



**STRONGER  
THAN STEEL.<sup>SM</sup>**

INTERIOR FIRE-RATED SYSTEMS

## Shaftwall and Stairwell Systems

### Tested, approved assemblies with unprecedented flexibility.

What makes the ClarkDietrich shaftwall construction system unique is that it has been tested with almost every gypsum board and shaftliner manufacturer in the country. Other systems may only test with one type of gypsum board and shaftliner. Unlike competing systems, the ClarkDietrich C-T stud and J-Track system provide maximum flexibility, allowing you to choose from a variety of board manufacturers. This unprecedented flexibility means quick availability of product at economical costs.

**Shaftwall System** consists of 1" shaftliner panels supported by 2-1/2", 4" or 6" C-T studs and faced on one side with varying layers of 1/2" Type C or 5/8" Type X gypsum board.

**Stairwall Systems** are designed to enclose stairwells, and are finished on both sides with varying layers of 1/2" Type C or 5/8" Type X gypsum board.

Gypsum shaftwall assemblies can be installed from the exterior of the shaft at each floor, eliminating the need for scaffolding within the shaft.

### LIFE SAFETY & FIRE-RESISTANT PROTECTION

Shaftwall systems are non-load bearing, fire-rated wall assemblies that provide critical, life safety, fire-resistance protection for elevator shafts, stairwells, vertical chases and mechanical enclosures. Shaftwalls in elevators and stairwells provide protection for the only means of evacuation from the building in an emergency—making them one of the most important wall assemblies in a building. Vertical chases and mechanical enclosures keep vital communication, power, water, fresh air and exhaust systems intact when a fire occurs.

### CONSTRUCTION METHODS

Cavity shaftwalls are constructed utilizing one of two methods: masonry/CMU or light-gauge steel and gypsum. Gypsum drywall shaftwall construction has become the preferred and most widely used method of construction for shaftwalls. These shaftwalls are lightweight, install faster, and provide lower in-place costs. They also significantly reduce structural framing and foundation costs, and are easy, quick and clean to install.

Masonry shaftwalls in high-rise buildings historically weigh between 20 and 45 lbs. per square foot, compared to gypsum assemblies that weigh between 10 and 13 lbs. per square foot, thus achieving a substantial weight reduction.



Stairwall



Shaftwall

## CLARKDIETRICH SLOTTED C-T STUDS AND J-TRACK.

Slotted C-T Shaftwall / Stairwell framing members and J-Track are interior framing members manufactured in accordance with AISI S220. Comprised of material formed from coils conforming to ASTM A1003 or other steel complying to AISI Standards, having a minimum yield strength of 33ksi or 50ksi. The coating of the steel is a metallic coating conforming to ASTM A643 with a minimum G40 coating or equivalent corrosion protection in accordance with Section A4 of AISI S220.

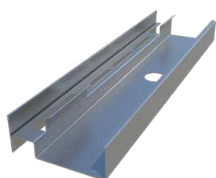
The Shaftwall / Stairwall system is a non-structural wall assembly designed to provide separation from slab to underside of deck above. Studs are friction-fitted between top and bottom of the J-Tracks. Use J-Track for all closure

details, including duct and door openings, abutments, intersections, etc. This system has been designed with only two components for convenience of installation. No other special metal components are required. Studs are automatically spaced 24" o.c. once 1" gypsum shaftliner panels are friction fit snugly into studs.

C-T Cavity Shaftwall System limiting heights are acceptable for use with the following manufacturers: American Gypsum; CertainTeed Corporation; Georgia-Pacific Gypsum; National Gypsum; PABCO Gypsum; and United States Gypsum.

Check the specific fire or sound assembly to be constructed for the details required to achieve the desired rating.

### C-T Shaftwall / Stairwell Stud



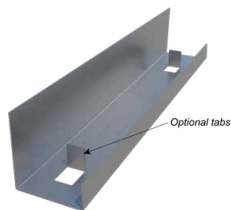
Engineered to maintain shaftwall integrity, ClarkDietrich C-T cavity shaftwall studs are punched with 1" circular knockouts at 12" o.c. for easy installation of conduit or other mechanical service lines. C-T studs and gypsum shaftliner panels are friction fit between the top and bottom J-Tracks.

Independent laboratory tests have demonstrated that the slotting in the web improves resistance to thermal and noise transmissions.

Product code	Thickness			Stud depth (in)
	Gauge	Mils	Design thickness (in)	
250CT-22	25	22	0.0231	2-1/2
250CT-33	20	33	0.0346	2-1/2
250CT-43	18	43	0.0451	2-1/2
400CT-22	25	22	0.0231	4
400CT-33	20	33	0.0346	4
400CT-43	18	43	0.0451	4
600CT-33	20	33	0.0346	6
600CT-43	18	43	0.0451	6

NOTE: 43mil (18ga) only available in select markets and is for interior systems only.

### J-Track / J-Runner



J-Track is used at the floor and ceiling in shaftwall assemblies. J-Tracks have unequal legs with the longer leg (available in 2-1/4" or 3") installed toward the shaft. The leg provides a backstop for easy installation of the shaftliner. 3" leg track is typically used as jamb struts around closure details, including duct and door openings, abutments and intersections.

J-Track is punched with optional fold-up tabs every 12", permitting faster, more efficient installation and eliminates the need for additional screws. Tabs are optional.

Product code	Thickness			Size	
	Gauge	Mils	Design thickness (in)	Width (in)	Leg (in)
250JR-22	25	22	0.0230	2-1/2	2-1/4
250JR3-22					3
400JR-22				4	2-1/4
400JR3-22	20	33	0.0346	2-1/2	3
250JR-33					2-1/4
250JR3-33					3
400JR-33				4	2-1/4
400JR3-33					3
600JR-33				6	2-1/4
600JR3-33					3
250JR-43	18	43	0.0451	2-1/2	2-1/4
250JR3-43					3
400JR-43				4	2-1/4
400JR3-43					3
600JR-43				6	2-1/4
600JR3-43					3

\*3 designates 3" leg.

NOTE: 43mil (18ga) only available in select markets and is for interior systems only.

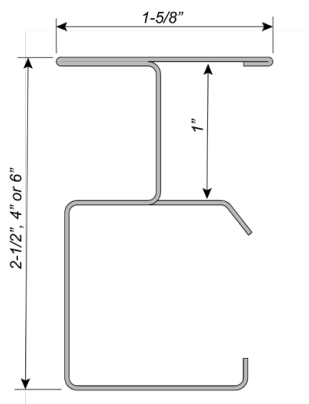
## Stud Design Properties

### SHAFTWALL

A 2-hour fire-resistive, non-load bearing non-combustible partition designed to enclose shaftwalls, containing elevators, ducts, piping, air shafts and similar construction applications. System consists of 1" shaftliner panels supported by 2-1/2", 4" or 6" C-T studs and faced on one side with two layers of 1/2" Type C or 5/8" Type X gypsum board.



