

Built-in cover page

092116-1.2.B-0:Gypsum Board Shaft Wall Assemblies - Product Data



Status	Open Submitted
Spec section	092116 GYPSUM BOARD SHAFT WALL ASSEMBLIES
Manager	Ryan Schelin (Je Dunn Construction Company (013735))
Responsible contractor	Braden Engelken (E & K Of Kansas City Inc (019435))
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Reviewed by JE Dunn: [Ryan Schelin](#)

Date: [01/20/2026](#) 7:22:50 PM

Job: [LSMC ED Expansion](#)

Submittal ID: [092116-001](#)

Bid Package: [100% CD's](#)

Comments: [Reviewed - Submitted for Approval](#)

Stanley D. Lindsey and Associates, Ltd.

Structural Engineer's review is only for general conformance with the structural Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the Contract Documents and applicable laws, codes and regulations. The Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with all other trades; and performing all Work in a safe and satisfactory manner.

Limited Review – This submittal is for a deferred submittal item designed by specialty engineer. Structural Engineer's review is limited to the design criteria and loads imposed to the base structure only.

Reviewed – No Exceptions Taken Rejected – Revise and Resubmit

Reviewed – With Exceptions as Noted Not Reviewed – Record Copy Only

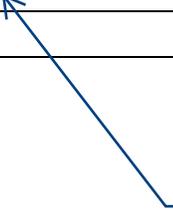
Reviewed – With Exceptions as Noted, Submit Record Copy RFI Response

Date: 1/29/2026

Reviewer: Nishith Sardhara

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ARCH, PLEASE SPECIFY IF
THIS SUBMITTAL PACKAGE
SHOULD BE SENT TO AHJ FOR
APPROVAL - RS JE DUNN

October 29, 2025

Ryan Schelin
JE Dunn Construction
1001 Locust Street
Kansas City, MO 64106

RE: HCA Lee's Summit Medical Center ED Renovations
09 21 16 – Shaft Wall Assemblies

Mr. Schelin,

This letter is regarding the Submittals pertaining to our scopes of work for the above noted project. Listed below is everything included in this submittal package:

- **UL Rated Assembly**
 - **Wall Type D: UL U 469 (1 HR)**
- **STC Rated Assemblies**
 - **Wall Type D4: STC 35 (NGC 2019011: STC 47)**
- **Product Data**
 - ❖ **2.2 Gypsum Board Shaft Wall Assemblies: C – Gypsum Shaftliner Board**
 - **Sheetrock Brand Mold Tough Gypsum Linear Panel** manufactured by **USG**
 - ❖ **2.2 Gypsum Board Shaft Wall Assemblies: E&F – Studs and Runner Track**
 - **2 ½” Shaft Wall System** manufactured by **ClarkDietrich, MarinoWare, and MBA**
 - **4” Shaft Wall System** manufactured by **ClarkDietrich, MarinoWare, and MBA**

The products in this submittal package should meet or exceed specified requirements. If you have any questions or comments, do not hesitate to call.

Respectfully Submitted,

Braden Engelken

Braden Engelken
Project Manager

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for 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.

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

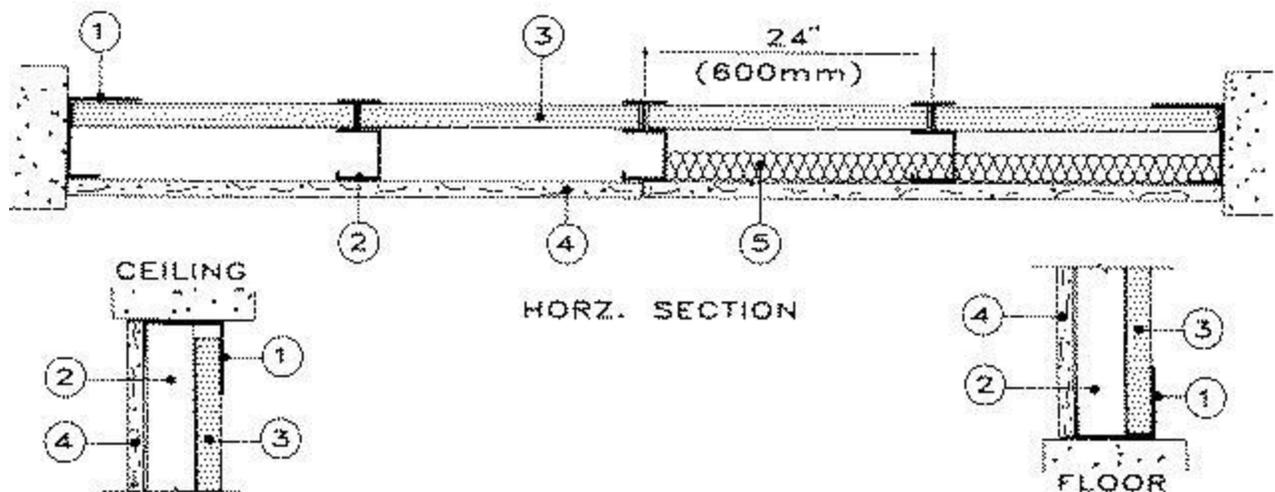
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. **U469**

March 3rd, 2025

**Assembly Rating — 1 HR
Nonbearing Wall**

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



1. **Floor and Ceiling Runners** — "J" - shaped, 2-1/2 in. wide with unequal legs of 1 in. and 2 in., fabricated from 24 MSG galv steel (min 20 MSG steel required when Item 4A, 4B, or 4C is used). Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC.

2. **Steel Studs** — "C-H" shaped studs, 2-1/2 in. wide by 1-1/2 in. deep, fabricated from min 25 MSG galv steel (min 20 MSG steel required when Item 4A, 4B, or 4C is used), spaced 24 in. or 600 mm OC (max 16 in. OC when Item 4A, 4B, or 4C is used). Vertically restrained walls require studs to be cut 3/8 in. less than floor to ceiling height.

