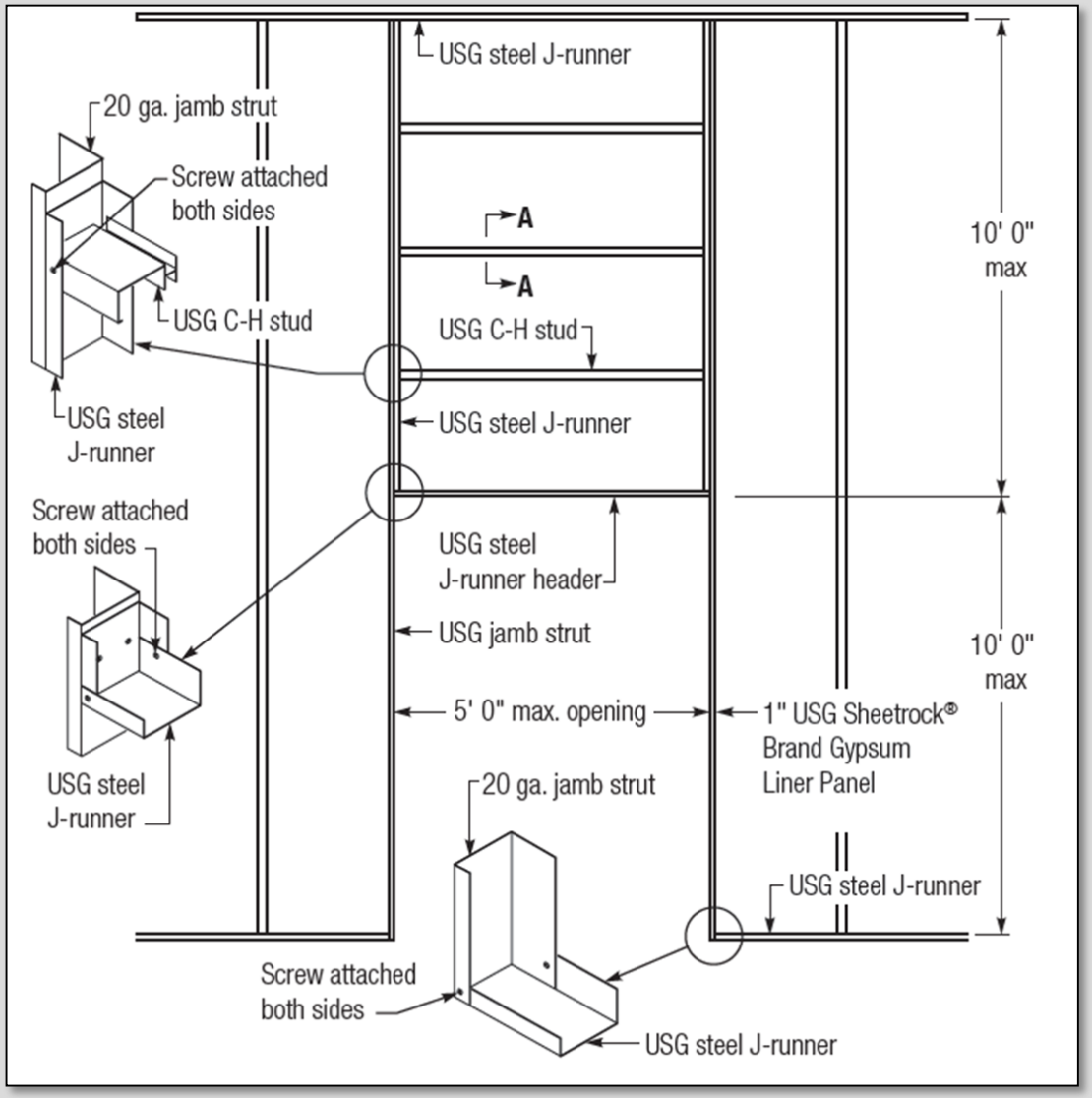




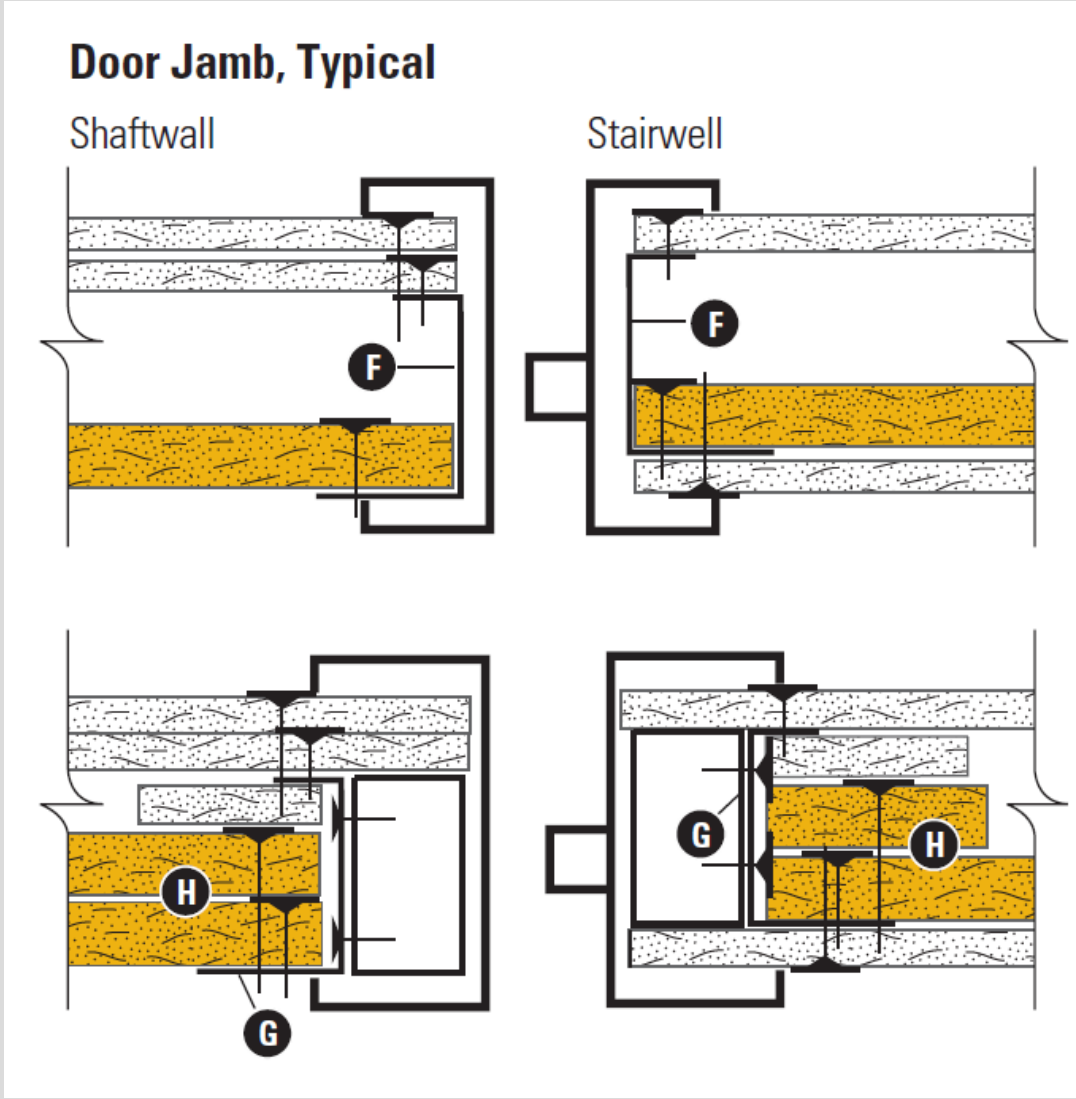


From Georgia Pacific Shaft Wall Catalog

JAMBS AT ELEVATOR DOORS

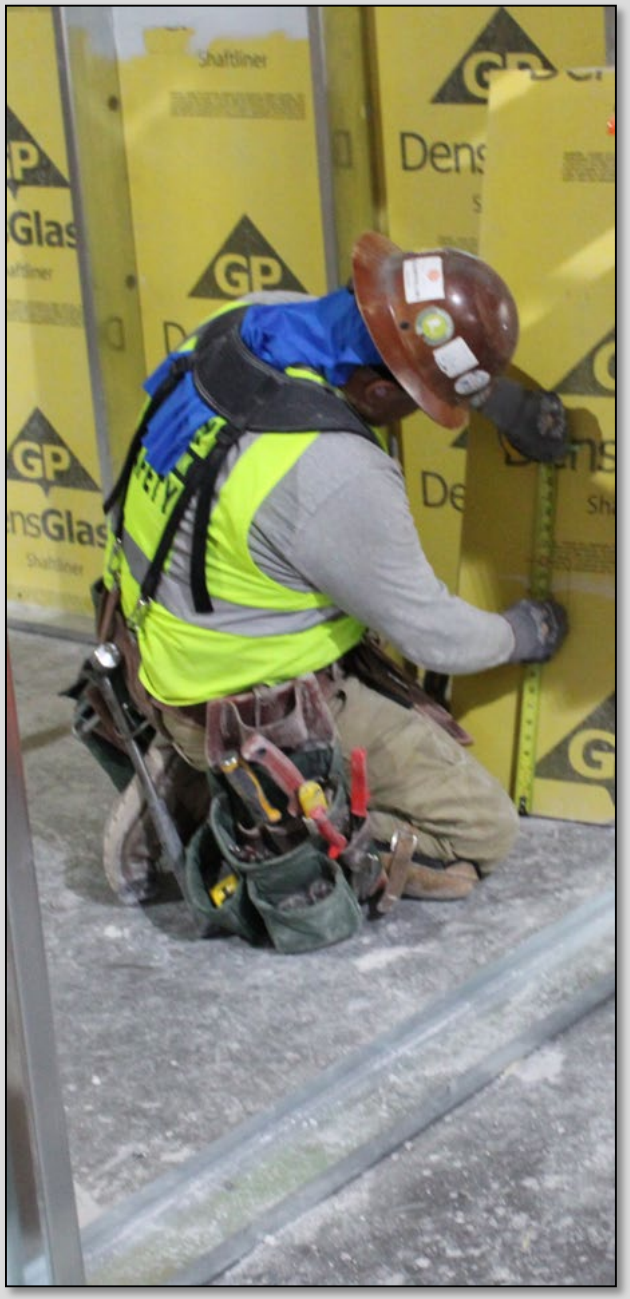


From United States Gypsum Shaft Wall Catalog



SAFETY DURING INSTALL

- Plan work sequence
- Restrict access
- Tie-off tools
- Be aware of others working above or below
- Make sure studs and board properly engage top track



HARDENING SHAFT REQUIREMENTS

https://gypsum.org/commercial-applications/impact-resistant-gypsum-panels/

GYPSUM ASSOCIATION

Enter your search

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Impact-Resistant Gypsum Panels: Commercial Construction

Protecting walls from damage and penetration where impact is common

1. Mail Room/Shipping & Receiving 2. Server Room/Mechanical Room