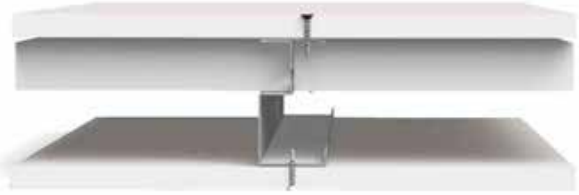
Shaftwall



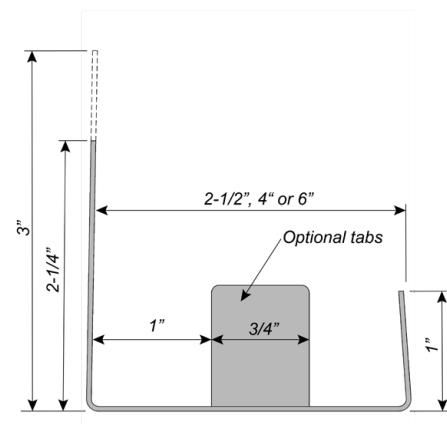
C-T Stud

### STAIRWALL

Designed to enclose stairwalls, this system is finished on both sides with a single layer of 1/2" Type C or 5/8" Type X gypsum board.



Stairwall



J-Track

### HELPFUL HINTS

- Precut C-T studs 3/4" less than the opening's height between top and bottom J-Track.
- In structural steel-frame construction, install perimeter J-Track sections before applying spray-on fireproofing.
- Items to be anchored to the wall (cabinets, sinks, handrails, etc.) should be fastened to steel plates secured behind or between layers of gypsum.
- Use Type S screws for 22mil (25ga) steel framing. Use Type S-12 screws for 33mil (20ga) or heavier steel framing.
- It is important that the authority having jurisdiction approve the type, size, and maximum spacing of track fasteners to meet the design load requirements.
- 43mil (18ga) C-T studs are for interior systems only.

### LIMITATIONS OF USE

- Shaftwall assemblies are designed as simple span non-load bearing interior partitions only. **DO NOT STACK WALLS.**
- Do not install in areas which will be adjacent to occupancies of unusually high moisture conditions.
- Provide control joints so that maximum length of continuous partition is 30 feet. Wherever possible, the partition control joints should coincide with those in the building structure.
- Elevator door frames should be supported independently of the shaftwall. However, interfacing of elevator frame to shaftwall system may require attachment with jamb clips and/or grouting.

### LIMITATIONS OF USE (CONTINUED)

- Where penetrations occur in the partitions, additional reinforcement at corners may be necessary to distribute stresses if control joints are not used and if excessive loads need to be supported.
- To prevent air movement and resulting "whistling", the partition perimeters, as well as all penetrations, should be sealed with a non-hardening sealant.
- Finishing of all joints in face layers should be done within temperature limitations of the specific joint treatment used.
- Not recommended for use as an unlined HVAC supply shaft or duct.
- Hollow cavities must be fire stopped at each floor.
- **Do not splice C-T studs or J-Tracks.**

Openings and Penetrations in Shaftwall/Stairwell systems: As tested per ASTM E119/UL 263, these systems do not contain any openings or penetrations.

- All Opening and Penetration covering assemblies must be approved for use per Section 713.7 and 713.8 of the 2024 IBC.
- Any opening or penetration framing detail provided here is not a tested detail, but a generally accepted practice coinciding with approved assemblies noted above.
- CT-Studs are nonstructural, and where an opening or penetration is required the J-Track must be supported by a designed structural element.
- All opening or penetration fire rated assemblies require independent structural support, as the Shaftwall/Stairwell systems are not designed or tested under this condition.

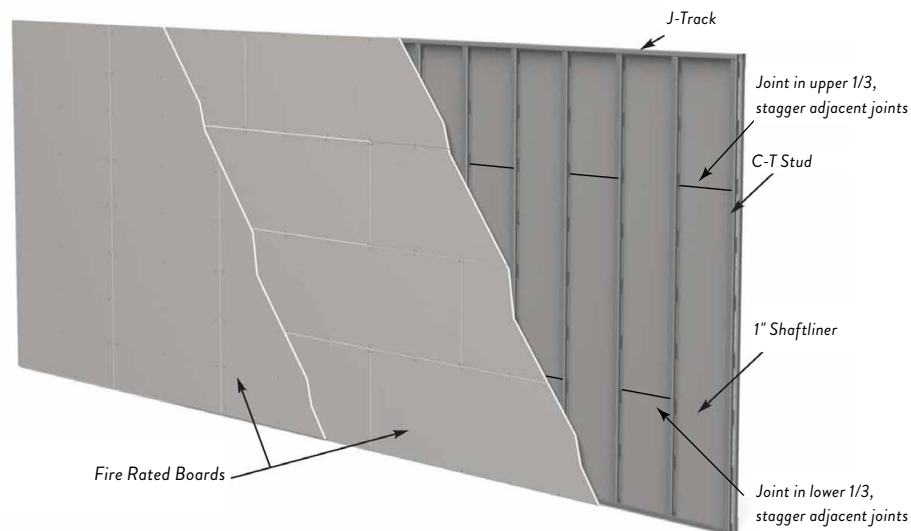


## Installation Procedures

### VERTICAL SHAFTWALLS

- 1 Layout per construction drawings. Secure J-Track at perimeter framing and plumb to ceiling, floor and sides. Attached with suitable fasteners, spaced not more than 24" o.c. Apply a bead of non-hardening, flexible sealant to the perimeter.
- 2 Pre-plan the stud layout 24" o.c. and adjust the spacing at either end so the end studs will not fall closer than 12" from the end.
- 3 Limiting heights are as shown on page 7.
- 4 Erect the first 1" Shaftliner panel, cut  $\frac{3}{4}$ " -1" 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 panels in place. If tabs are not used, screw the liner panel to the J-Track.
- 5 Insert C-T stud, cut  $\frac{3}{4}$ " less than overall height, into the top and bottom J-Tracks and fit tightly over previously installed 1" panel. Allow equal clearance between top and bottom J-Track.
- 6 Install the next 1" Shaftliner inside the J-Track and within the tabs of the C-T stud.
- 7 Progressively install succeeding studs and panels as described above until the wall section is enclosed. The final panel section may be secured with tabs from the J-Track at 12" o.c. If tabs are not used, screw the liner panel to the J-Track.
- 8 Where wall heights exceed the standard or available length of shaftliner panels, the panels may be cut and stacked with joints occurring within the top or bottom third points of the wall. Joints of adjacent panels should be alternately staggered to prevent a continuous horizontal joint. Any butt joints must be factory edge to factory edge with pieces pushed tightly together. Gypsum panels must engage a minimum of 2 tabs of the C-T stud.
- 9 **C-T studs cannot be spliced.** They must be installed full height, one piece. J-Track when not attached to the structure shall not be spliced.
- 10 Do not attach J-Track to the C-T studs except at openings or penetrations. (Refer to details).
- 11 For doors, ducts or other large penetrations or openings, install J-Track as perimeter framing. Special conditions may be required for door openings. Check local code and/or door manufacturer for requirements.

Note: Check the specific fire or sound assembly to be constructed for the details required to achieve the desired rating.