3. **Gypsum Board*** — 1 in. thick gypsum wallboard liner panels, supplied in nominal 24 in. or 600 mm widths. Vertical edges inserted in "H" shaped section of "C-H" studs. Free edge of end panels attached to long leg of "J" runners with 1-5/8 in. long Type S head steel screws spaced not greater than 12 in. OC.

CERTAINTED GYPSUM INC — Types Shaftliner, EGRG Shaftliner or GlasRoc Shaftliner

CGC INC — Type SLX.

CERTAINTED GYPSUM INC — Type LGFCSL

GEORGIA-PACIFIC GYPSUM L L C — Types TP-6, DGUSL, and TRSL

UNITED STATES GYPSUM CO — Type SLX

USG BORAL DRYWALL SFZ LLC — Type SLX

USG MEXICO S A DE C V — Type SLX.

4. **Gypsum Board*** — 5/8 in. thick, 4 ft or 1200 mm wide, applied vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards.

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc.

CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing, 5/8 in. Type C.

CERTAINTED GYPSUM INC — Type C, Type X-1.

CGC INC — Types C, IP-X1, IP-X2, IPC-AR, SCX, ULIX, ULX, or WRC.

CERTAINTED GYPSUM INC — Types LGFC-C, LGFC-C/A, LGFC6A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, Type TG-C, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W, Type DGG, Type DAP, Type DS.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-11, PG-C, PGS-WRS, PGI

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type C.

UNITED STATES GYPSUM CO — Types C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULIX, ULX or WRC.

USG BORAL DRYWALL SFZ LLC — Types C, SCX

USG MEXICO S A DE C V — Types C, IP-X1, IP-X2, IPC-AR, SCX, ULX, or WRC.

4A. Gypsum Board* — Not Shown - As an Alternate to Item 4. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips (Item 6) required behind vertical joints

RAY-BAR ENGINEERING CORP — Type RB-LBG

4B. Gypsum Board* — Not Shown - As an Alternate to Item 4. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints. To be used with Lead Batten Strips (see Item 6B) or Lead Discs (see Item 6C).

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4C. Gypsum Board* — (Not Shown - As an Alternate to Item 4.). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4D. Gypsum Board — For use with Item 5 - 5/8 in. thick, 4 ft or 1200 mm wide, applied vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards.

CERTAINTED GYPSUM INC — Type LWTX

5. Batts and Blankets* — (Optional) — Mineral wool batts partially or completely filling stud cavity.

ROCKWOOL — Type AFB, min. density 1.8 pcf / 28.8 kg/m³

THERMAFIBER/OWENS CORNING — Type SAFB, SAFB FF

5A. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

5B. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

5C. Fiber, Sprayed* — As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

5D. Deleted.

5E. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft³.

Applegate Greenfiber Acquisition LLC— Applegate Advanced Stabilized Cellulose Insulation

6. **Lead Batten Strips** — For Use with Item 4A - (Not Shown) — Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6A. **Lead Discs or Tabs** — (Not Shown) - Used in lieu of or in addition to the lead batten strips (Item 6) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6B. **Lead Batten Strips** — (Not Shown, for use with Item 4B) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".

6C. **Lead Discs** — (Not Shown, for use with Item 4B) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

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

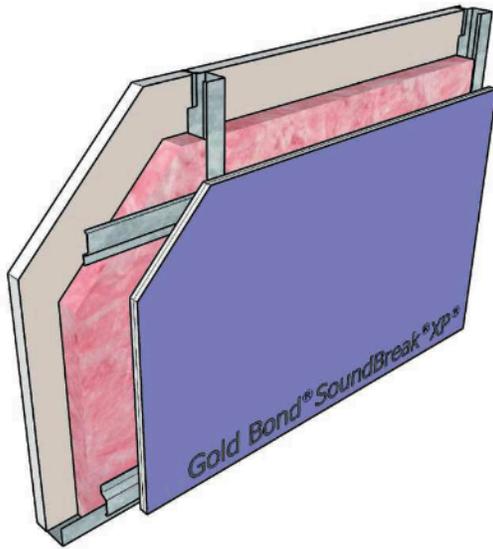
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Shaftwall Partitions

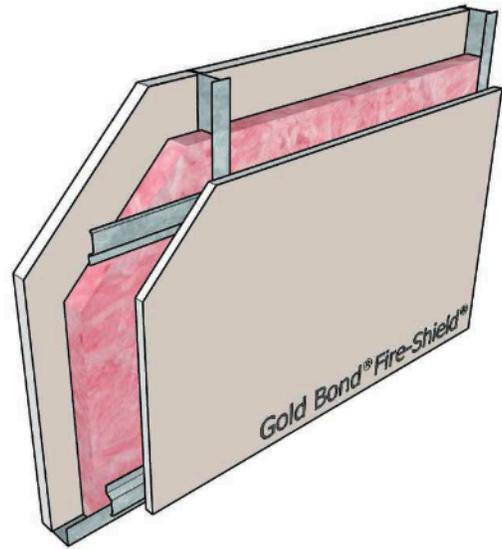
Figure 160



STC-47 **NGC 2015038**
 Framing: 2-1/2" steel CT studs, 25 gauge (22 mil), 24" o.c.
 Insulation: 1-1/2" glass fiber
 Side 1: 1" Fire-Shield Shaftliner
 Side 2: 5/8" SoundBreak XP Wall Board on RC-1

