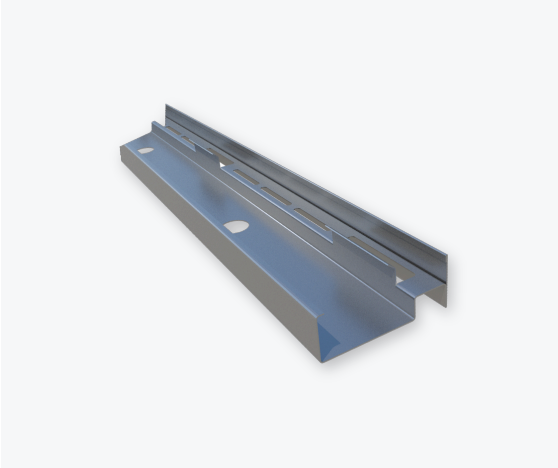
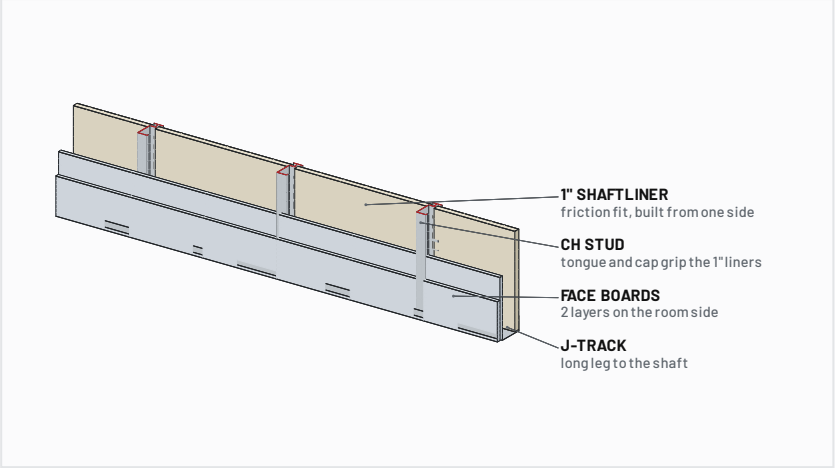
SHAFTWALL CH STUD

The stud that holds the shaftliner and the face boards in a one-side-built shaftwall





PRODUCT 08 · SHAFTWALL SYSTEM

The CH stud is the vertical member of a shaftwall: a fire-rated wall that carries no load, built around elevator shafts, stairwells and service chases from one side only. Each stud has a 1" slot on both sides that grips the edge of a 1" shaftliner panel, and a flange on the room side that takes the face boards. Studs stand at 24" o.c. in J-track (DS-09) at the floor and ceiling. No one needs to work inside the shaft.

- 5 sizes: 2-1/2", 4" and 6" deep, 18 and 33 mil
- 1-5/8" wide, with a 1" liner slot on each side
- Friction-fits in J-track; no clips at the panels
- Fire and sound ratings come from the tested, listed assembly

DEPTH	WIDTH	THICKNESS	LINER SLOT	SPACING	COATING
2-1/2" · 4" · 6"	**1-5/8"**	**18 · 33 mil**	**1" each side**	**24" o.c.**	**G40 min.**

1 WHERE IT IS USED

Elevator shafts
Fire-rated enclosure built from the floor side at each level.

Stairwells
Stair enclosures, faced on both sides where the design asks.

Mechanical and service chases
Vertical ducts, pipes and risers that must stay protected.

Corridor ceilings
Horizontal use where the design and listing allow.

2 THE FOUR PARTS

1. **CH stud.** A 1-5/8" C-section with a 1" tongue rising from its back to a 1-5/8" cap on the shaft side. The 1" space between cap and C, on each side, is the slot that grips a shaftliner panel.
2. **J-track.** Track with one long leg and one short leg. The long leg faces the shaft and backs up the liner; the 3" leg also serves as a jamb strut at openings.
3. **Shaftliner.** 1" fire-rated gypsum liner panels, 24" wide, that stand in the tracks and in the stud slots.
4. **Face boards.** One or two layers of fire-rated gypsum board (commonly 1/2" Type C or 5/8" Type X) screwed to the stud flanges on the room side.

BUILT FROM ONE SIDE
No scaffolding inside the shaft

TWO PARTS
CH stud and J-track; no clips at the panels

LIGHTWEIGHT
A gypsum shaftwall is a fraction of the weight of masonry

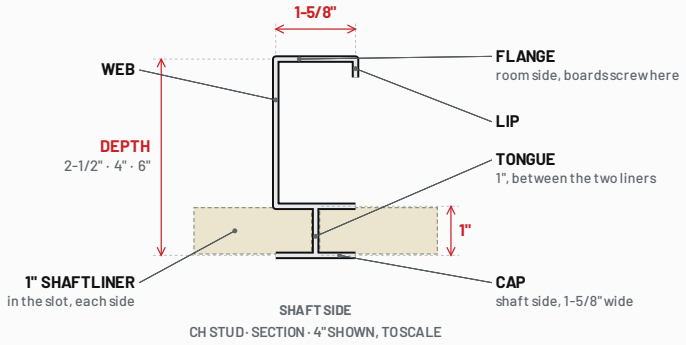
STEEL
Steel is a non-combustible material