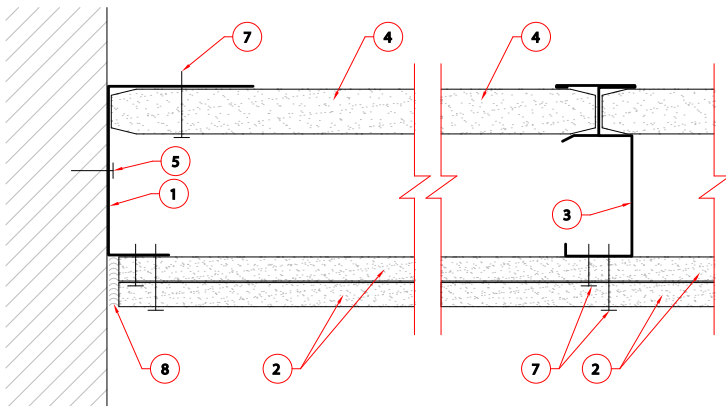
### LOCATION OF GYPSUM BOARD JOINTS

- 1 Shaftliner panels may be abutted (spliced or stacked) within the cavity as shown in the drawing above. The shorter panel should be at least two feet long or of sufficient length to engage two stud tabs on each panel edge. NOTE: In addition, some local codes may also require that these splices be back-blocked with a 12" x 24" piece of gypsum even though the tests were preformed with these joints unblocked. Also, back blocking may be done with a C-T stud of proper length and placed horizontal. Please check with your local jurisdiction.
- 2 For the shaftwall system, finished one side, install the first layer of  $\frac{1}{2}$ " Type C or  $\frac{5}{8}$ " Type X gypsum board horizontally with 1" Type S screws spaced 24" o.c. and 3" from all edges. The horizontal joints must be offset from any splice joints in the shaftliner panels by at least 12".
- 3 Install the face layer of board parallel to framing with 1-5/8" Type S screws spaced 12" o.c. at all framing members maintaining a 6" edge distance. All edge and end joints should be offset from the base layer by 24".
- 4 For the stairwall system, finished both sides, each side must be installed vertically with 1" Type S screws spaced 12" o.c. maintaining a 3" distance from edge. Offset edges and ends on opposite sides 24" o.c.
- 5 Caulk all perimeter edges and abutments with dissimilar materials, and penetrations in the facing layers with a non hardening flexible sealant approved for this use.
- 6 All joints on face layers are to be taped and finished and fastener heads finished with joint compounds meeting ASTM C475 specification.

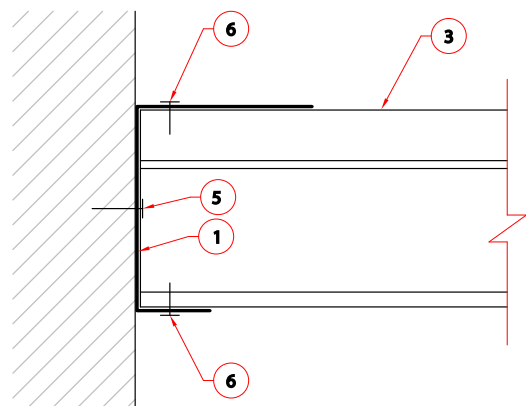
## Installation Procedures

### HORIZONTAL CORRIDOR USE PERMITTED PER IBC SECTION 708.4 CONTINUITY, EXCEPTION 3

- A. Horizontal ceiling applications are not designed for any live load, mechanical equipment, or for any storage load.
- B. Maximum spans are as shown on page 7.
- C. The corridor ceiling or stair soffit horizontal assembly is constructed from the floor.
- D. J-Track (Item ①) is first secured to all corridor walls or stair stringer framing around the perimeter of the ceiling or stair soffit to be protected.
- E. The J-Track (Item ①) will be at a minimum:
  - a. 22mil, 0.0230in (25ga) and 33mil, 0.0346in (20ga) thickness for 20ga C-T studs (Item ③)
  - b. 43mil, 0.0451in (18ga) thickness for 18ga C-T studs (Item ③)
- F. The J-Track (Item ①) is positioned with the shorter 1" long leg of the track facing the floor.
  - a. Fasteners are placed through the web of the J-Track to the supporting structure.
  - b. Mechanical fasteners shall be spaced a maximum of 24in o.c. along the length of the J-Track to the supporting structure.
  - c. The track to perimeter wall connection (Item ⑤) shall be detailed by the designer to provide a minimum of 200 lbs. of shear capacity for every C-T stud location.
- G. 1" (thick) x 24" (wide) gypsum shaftliner panels (Item ④) are inserted in the J-Track (Item ①) towards the ceiling (2" leg of the J-Track).
  - a. Measure the overall dimensions of the opening and determine if the first 1" shaftliner installed should be cut lengthwise so that the final shaftliner panel is not less than 8" in width.
  - b. The first liner panel will be secured to the J-Track by using #6 x 1-5/8" drywall screws 12in o.c. and at each end through the longer leg of the J-Track.
- H. C-T stud (Item ③) of the required depth and thickness will be positioned so that it secures the free edge of the first shaftliner panel within the "T" portion of the C-T stud.
- I. **Do not splice C-T studs.** Use only full length pieces of the proper length. Both ends of the C-T stud (Item ③) will be secured to both flanges of the J-Track using a minimum 1/2" long #8 pan-head screw (Item ⑥).
- J. The sequence of alternating placement of shaftliner panels (Item ④) and C-T studs (Item ③) will continue with each C-T stud engaging the long edges of the 1 inch shaftliner panels.
- K. The end of each 1 inch shaftliner panel within the perimeter J-Track is fastened to the J-Track flange with three #6 x 1-5/8" Type S screws (12" o.c.).
- L. Liner panels may be cut; butt the factory ends of the liner panels. The butt joints shall occur within the outermost one third points of the span. Joints in adjacent liner panels shall be alternately staggered to prevent a continuous joint.
- M. Secure the last liner panel to the J-Track by using #6 x 1-5/8" drywall screws 12in o.c. and at each end through the longer leg of the J-Track.
- N. For a two-hour assembly two layers of 1/2" Type C or 5/8" Type X gypsum board (Item ②) should be installed at right angles to the framing members. Install the inner layer with #6 (Item ⑦) x 1" Type S drywall screws, 24in o.c., starting 3" maximum from the ends of the C-T studs. Butt joint of adjacent panels should be centered on a stud flange. Install the outer layer of 1/2" Type C or 5/8" Type X gypsum board with #6 (Item ⑦) x 1-5/8" Type S drywall screws, 12" o.c. in the field and at the perimeter. Offset the board joints a minimum of one stud spacing (24") between layers.
- O. Caulk the perimeter edges and abutments with dissimilar materials and any penetrations with a non-hardening flexible sealant (Item ⑧).
- P. All joints on the outer layer shall be taped and finished and fastener heads finished with joint compounds meeting ASTM C475.