UL Design: U499, W419 - 1 hour

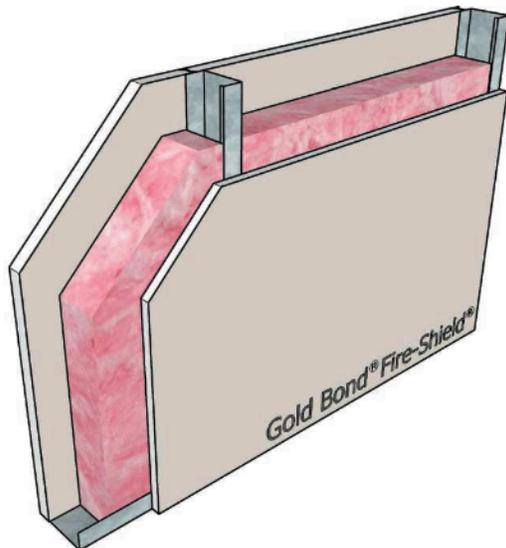
Figure 161



STC-48 **NGC 2541**
 Framing: 2-1/2" steel I-studs, 25 gauge (22 mil), 24" o.c.
 Insulation: 1-1/2" glass fiber
 Side 1: 1" Fire-Shield Shaftliner
 Side 2: 5/8" Fire-Shield Gypsum Board on RC-1

UL Design: U499, W419 - 1 hour

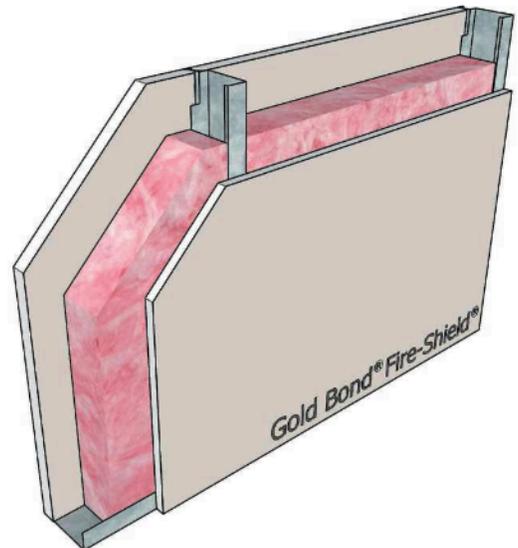
Figure 162



STC-47 **NGC 2015044**
 Framing: 4" steel CH studs, 25 gauge (22 mil), 24" o.c.
 Insulation: 3" glass fiber
 Side 1: 1" Fire-Shield Shaftliner
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour

Figure 163



STC-47 **NGC 2019011**
 Framing: 4" steel CT studs, 18 gauge (43 mil), 24" o.c.
 Insulation: 3" glass fiber
 Side 1: 1" Fire-Shield Shaftliner
 Side 2: 5/8" Fire-Shield Gypsum Board

UL Design: U499, W419 - 1 hour



USG SHEETROCK® BRAND MOLD TOUGH® GYPSUM LINER PANELS

1 in. (25.4 mm) Type X gypsum liner panels with moisture and mold resistance for use in shaft wall and area separation wall systems

- Feature a noncombustible, moisture-resistant gypsum core encased in moisture- and mold-resistant, 100% recycled green face and back papers
- Comprehensive product and system testing assures long-term performance and safety
- Double-beveled edges for easy installation
- Comply with ASTM C1396, *Standard Specification for Gypsum Board*, for 1 in. (25.4 mm), Type X and water-resistant gypsum shaftliner board
- Underwriters Laboratories Inc. (UL) Classification as to fire resistance, surface burning characteristics and noncombustibility
- Achieved GREENGUARD Gold Certification and qualifies as a low VOC emitting material (meets CA 01350)

DESCRIPTION

USG Sheetrock® Brand Mold Tough® Gypsum Liner Panels (UL Type SLX) are 1 in. (25.4 mm) Type X gypsum liner panels with moisture and mold resistance for use in shaft wall and area separation wall systems. The panels feature a noncombustible, moisture-resistant gypsum core that is encased in moisture- and mold-resistant, 100% recycled green face and back papers. When tested in accordance with ASTM D3273, *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*, the panels meet or exceed ASTM C1396 specifications. The face paper is folded around the double-beveled long edges to reinforce and protect the core, and the ends are cut square and even. The panels are UL Classified for fire resistance and can be used in any UL Design in which Type SLX panels are listed.

Note: USG Sheetrock® Brand Mold Tough® Gypsum Liner Panels have been comprehensively tested for fire resistance, structural performance and sound control only when used with USG Sheetrock® Brand Shaft Wall and Area Separation Wall framing components. If alternative framing components are used, the manufacturer(s) of the substituted component(s) shall be consulted to confirm system performance.

INTENDED FOR

- Commercial or residential applications where 1 in. (25.4 mm) moisture- and mold-resistant Type X shaftliner panels are required
- Load-bearing and nonload-bearing wood- or steel-framed fire-rated walls and ceilings
- Elevator, stair, mechanical, solid and horizontal stud shafts
- Shaftwall ceiling membranes
- Unlined air return ducts
- Fire-resistive protection in common walls for townhouse construction

LIMITATIONS

1. Avoid sustained exposure to temperatures exceeding 125°F (52°C).
2. Avoid exposure to excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
3. Must be stored off the ground and under cover in accordance with Gypsum Association's GA-801, *Handling and Storage of Gypsum Panel Products*.
4. Not intended for use in an unlined air supply duct.

INTERIOR INSTALLATION, FINISHING AND DECORATING

For installation and finishing recommendations, refer to:

- ASTM C840, *Standard Specification for Application and Finishing of Gypsum Board*
- Gypsum Association's GA-216, *Specifications for the Application and Finishing of Gypsum Panel Products* and GA-620, *Gypsum Area Separation Firewalls*
- Published UL Design or GA File Number
- USG literature *USG Area Separation Wall Systems Brochure* (SA925) and *USG Shaftwall Systems Catalog* (SA926)

TEST DATA

Property		ASTM Test Method	Requirement	UL Type SLX
Noncombustibility		E136	Noncombustible	Meets
Surface-burning characteristics	Flame spread	E84	Flame Spread Index, not greater than 25 ¹	20
	Smoke developed	E84	—	0
	Class A	E84	Flame spread not greater than 25 and smoke developed not greater than 450	Meets
Core hardness	Field	C473 (B)	Not less than 11 lbf (49 N) ¹	Meets
	End	C473 (B)	Not less than 11 lbf (49 N) ¹	Meets
	Edge	C473 (B)	Not less than 11 lbf (49 N) ¹	Meets
Flexural strength	Parallel	C473 (B)	Not less than 77 lbf (343 N) ¹	Meets
	Perpendicular	C473 (B)	Not less than 228 lbf (1014 N) ¹	Meets
Humidified deflection		C473	Not required ¹	Not applicable
Nail pull resistance		C473	Not required ¹	Not applicable

Note:

1. Per ASTM C1396 for 1 in. (25.4 mm) gypsum shaftliner board.

MOISTURE AND MOLD RESISTANCE

Per ASTM C473, *Test Methods for Physical Testing of Gypsum Panel Products*, the average water absorption for USG Sheetrock® Brand Mold Tough® Gypsum Liner Panels is not greater than 5% by weight after two-hour immersion.