Impact-Resistant Gypsum Panels enhance wall surface and core toughness to reduce potential damage.

Physical Description

Impact-Resistant Gypsum Panels are a specialty application product that consists of a high-density, mold- and moisture-resistant, Type X core covered both front and back in either heavyweight-paper facers or tough fiberglass mats. In addition, a reinforcing fiberglass mesh is embedded into the panel's core near the back of the product to give it increased resistance to penetration. Long edges are typically wrapped with the facer material and tapered to simplify joint finishing while short edges are cut square. The dimensions of Impact-Resistant Gypsum Panels are typically 5/8" (15.9 mm) thick, 48" (1220 mm) wide and 8' (2440 mm) to 12' (3660 mm) long. In some cases, paper-faced, Impact-Resistant Gypsum Panels are produced with facer materials containing high percentages of recycled fiber and panel cores with either facer type may sometimes include recycled gypsum material as a significant component. The applicable product manufacturing standard is ASTM C1629.

Advantages and Benefits

Suitable Applications

INTERIOR WALLS Impact-Resistant Gypsum Panels provide a stronger, more durable construction material than standard gypsum wallboard to help protect interior walls against typical surface wear and abrasions, as well as deeper dents and complete penetrations into the wall cavity that increase the time, labor and materials involved in facility maintenance. Commonly applied to walls in areas where high traffic and activity increase the potential for damaging wall impacts, consider this product when

QUESTIONS?

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