**Figure 1 - Two (2) Hour Assembly**  
\*Horizontal corridor use permitted per  
IBC section 708.4 Continuity, Exception 3



**Figure 2 - C-T Stud to J-Track Connections**

## Limiting Heights Table

## C-T STUD LIMITING HEIGHTS : PER ICC-ES ESR-5050

Stud Depth	Mil (gauge)	Yield Strength (psi)	Design Thickness (in)	Design Deflection Limit	Limiting Height (feet - inches) Design Pressure (psf)			
					5 psf	7.5 psf	10 psf	15 psf
2-1/2"	22mil (25ga)	33,000	0.0231	L/120	16'-10"	13'-8"	11'-10" *	8'-6" *
				L/180	13'-8"	11'-3"	9'-10"	8'-3"
				L/240	11'-10"	9'-10"	8'-8"	7'-3"
				L/360	9'-10"	8'-3"	7'-3"	6'-2"
	33mil (20ga)	33,000	0.0346	L/120	16'-10"	14'-4"	12'-11"	11'-1"
				L/180	14'-4"	12'-4"	11'-1"	9'-6"
				L/240	12'-11"	11'-1"	9'-11"	8'-7"
				L/360	11'-1"	9'-6"	8'-7"	7'-5"
	43mil (18ga) <sup>1</sup>	50,000	0.0451	L/120	17'-11"	15'-10"	14'-6"	12'-10"
				L/180	15'-10"	14'-0"	12'-10"	—
				L/240	14'-6"	12'-10"	—	—
				L/360	12'-10"	—	—	—
4"	22mil (25ga)	33,000	0.0231	L/120	21'-8"	16'-6" *	12'-5" *	8'-3" *
				L/180	18'-1"	15'-3"	12'-5" *	8'-3" *
				L/240	16'-0"	13'-7"	12'-1"	8'-3" *
				L/360	13'-7"	11'-6"	10'-4"	8'-3" *
	33mil (20ga)	33,000	0.0346	L/120	23'-0"	21'-0"	18'-7"	15'-5" **
				L/180	21'-0"	17'-9"	15'-10"	13'-6"
				L/240	18'-7"	15'-10"	14'-1"	12'-1"
				L/360	15'-10"	13'-6"	12'-1"	10'-4"
	43mil (18ga) <sup>1</sup>	50,000	0.0451	L/120	25'-7"	22'-2"	20'-0"	17'-4"
				L/180	22'-2"	19'-2"	17'-4"	15'-1"
				L/240	20'-0"	17'-4"	15'-8"	13'-7"
				L/360	17'-4"	15'-1"	13'-7"	11'-10"
6"	33mil (20ga)	33,000	0.0346	L/120	30'-3" **	24'-9" **	20'-6" *	13'-8" *
				L/180	30'-3"	24'-9" **	20'-6" *	13'-8" *
				L/240	26'-6"	22'-2"	19'-7"	13'-8" *
				L/360	22'-2"	18'-8"	16'-7"	13'-8" *
	43mil (18ga) <sup>1</sup>	50,000	0.0451	L/120	36'-5"	30'-8"	27'-3"	23'-2"
				L/180	30'-8"	26'-0"	23'-2"	19'-9"
				L/240	27'-3"	23'-2"	20'-8"	17'-8"
				L/360	23'-2"	19'-9"	17'-8"	—

<sup>1</sup> 43mil (18ga) only available in select markets. 43mil (18ga) is for interior systems only.

**Note:**

- \*Reduced for End Reaction Capacity. \*\* Reduced for Flexural Strength Capacity.
- The values in this table are based on testing ASTM E72 and represent the limiting height capacity for strength using a 1.5 Safety Factor.
- Minimum base steel thickness is 95% of design thickness.
- Limiting Height values shown, were assessed from the **lowest** Flexural Strength value of Gypsum tested.

## Horizontal Spans

## MAXIMUM HORIZONTAL SPANS FOR CORRIDOR CEILINGS

Stud Depth	Mil (gauge)	Yield Strength (psi)	Design Thickness (in)	2 Hour (2) 1/2" Type C + (1) 1-in Shaftliner				2 Hour (2) 5/8" Type X + (1) 1-in Shaftliner			
				L/120	L/180	L/240	L/360	L/120	L/180	L/240	L/360
2-1/2"	22mil (25ga)	33,000	0.0231	8'-8"	8'-8"	8'-6"	7'-5"	8'-2"	8'-2"	8'-2"	7'-2"
	33mil (20ga)	33,000	0.0346	10'-6"	10'-6"	9'-10"	8'-7"	9'-11"	9'-11"	9'-6"	8'-3"
4"	22mil (25ga)	33,000	0.0231	11'-8"	11'-8"	11'-8"	10'-8"	11'-0"	11'-0"	11'-0"	10'-3"
	33mil (20ga)	33,000	0.0346	14'-3"	14'-3"	14'-1"	12'-4"	13'-6"	13'-6"	13'-6"	11'-10"
	43mil (18ga) <sup>1</sup>	50,000	0.0451	19'-1"	16'-8"	15'-2"	13'-3"	18'-5"	16'-1"	14'-7"	12'-9"
6"	33mil (20ga)	33,000	0.0346	18'-9"	18'-9"	18'-9"	16'-10"	17'-9"	17'-9"	17'-9"	16'-3"
	43mil (18ga) <sup>1</sup>	50,000	0.0451	22'-9"	22'-9"	20'-9"	18'-2"	20'-5"	20'-5"	20'-0"	17'-6"

<sup>1</sup> 43mil (18ga) only available in select markets. 43mil (18ga) is for interior systems only.

**Note:**

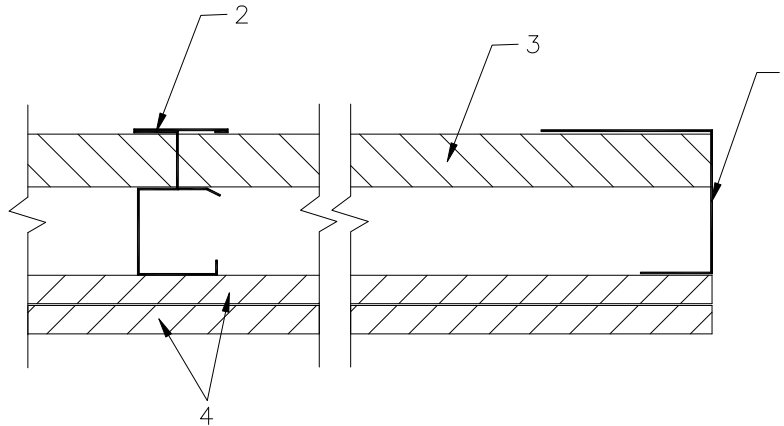
- Dead Load of assembly ONLY is considered.
- Not designed to carry any Live Loads, Mechanical equipment, Storage Loads or Lighting.
- Studs must be one piece, full span.
- Minimum base steel thickness is 95% of design thickness.
- Horizontal corridor use permitted per IBC section 708.4 Continuity, Exception 3.

# ClarkDietrich Design No. CD/WA 120-01 Wall Assembly

## DESIGN NO. CD/WA 120-01

**ASSEMBLY RATING - 2 HOURS, NON-BEARING SHAFTWALL, DESIGN WEIGHT - 8.5 PSF**

STC	DESCRIPTION
38	As shown below.
44	As shown below and with 1-1/2" thick, 3PCF, mineral fiber insulation in cavity.
53	As shown and with 1-1/2" thick, 3 PCF, mineral fiber insulation in cavity and with ClarkDietrich 1/2" resilient channels, 24" o.c. and at right angles to studs under 1/2" or 5/8" Gypsum Board Base Layer.