In independent lab tests conducted per ASTM D3273 at the time of manufacture, the panels meet or exceed ASTM C1396 specifications. This ASTM lab test may not accurately represent the mold performance of building materials in actual use. Given unsuitable project conditions during storage, installation or after completion, any building material can be overwhelmed by mold. To manage the growth of mold, the best and most cost-effective strategy is to protect building products from water exposure during storage and installation and after completion of the building. This can be accomplished by using good design and construction practices.

PRODUCT DATA

	UL Type SLX
Thickness	1 in. (25.4 mm)
Lengths²	8 ft. (2438 mm), 10 ft. (3048 mm), 12 ft. (3658 mm)
Width	2 ft. (610 mm)
Weight³, nominal	4.0 lb./sq. ft. (19.5 kg/sq. m.)
Edges	Double-beveled

Notes:

- Other sizes available by special order. Check with your local USG representative for availability.
- Represents approximate weight for design and shipping purposes. For specific product weight in your area, contact your local USG representative or call the Customer Service Center at 800 950-3839.

COMPLIANCE

- Comply with ASTM C1396 for 1 in. (25.4 mm), Type X and water-resistant gypsum shaftliner board
- Classified as a Class A Interior Finish Material per Section 803.1 of the International Building Code® (IBC®)
- UL Classification as to fire resistance, surface-burning characteristics and noncombustibility
- Comply with IBC® for non-axial load-bearing wall, transverse load capacity, fire resistance and abuse resistance per Progressive Engineering Inc. (PEI) AER-09038
- Achieved GREENGUARD Gold Certification and qualifies as a low VOC emitting material (meets CA 01350)

SUBMITTAL APPROVALS

Job Name	
Contractor	Date

PRODUCT INFORMATION

See usg.com for the most up-to-date product information.

GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit ul.com/gg.

CAUTION

Dust may cause irritation to eyes, skin, nose, throat, and upper respiratory tract. Cut and trim with a utility knife or hand saw to minimize dust levels. Power tools must be equipped with a dust collection system. Wear eye, skin, and respiratory protection if necessary. If eye contact occurs, flush thoroughly with water for 15 minutes. If irritation persists, call a physician. Do not swallow. If swallowed, call a physician. For more information call Product Safety: 800.507-8899 or see the SDS at usg.com
KEEP OUT OF REACH OF CHILDREN.

TRADEMARKS

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We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

SAFETY FIRST!

Follow good safety and industrial hygiene practices during handling and installation of all products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read Safety Data Sheets and related literature on products before specification and/or installation.

800 USG.4YOU
800 (874-4968)
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Manufactured by
United States Gypsum Company
550 West Adams Street
Chicago, IL 60661

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4", 33mils (20ga) ClarkDietrich Shaftwall System

ClarkDietrich C-T Cavity Shaftwall System

ClarkDietrich C-T Cavity Shaftwall Studs are high-performance members engineered to maintain shaftwall integrity. C-T Studs are designed for use with 1" thick gypsum 24" wide liner panels. Gypsum liner panels are inserted into the "T" portion of the stud and are friction fit. The system is finished with fire rated gypsum board to complete and achieve the designated fire rating.

ClarkDietrich J-Track is used at the floor and ceiling in shaftwall assemblies. C-T studs and gypsum shaftliner panels are friction fit between the top and bottom J-Track. J-Tracks have unequal legs. The longer leg (available in 2-1/4" and 3") is installed on the shaft side providing a backstop for easy installation of the liner panel. Three-inch leg track is typically used as jamb struts around closure details, including duct and door openings, abutments and intersections.

Product Data & Ordering Information:

Product Code	Description	Minimum Thickness	Design Thickness	J-Track w/ 2-1/4" leg	J-Track w/ 3" leg
400CT-33	4" C-T Stud	0.0329"	0.0346"	400JR-33	400JR3-33

All material is produced with a coating of G40EQ (G40/G60 available)
 J-Tracks are available with optional "tabs" for ease of C-T Stud spacing.

CT Stud Gross Structural Properties:

Product Code	Description	Weight (lb/ft)	Area (in ²)	I _x (in ⁴)	S _x (in ³)	Steel F _y (ksi)	Pcs/Skid
400CT-33	4" C-T Stud	0.974	0.298	0.710	0.309	33	160

Calculated properties are based on AISI S100.