- Floor, Ceiling, Corner and Intersection Runners\*:** 'J' shaped runner with unequal legs, 2-1/2" minimum deep, fabricated from minimum 0.019" thick galvanized steel. Position runners with short leg towards room side of wall. Runners attached to structural members with steel fasteners located not greater than 24" o.c. Runners are manufactured by ClarkDietrich Building Systems.
- Steel Studs\*:** 'C-T' shaped slotted web studs, 1-1/2" wide by 2-1/2" minimum deep, fabricated from minimum 0.019" thick galvanized steel. Cut to length 1/2" less than the opening's height and spaced 24" maximum o.c. and between 1" thick gypsum shaftliner panels. Studs are manufactured by ClarkDietrich Building Systems.
- Gypsum Shaftliner:** 1" thick Georgia-Pacific Gypsum LLC Shaft Liner Type X\*, Georgia-Pacific Gypsum LLC DensGlass Ultra Shaft Liner Type X\*, Gold Bond Shaftliner, James Hardie Gypsum Hardierock Type X Shaftliner\*, or USG Shaft Wall Liner, supplied in nominal 24" widths. The panels are inserted against the long leg of the 'J' runners and into the 1" deep recess of the studs. Free edges of end panels are retained by bending 'J' runner tabs (12" o.c.) at a 90° angle.
- Gypsum Board:** 1/2" thick Georgia-Pacific Gypsum LLC Fireguard C, Georgia-Pacific Gypsum LLC DensArmor Plus Fireguard C\*, Gold Bond Fireshield Wall Board G, James Hardie Gypsum Superfire X Hardierock, USG Firecode C Sheetrock or 5/8" thick Type X Gypsum applied in two layers on the room side. The base layer is applied horizontally with 1" drywall screws 24" o.c., starting 3" from the top and bottom. Face layer is applied vertically with 1-5/8" screws 12" o.c., starting 6" from the top and bottom. Outer layer joints are finished with paper tape and joint compound. Exposed screw heads are finished with joint compound.  
**Limitations:** Gypsum Shaftliner and Gypsum Board must be by same manufacturer. Heights shall not exceed those in the table within these listings.

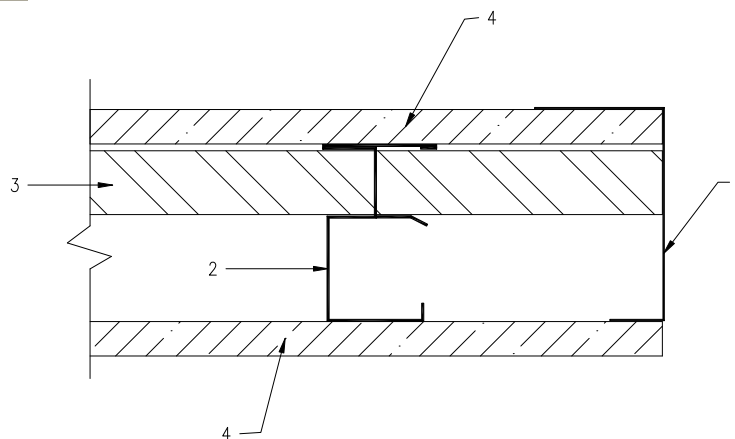
\*Component bearing the Warnock Hersey Certification Mark, manufacturing information of these components is proprietary to the listed component's manufacturer.



# ClarkDietrich Design No. CD/WA 120-02 Wall Assembly

**DESIGN NO. CD/WA 120-02**  
**ASSEMBLY RATING - 2 HOURS, NON-BEARING STAIRWALL, DESIGN WEIGHT - 8.5 PSF**

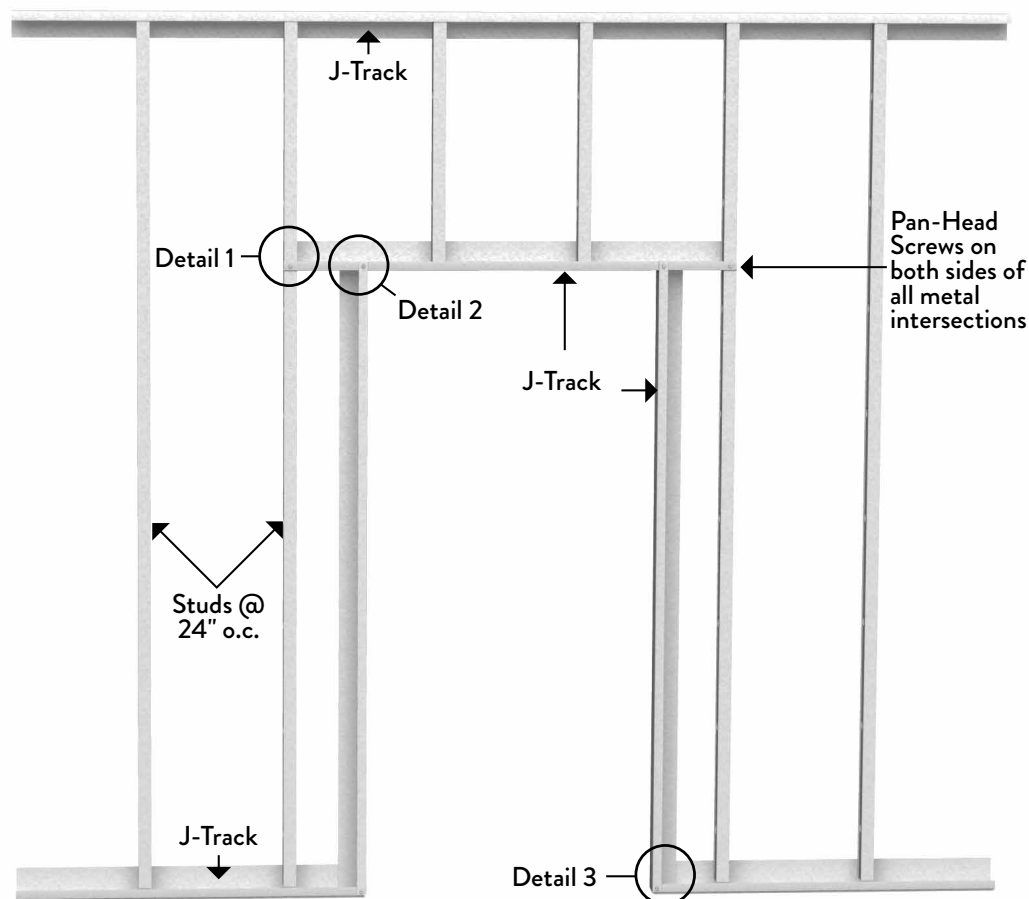
STC	DESCRIPTION
39	As shown below.
43	As shown below and with 1-1/2" thick, 3 PCF, mineral fiber insulation in cavity.
51	As shown below and with 1-1/2" thick, 3 PCF, mineral fiber insulation in cavity and with ClarkDietrich 1/2" resilient channels, 24" o.c. and at right angles to cavity side of studs under room side 1/2" or 5/8" Gypsum Board.