Limiting Heights - Design Pressure:

Deflection	5 psf	7.5 psf	10 psf	15 psf
L/120	23'-0"	21'-0"	18'-7"	15'-5" **
L/240	18'-7"	15'-10"	14'-1"	12'-1"
L/360	15'-10"	13'-6"	12'-1"	10'-4"

*Reduced for End Reaction capacity

**Reduces for Flexural Strength Capacity

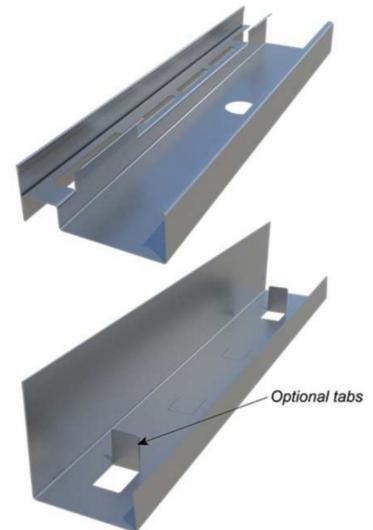
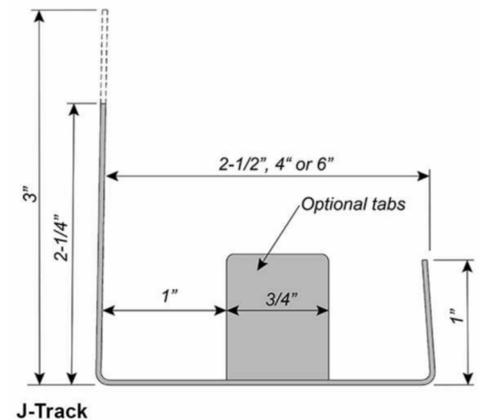
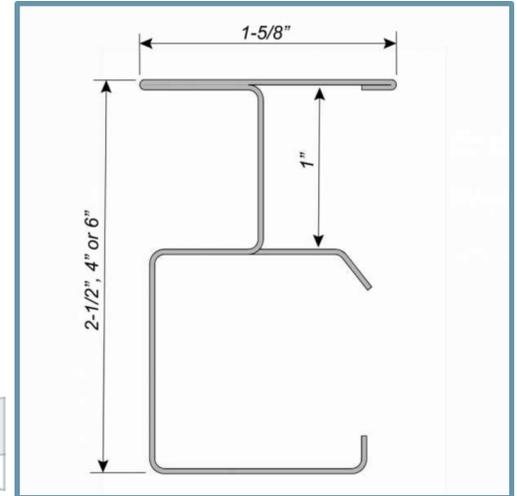
- The values in this table are based on testing per ICC-ES AC 86 and ASTM E72 and represent the limiting height capacity for strength using a 1.5 Safety Factor.
- Limiting Height values shown, were assessed from the lowest Flexural Strength value of Gypsum tested.

See heights & installation notes in [ICC-ES Evaluation report ESR-5050](#) or on www.clarkdietrich.com/shaftwall.

Common UL Designs: U417, U428, U429, U497, U498, V455 and V473

Code Approvals & Performance Standards

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S220-20](#) North American Standard for Cold-Formed Steel Framing - Nonstructural Members
 - (Compliant to ASTM C645, but IBC replaced with AISI S220 in IBC 2015)
 - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
 - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
 - Section C Installation - (Referencing ASTM C754)
- [ICC-ES ESR-5050](#) Shaftwall Systems
- [Intertek SPEC ID 26661](#) Shaftwall and Stairwall Wall Assemblies
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories



Marino\WARE® Product Submittal Data

PRODUCT NAME: 212CT20

MARINO\WARE PART # 212CT20

PROPERTIES:

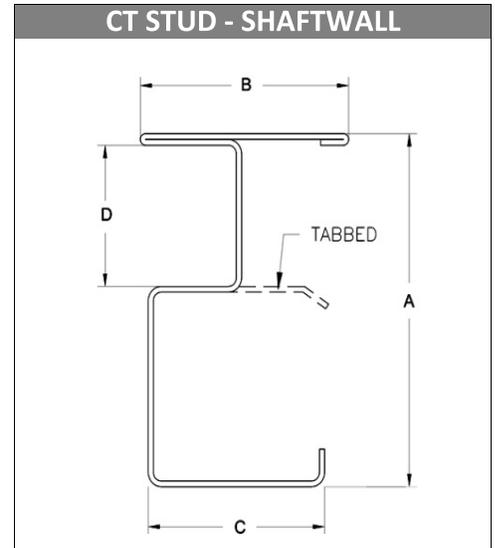
A. (in)	2-1/2	Yield Strength Fy (KSI)	40
B. (in)	1-5/8	Mils	33
C. (in)	1-3/8	Gauge	20 STR
D. (in)	1	Design Thickness (in)	0.0346
Coating:	G40, G60	Minimum Thickness (in)	0.0329

SECTION PROPERTIES

GROSS SECTION PROPERTIES

Cross Sectional Area: A (in ²)	0.245
Weight of Member: (lb/ft)	0.833
Moment of Inertia: I_x (in ⁴)	0.226
Section Modulus: S_x (in ³)	0.166

09.22.16 Non Structural Metal Framing



CODES & STANDARDS

- ASTM C645, E119, E90 & AISI S220 (18 mil - 33 mil)
- Galvanized steel sheet meets ASTM A1003 or A653

COMMON UL ASSEMBLIES

- U417, U428, U429, U497, U498, U499, V451, V455, V470, V472, V473
- V481, V493, W409, W414, W419, W441, W471, W474, I515, I516

Note: Always check UL Fire Resistance Directory for complete design requirements

GREEN INFO

- LEED v4 credits available
- Contact Technical Services for more information

Marino\WARE® Product Submittal Data

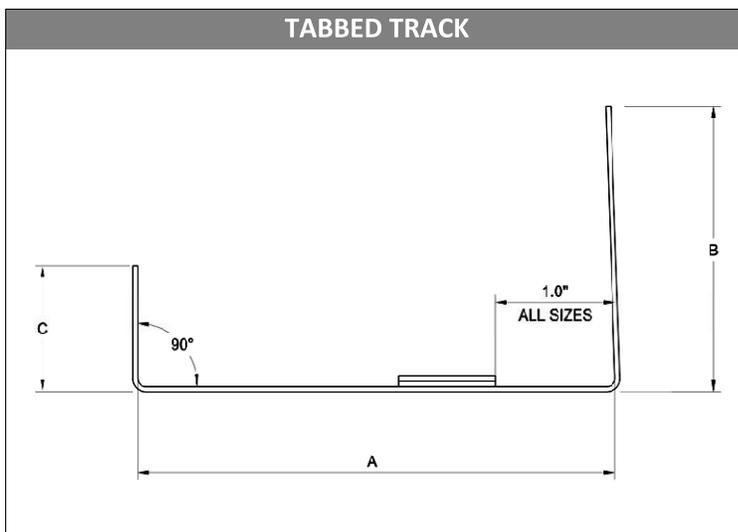
PRODUCT NAME: Tabbed Track

MARINO\WARE PART # 212TT20

PROPERTIES:

A. (in)	2-1/2	Yield Strength Fy (KSI)	40
B. (in)	2-1/4	Mils	33
C. (in)	1	Gauge	20 STR
Available Finish	G40, G60	Design Thickness (in)	0.0346
		Minimum Thickness (in)	0.0329

09.22.16 Non Structural Metal Framing



CODES & STANDARDS

- ASTM C645, E119, E90 & AISI S220 (18 mil - 33 mil)
- Galvanized steel sheet meets ASTM A1003 or A653

COMMON UL ASSEMBLIES

- U417, U428, U429, U497, U498, U499, V451, V455, V470, V472, V473
- V481, V493, W409, W414, W419, W441, W471, W474, I515, I516

Note: Always check UL Fire Resistance Directory for complete design requirements

GREEN INFO

- LEED v4 credits available
- Contact Technical Services for more information



www.marinoware.com

For more information, please contact Marino\WARE Technical Services at 866-545-1545.

This technical information reflects the most current information available and supersedes any and all publications, effective 11/22/2024

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Shaftwall

Shaftwall systems are used to aid in the construction of elevator shafts, mechanical shafts, stairwells, air return shafts and horizontal membranes. The system is designed to use with 1" gypsum board. MBA's shaftwall is available in 2-1/2", 4", or 6" sizes. Shaftwall is available in 18 and 33 mil thicknesses (25-20ga.).

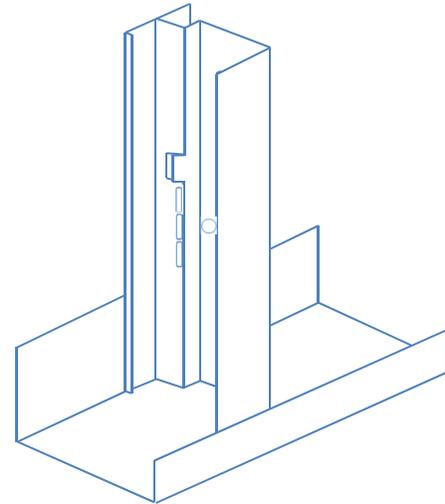
Steel Thickness

Mils	Gauge	Thickness (in)	
		Design	Minimum ¹
18	25	0.0183	0.0179
33	20	0.0346	0.0329

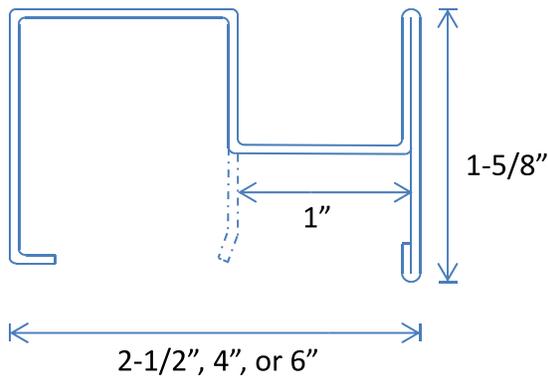
¹ Minimum Thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site based on Section A3.4 of the 1996 AISI Specification.

Dimensions

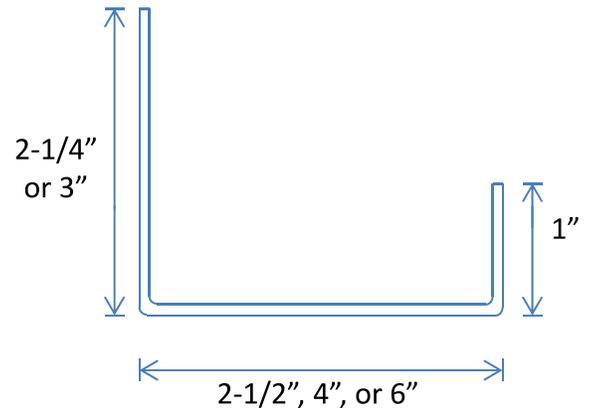
Web Width	2-1/2", 4", or 6"
Yield Strength	33 ksi
Coating	G40EQ
Tab Spacing	24"



CT Stud



Tab Track



General Notes

- Physical properties have been calculated in conformance with the 2001 NASPEC for the Design of Cold-Formed Steel Structural Members, including the 2004 Supplement, and the IBC 2006, unless noted otherwise.
- Drywall framing members have a protective coating conforming to ASTM spec A 653/A 653M, G-40 min, or equivalent corrosion resistance.
- Reference ASTM specification A 1003/A 1003 M table 1 for the universe of allowable coatings for light gauge steel framing.
- All delivered material must be kept dry, preferably by being stored inside a building under a roof. If it is necessary to store material outside, it must be stacked off the ground, properly supported on a level platform, and fully protected from the weather. Reference ASTM C 754 section 8 and ASTM C 1007 section 4.
- Drywall framing [nonstructural 25 gauge, 22 gauge and 20 gauge] is not permitted in load bearing (i.e. axial load greater than 200 lbs.) or exterior applications (i.e. transverse load greater than 10 PSF). Reference ASTM C 645 section 3.2.2.

LEED Green Building Credits

MR Credit 2: Construction Waste Management – MBA steel framing is 100% recyclable.

MR Credit 4: Recycled Content – MBA steel framing is formed from no less than 25.5% post-consumer and 6.8% pre-consumer recycled content.

MR Credit 5: Regional Materials – MBA has manufacturing facilities in multiple states.