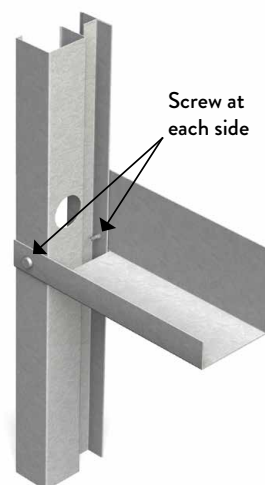
- Floor, Ceiling, Corner and Intersection Runners\*:** 'J' shaped runner with unequal legs, 2-1/2" minimum deep, fabricated from minimum 0.019" thick galvanized steel. Position runners with short leg towards cavity side of wall. Runners attached to structural members with steel fasteners located not greater than 24" o.c. Runners are manufactured by ClarkDietrich Building Systems.
- Steel Studs\*:** 'C-T' shaped slotted web studs, 1-1/2" wide by 2-1/2" minimum deep, fabricated from minimum 0.019" thick galvanized steel. Cut to length 1/2" less than the opening's height and spaced 24" maximum o.c. and between 1" thick gypsum shaftliner panels. Studs are manufactured by ClarkDietrich Building Systems.
- Gypsum Shaftliner:** 1" thick Georgia-Pacific Gypsum LLC Shaft Liner Type X\*, Georgia-Pacific Gypsum LLC DensGlass Ultra Shaft Liner Type X\*, Gold Bond Shaftliner, James Hardie Gypsum Hardierock Type X Shaftliner\*, or USG Shaft Wall Liner, supplied in nominal 24" widths. The panels are inserted against the long leg of the 'J' runners and into the 1" deep recess of the studs. Free edges of end panels are retained by bending 'J' runner tabs (12" o.c.) at a 90° angle.
- Gypsum Board:** 1/2" thick Georgia-Pacific Gypsum LLC Fireguard C, Georgia-Pacific Gypsum LLC DensArmor Plus Fireguard C\*, Gold Bond Fireshield Wall Board G, James Hardie Gypsum Superfire X Hardierock, USG Firecode C Sheetrock or 5/8" thick Type X Gypsum, applied vertically to both sides of the studs with joints offset and attached with 1" drywall screws 12" o.c. starting 6" from the top and bottom. All joints are finished with paper tape and joint compound.  
**Limitations:** Gypsum Shaftliner and Gypsum Board must be by the same manufacturer. Height shall not exceed those in the table within these listings.

\*Component bearing the Warnock Hersey Certification Mark, manufacturing information of these components is proprietary to the listed component's manufacturer.

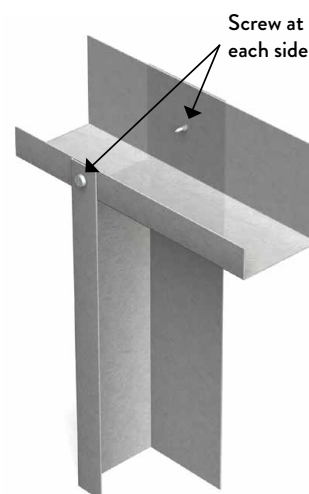
## DOOR OPENING ROOM SIDE



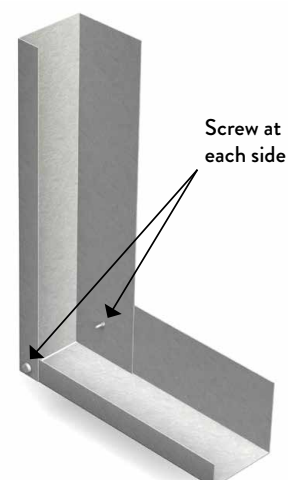
DETAIL 1



DETAIL 2



DETAIL 3

**Note:**

Openings and Penetrations in Shaftwall/Stairwell systems:

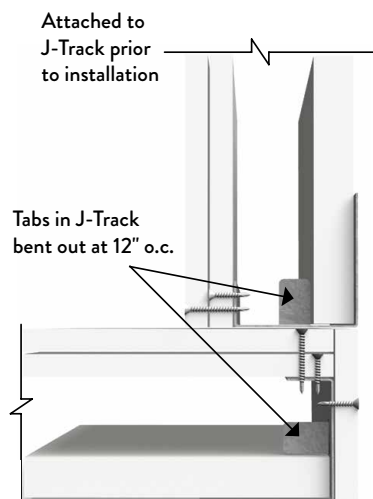
As tested per ASTM E119/UL 263, these systems do not contain any Openings or Penetrations.

- All Opening and Penetration covering assemblies must be approved for use per Section 713.7 and 713.8 of the 2024 IBC.
- Any Opening or Penetration framing detail provided here is not a tested detail, but a generally accepted practice coinciding with approved assemblies in noted above.
- C-T Studs are nonstructural, and where an Opening or Penetration is required the J-Track must be supported by a designed structural element.
- All Opening or Penetration fire rated assemblies require independent structural support, as the Shaftwall/Stairwell systems are not designed or tested under this condition.

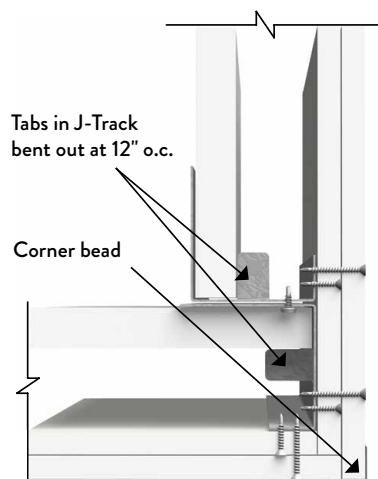
## CROSS SECTION



## INSIDE CORNER



## OUTSIDE CORNER



### Note:

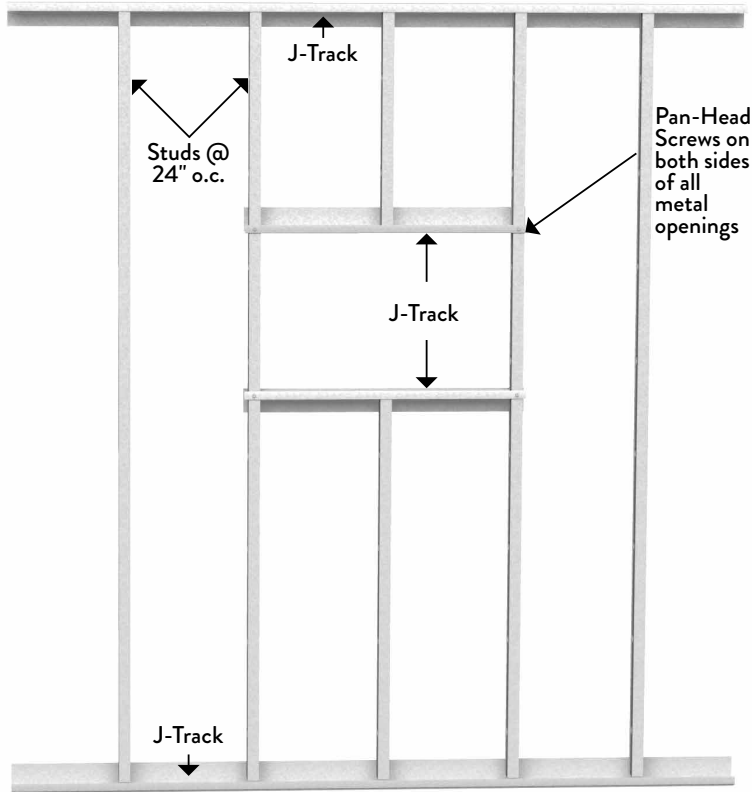
Openings and Penetrations in Shaftwall/Stairwell systems:

As tested per ASTM E119/UL 263, these systems do not contain any Openings or Penetrations.