4", 33mils (20ga) ClarkDietrich Shaftwall System

ClarkDietrich C-T Cavity Shaftwall System

ClarkDietrich C-T Cavity Shaftwall Studs are high-performance members engineered to maintain shaftwall integrity. C-T Studs are designed for use with 1" thick gypsum 24" wide liner panels. Gypsum liner panels are inserted into the "T" portion of the stud and are friction fit. The system is finished with fire rated gypsum board to complete and achieve the designated fire rating.

ClarkDietrich J-Track is used at the floor and ceiling in shaftwall assemblies. C-T studs and gypsum shaftliner panels are friction fit between the top and bottom J-Track. J-Tracks have unequal legs. The longer leg (available in 2-1/4" and 3") is installed on the shaft side providing a backstop for easy installation of the liner panel. Three-inch leg track is typically used as jamb struts around closure details, including duct and door openings, abutments and intersections.

Product Data & Ordering Information:

Product Code	Description	Minimum Thickness	Design Thickness	J-Track w/ 2-1/4" leg	J-Track w/ 3" leg
400CT-33	4" C-T Stud	0.0329"	0.0346"	400JR-33	400JR3-33

All material is produced with a coating of G40EQ (G40/G60 available)
 J-Tracks are available with optional "tabs" for ease of C-T Stud spacing.

CT Stud Gross Structural Properties:

Product Code	Description	Weight (lb/ft)	Area (in ²)	I _x (in ⁴)	S _x (in ³)	Steel F _y (ksi)	Pcs/Skid
400CT-33	4" C-T Stud	0.974	0.298	0.710	0.309	33	160

Calculated properties are based on AISI S100.

Limiting Heights - Design Pressure:

Deflection	5 psf	7.5 psf	10 psf	15 psf
L/120	23'-0"	21'-0"	18'-7"	15'-5" **
L/240	18'-7"	15'-10"	14'-1"	12'-1"
L/360	15'-10"	13'-6"	12'-1"	10'-4"

*Reduced for End Reaction capacity

**Reduces for Flexural Strength Capacity

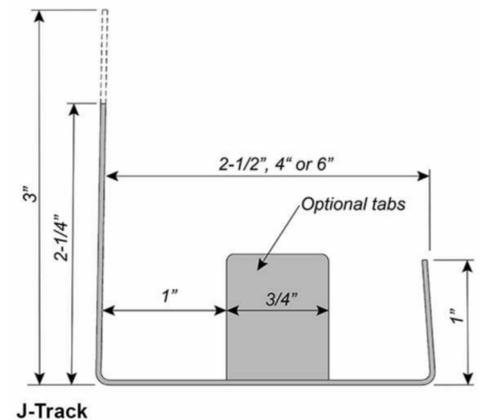
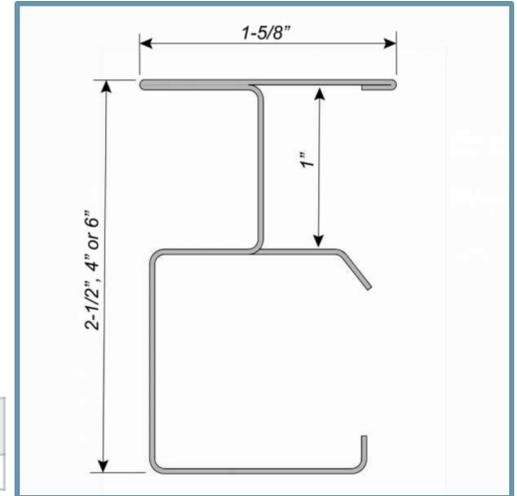
- The values in this table are based on testing per ICC-ES AC 86 and ASTM E72 and represent the limiting height capacity for strength using a 1.5 Safety Factor.
- Limiting Height values shown, were assessed from the lowest Flexural Strength value of Gypsum tested.

See heights & installation notes in [ICC-ES Evaluation report ESR-5050](#) or on www.clarkdietrich.com/shaftwall.

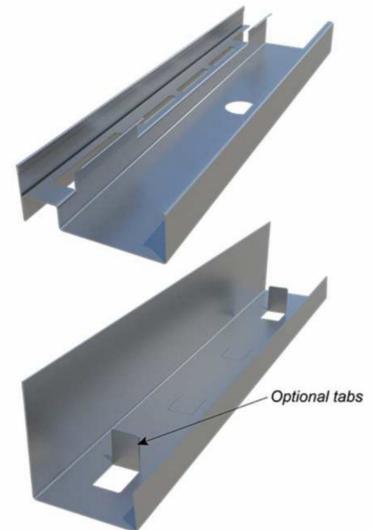
Common UL Designs: U417, U428, U429, U497, U498, V455 and V473

Code Approvals & Performance Standards

- [AISI S100-16 \(2020\) w/S2-20](#) North American Specification for the Design of Cold-Formed Steel Structural Members
- [AISI S220-20](#) North American Standard for Cold-Formed Steel Framing - Nonstructural Members
 - (Compliant to ASTM C645, but IBC replaced with AISI S220 in IBC 2015)
 - Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)
 - Section A4 Corrosion Protection (Referencing ASTM A653/A653M)
 - Section C Installation - (Referencing ASTM C754)
- [ICC-ES ESR-5050](#) Shaftwall Systems
- [Intertek SPEC ID 26661](#) Shaftwall and Stairwall Wall Assemblies
- [SDS For ASTM A1003 Steel Framing Products](#) For Interior Framing, Exterior Framing and Clips/Accessories



J-Track



Marino\WARE® Product Submittal Data

PRODUCT NAME: 400CT20

MARINO\WARE PART # 400CT20

PROPERTIES:

A. (in)	4	Yield Strength Fy (KSI)	40
B. (in)	1-5/8	Mils	33
C. (in)	1-3/8	Gauge	20 STR
D. (in)	1	Design Thickness (in)	0.0346
Available Finish	G40, G60	Minimum Thickness (in)	0.0329

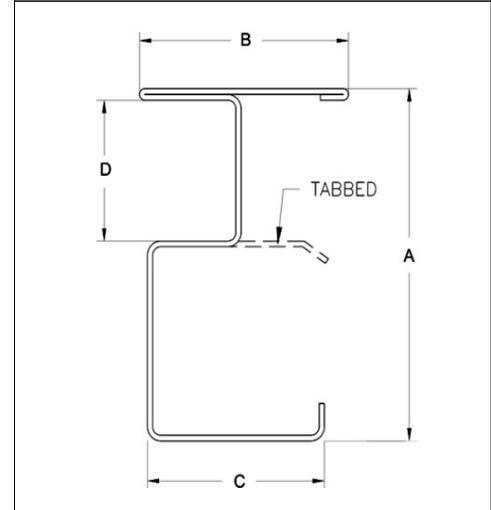
SECTION PROPERTIES

GROSS SECTION PROPERTIES

Cross Sectional Area: A (in ²)	0.297
Weight of Member: (lb/ft)	1.010
Moment of Inertia: I_x (in ⁴)	0.695
Section Modulus: S_x (in ³)	0.331

09.22.16 Non Structural Metal Framing

CT STUD - SHAFTWALL



CODES & STANDARDS

- ASTM C645, E119, E90 & AISI S220 (18 mil - 33 mil)
- Galvanized steel sheet meets ASTM A1003 or A653

COMMON UL ASSEMBLIES

- U417, U428, U429, U497, U498, U499, V451, V455, V470, V472, V473
- V481, V493, W409, W414, W419, W441, W471, W474, I515, I516

Note: Always check UL Fire Resistance Directory for complete design requirements

GREEN INFO

- LEED v4 credits available
- Contact Technical Services for more information

Marino\WARE® Product Submittal Data

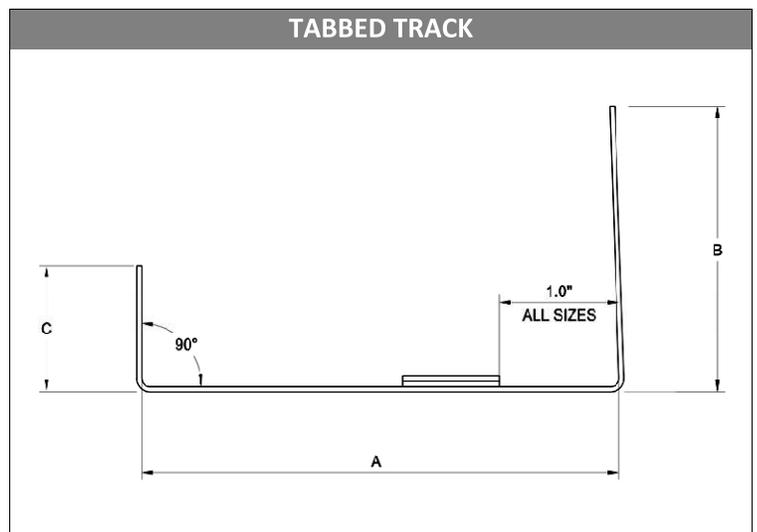
PRODUCT NAME: Tabbed Track

MARINO\WARE PART # 400TT20

PROPERTIES:

A. (in)	4	Yield Strength Fy (KSI)	40
B. (in)	2-1/4	Mils	33
C. (in)	1	Gauge	20 STR
Available Finish	G40, G60	Design Thickness (in)	0.0346
		Minimum Thickness (in)	0.0329

09.22.16 Non Structural Metal Framing



CODES & STANDARDS

- ASTM C645, E119, E90 & AISI S220 (18 mil - 33 mil)
- Galvanized steel sheet meets ASTM A1003 or A653

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- U417, U428, U429, U497, U498, U499, V451, V455, V470, V472, V473
- V481, V493, W409, W414, W419, W441, W471, W474, I515, I516

Note: Always check UL Fire Resistance Directory for complete design requirements

GREEN INFO

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www.marinoware.com

For more information, please contact Marino\WARE Technical Services at 866-545-1545.

This technical information reflects the most current information available and supersedes any and all publications, effective 11/22/2024

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03/31/2020



Mr. Kyle Flondor
United States Gypsum Company
550 W ADAMS ST
CHICAGO, IL, 60661-3665
US

Our Reference: File R1319, Project 4789412728

4789412728 Subject: Evaluation for use of CT-studs in lieu of CH-studs listed in shaft wall Design Nos. U415, U438, U459, U467, U469 and U492.

Site: 10th & O Street Office Building
1021 O Street
Sacramento, CA 95814

Dear Mr. Flondor,

I am sending this letter in regard to your request to allow the use of C-T-studs in lieu of C-H-studs listed in shaft wall Design Nos. U415, U438, U459, U467, U469 and U492.

The C-T studs can be used in the aforementioned designs without adversely affecting the fire resistance ratings established in accordance with the Standard ANSI/UL 263 (ASTM E 119) if the following conditions are met:

- The minimum gauge and depth of the C-T studs must meet the minimums specified for the C-H studs in the aforementioned designs.
- The minimum thicknesses and types of gypsum panels listed in the aforementioned designs must be met.

In addition, the 1 in. gypsum liner panels may be butted together when the height of the wall is greater than the length of the liner panels when using the C-T-Studs, as stated in Item 3 of Design No. U415. The 1/2 in., 5/8 in., and 3/4 in. panels may be applied vertically or horizontally, where specified in the individual systems of Item 4 of Design No. U415.

Only those products bearing the appropriate Classification Marking and the company's name, trade name, trademark, or other recognized identification should be considered as covered by UL's Classification and Follow-Up Service. Any information and documentation involving UL Mark services are provided on behalf of UL LLC or any authorized licensee.

Authorities having jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Listed or Classified products, equipment systems, devices and materials. Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee.

We trust that the above satisfies your request. However, if you should have any additional questions, please contact the undersigned.

Best regards,

Handwritten signature of Nelson Figueroa in black ink.

Nelson Figueroa
Project Associate Engineer

Reviewed by:

Handwritten signature of Mark Izydorek in black ink.

Mark Izydorek
Staff Engineering Associate