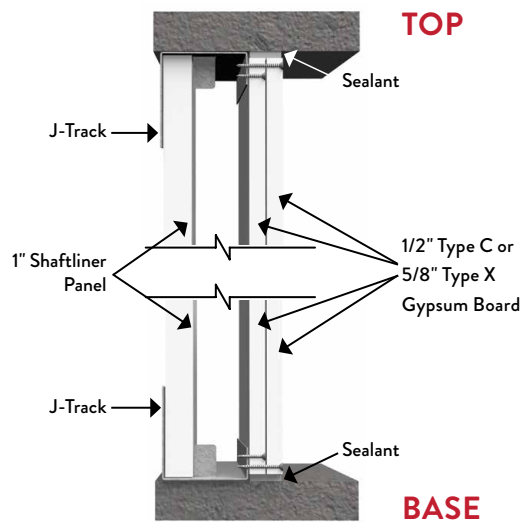
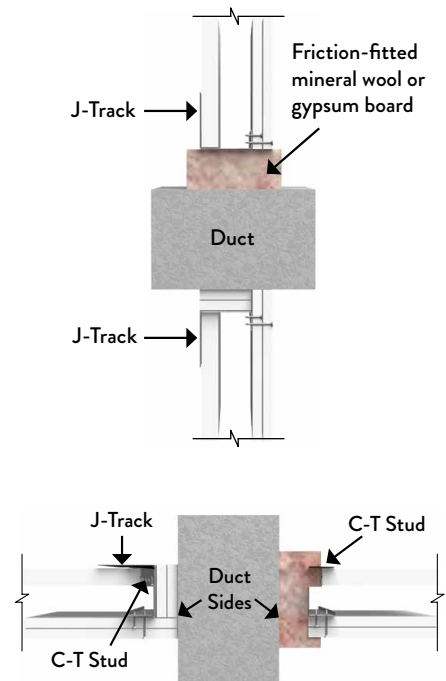
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- C-T Studs are nonstructural, and where an Opening or Penetration is required the J-Track must be supported by a designed structural element.
- All Opening or Penetration fire rated assemblies require independent structural support, as the Shaftwall/Stairwell systems are not designed or tested under this condition.

## Mechanical Penetrations

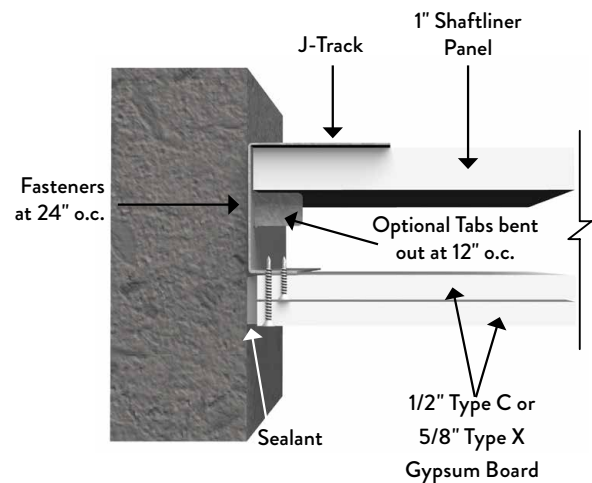
### DUCT OPENING ROOM SIDE



### ALTERNATE DUCT DETAILS



### END CONDITION



#### Note:

Openings and Penetrations in Shaftwall/Stairwell systems:

As tested per ASTM E119/UL 263, these systems do not contain any Openings or Penetrations.

- All Opening and Penetration covering assemblies must be approved for use per Section 713.7 and 713.8 of the 2024 IBC.
- Any Opening or Penetration framing detail provided here is not a tested detail, but a generally accepted practice coinciding with approved assemblies in noted above.
- C-T Studs are nonstructural, and where an Opening or Penetration is required the J-Track must be supported by a designed structural element.
- All Opening or Penetration fire rated assemblies require independent structural support, as the Shaftwall/Stairwell systems are not designed or tested under this condition.

## Area Separation Wall Systems

### Fire-resistance protects lives and property.

Area separation walls are non-load bearing, 2-hour and 3-hour rated vertical wall assemblies that provide fire-resistant protection between adjacent living units in apartment buildings, condominiums and townhouses. They are also referred to as party walls, firewalls, multi-family walls and H-stud assemblies.

Assembled between two independent walls, area separation walls form a commonly shared party wall that extends from the foundation through the roof line. The walls are assembled with two 1" thick gypsum panel liners vertically installed between 2" H-studs spaced 24" o.c. At the top and bottom of the walls, C-runners are installed back-to-back between vertically stacked panels. Overall stacked area separation wall assemblies cannot exceed 50 feet or the limits of the applicable UL Fire Assembly.

### H-Stud



ClarkDietrich H-studs are nominal 2" wide vertical members used to secure two 1" thick pieces of gypsum shaftliner in area separation wall assemblies. H-studs are inserted into C-runners and slid over gypsum panel liner edges, repeating until the desired wall length is achieved. Once the wall is plumbed, it is secured with aluminum burn clips.

Product code	Thickness			Size	
	Gauge	Mils	Design thickness (in)	Width (in)	Length (ft)
HSN	25	18	0.0188	2-1/8	8
					10
					12

NOTE: H-Studs are manufactured in accordance with the minimum requirements of AISI S220.

### C-Runner

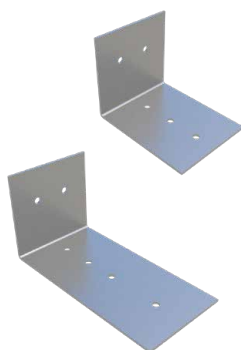


ClarkDietrich C-runner is used to secure H-stud and gypsum shaftliner panels in area separation wall assemblies. Attached to the foundation with power-actuated fasteners, C-runner is also used as top track to cap the H-stud and 1" gypsum shaftliner panels, with a second track screwed back-to-back to the lower runner, to hold the next level of assembly.

Product code	Thickness			Size	
	Gauge	Mils	Design thickness (in)	Width (in)	Length (ft)
HRN1	25	18	0.0188	2-1/8	8
					10

NOTE: C-Runners are manufactured in accordance with the minimum requirements of AISI S220.

### Aluminum Burn Clip



ClarkDietrich aluminum burn clips are used as part of the H-stud area separation wall assembly and are designed to melt when exposed to fire. The clips hold the area separation wall assemblies in place at the floor, roof and truss line between adjacent units. In a fire, the aluminum burn clips on the fire-ridden side of the wall will melt, allowing the wall structure for that side to collapse.

Product code	Thickness (in)	Size (in)	Packaging Pcs./Bucket
AB	0.050	2 x 2 x 2-1/2	500
AB63	0.063	2 x 2 x 2-1/2	500
AB30	0.063	2 x 2 x 3	250
AB35	0.063	2 x 2 x 3-1/2	250
AB40*	0.063	2 x 2 x 4	250
AB45	0.063	2 x 2 x 4-1/2	250

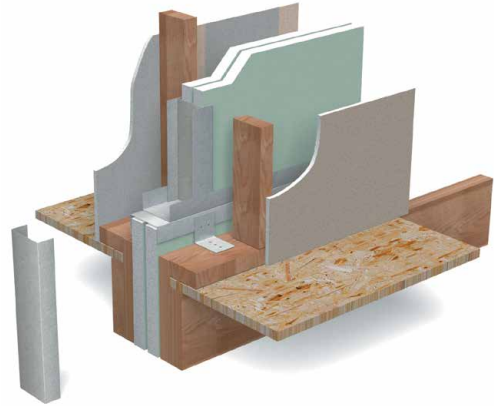
\*For use with 3-hour Design Assembly based on GA File No. ASW 2600 other custom breakaway clip lengths available.

Check listed fire assembly for details of construction, thickness and length of required burn clips. All Burn Clips are manufactured using 5052 H32 aluminum.



## Installation Procedures

- 1 Install C-runner along the floor in the desired position.
- 2 An additional track is installed vertically at the end of the wall.
- 3 Two 1" thick shaftliner panels are then inserted into the bottom and side tracks.
- 4 An H-stud is inserted into the lower track and slid over the edges of the shaftliner.
- 5 Repeat steps 3 and 4 until the desired wall length is achieved.
- 6 Cap the end and top of the wall with C-runner.
- 7 Confirm that the wall is plumb and then secure the assembly to the adjacent wall using aluminum burn clips on both sides of the wall.  
Make sure to leave a 3/4" gap between the area separation wall and adjacent wall. Clip spacing is dependent on the height of the wall. Wall assemblies can be stacked to a maximum height of 50' or per the details of the applicable UL assembly.



## FIRE-RATED SYSTEMS

### 2 Hour UL Listings:

U336 (1-3/8" flange) Max. height 66ft.  
 U347 (1-3/8" flange) Max. height 66ft.  
 U373 (1-1/2" flange) Max. height 44ft.  
 U388 (1-3/8" flange) Max. height 66ft.  
 V411 (1-3/8" flange)  
 U366 (1-3/8" flange) Max. height 70ft.  
 U375 (1-3/8" flange) Max. height 66ft.

### 3 Hour Design Assemblies:

#### UL Design No. W454 (National Gypsum Co.)

(2) Layers of 1" thick gypsum board liner panels fit into H-Studs w/ (1) layer of 5/8" thick gypsum board on each side of wall assembly. Standard 2-1/2" long Aluminum Breakaway Clips can be used to secure assembly.

#### UL Design No. W467 (CertainTeed Gypsum)

(2) Layers of 1" thick gypsum board liner panels fit into H-Studs w/ (1) layer of 5/8" thick gypsum board on each side of wall assembly. Standard 2-1/2" long Aluminum Breakaway Clips can be used to secure assembly.

#### GA File No. ASW-2600 (USG Corporation)

(2) Layers of 1" thick gypsum board liner panels fit into H-Studs w/ 4" min. aluminum burn clips required to accommodate the 2" mineral insulation.

#### GA File No. ASW-2601 (GP Gypsum Corporation)

(2) Layers of 1" thick gypsum board liner panels fit into H-Studs w/ 4" min. aluminum burn clips required to accommodate the 2" mineral insulation.

## Aluminum Burn Clip

### Clips melt away under intense heat.

ClarkDietrich aluminum burn clips are used as part of the H-stud area-separation wall assembly and are designed to melt and break away when exposed to fire. The clips are used to hold the area-separation wall assembly in place at the floor, roof, and truss line between adjacent units. Should a fire break out in one unit, the Aluminum Burn Clips on the fire-ridden side of the area-separation wall

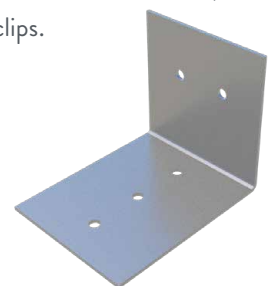
will melt, allowing the wall structure for that side to collapse.

The burn clips on the non-fire side will remain intact and hold the area-separation wall in place as a barrier to contain the fire within the unit of origin.

Note: Check listed fire assembly for details of construction, thickness and length of required burn clips.

## INSTALLATION PROCEDURES

- 1 Attach an aluminum burn clip to the completed area-separation wall assembly.
- 2 One clip should be located at each H-stud on both sides of the wall.
- 3 Attach the aluminum burn clip to the H-stud with a screw.
- 4 Attach to the adjacent framing with a screw or a nail, as applicable.



## CODE APPROVALS AND PERFORMANCE STANDARDS

ClarkDietrich products meet or exceed these applicable performance standards.

### ClarkDietrich Shaftwall and Area Separation Wall 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

Section A3 Material - Chemical & mechanical requirements (Referencing ASTM A1003/A1003M)

Section A4 Corrosion Protection (Referencing ASTM A653/A653M)

Section A5 Products - Thickness, shapes, tolerances, identification

Section C Installation (Referencing ASTM C754)

AISI S202 - Code of Standard Practice for Cold-Formed Steel Structural Framing

Section F3 Delivery, Handling and Storage of Materials

### ClarkDietrich Nonstructural Framing comply with:

IBC-2021 International Building Code

ICC-ESR-5050 ShaftWall

Intertek SpecID 26661 Shaftwall

Intertek SpecID 26662 Area Separation Wall

UL 263 "Fire Tests of Building Construction and Materials"

ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials

ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction

ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

### LEED® Services

#### BUILD GREEN with ClarkDietrich

ClarkDietrich is an active member of the U.S. Green Building Council and is committed to supplying quality products that are environmentally responsible. We are continually working to develop greener building products and sustainable business practices. ClarkDietrich steel framing helps contribute points toward LEED® certification. For more details contact Technical Services at 888-437-3244 or visit [www.clarkdietrich.com/LEED](http://www.clarkdietrich.com/LEED).

### SustainabilityPro

Quickly access the product-specific information and certifications needed to calculate contributions to LEED® and other green building certification and rating systems - all in one platform. Find out more at [www.clarkdietrich.com/LEED](http://www.clarkdietrich.com/LEED).

ClarkDietrich has prepared this literature with the utmost diligence and care for accuracy and conformance to standards.

ClarkDietrich intends this information to be accurate, informative, and helpful as a selection guide for choosing ClarkDietrich products. However, this information is only to be used for guidance and is not intended to replace the design, drawings, specifications, and decisions of a professional architect or engineer.

ClarkDietrich or its affiliates shall not be responsible for incidental or consequential damages, directly or indirectly sustained, nor for loss caused by application of our products for other than their intended uses. Our liability is limited to replacement of defective products. Claims shall be deemed waived unless they are made to us in writing within thirty (30) days of the date a problem was or reasonably should have been discovered.

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## LOCATIONS

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FLORIDA, Miami  
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GEORGIA McDonough  
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ILLINOIS Rochelle  
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