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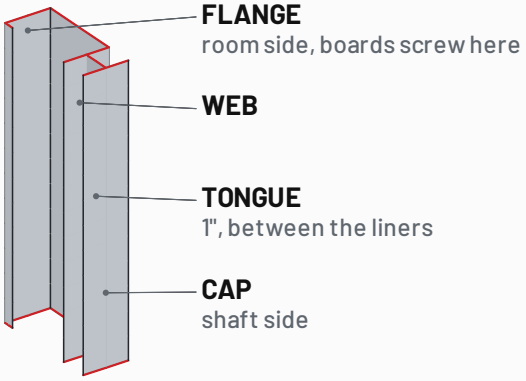
PROFILE & SIZES

5 sizes · 1-5/8" wide · 2-1/2" to 6" deep · 18 and 33 mil

3 PROFILE



CH STUD · SECTION · 4" SHOWN, TO SCALE



Drawn to scale on a 4" stud. C width and cap are 1-5/8"; the tongue and liner slot are 1". Lip and radii are typical and to be confirmed.

4 AT A GLANCE

SHAPE	C-section with a 1" tongue and a 1-5/8" cap; liner slot each side
DEPTHS	2-1/2" · 4" · 6"
WIDTH	1-5/8"
THICKNESS	18 mil (25 ga) · 33 mil (20 ga)
KNOCKOUTS	Round, on the web, for services
LENGTHS	8' to 14', in the length you order
STEEL	ASTM A1003, 33 ksi
COATING	G40 minimum, ASTM A653
MEMBERS	ASTM C645 / AISI S220, non-structural

5 SIZES

DEPTH	THICKNESS, MIL	PART NUMBERS
2-1/2"	◌ 18 ○ 33	250CH-18 · 250CH-33
4"	◌ 18 ○ 33	400CH-18 · 400CH-33
6"	○ 33	600CH-33

Depth in 1/100 inch, CH, thickness in mils. Example: 400CH-33 is a 4" CH stud in 33 mil. Order by part number, length and quantity; use it with the J-track of the same depth (DS-09).

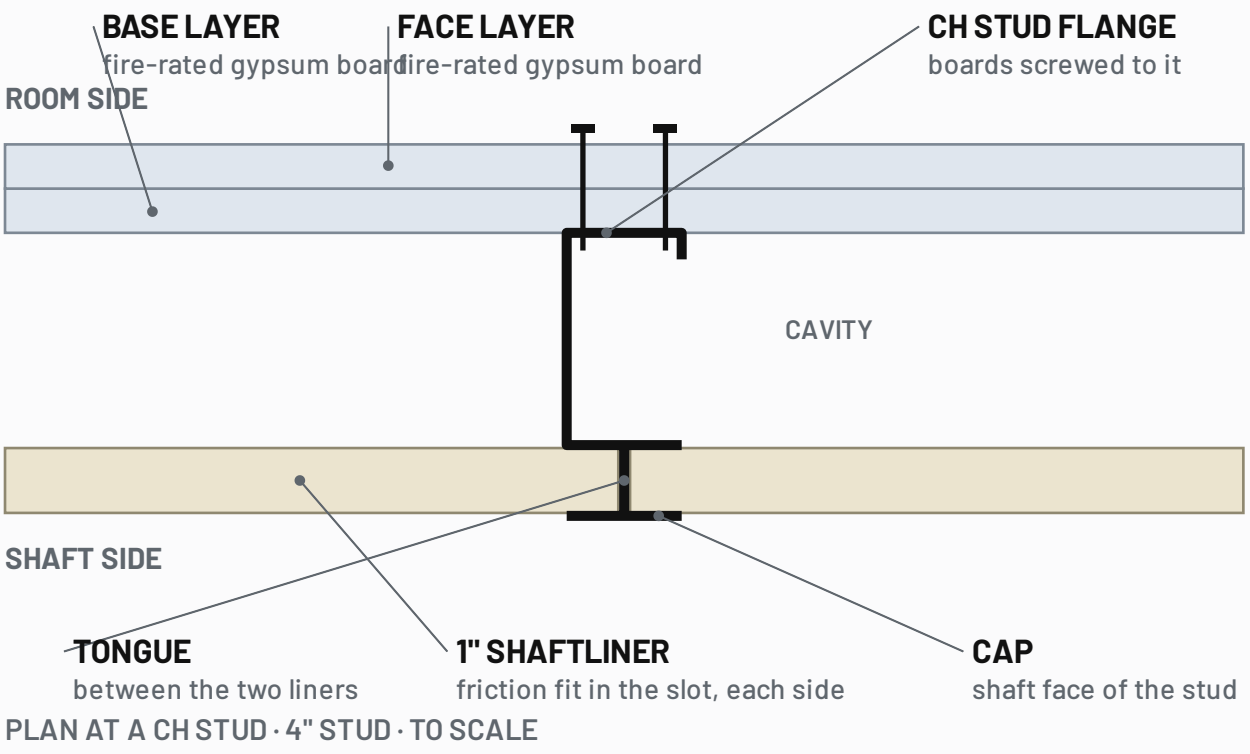
WHICH DEPTH?

The listed assembly and the wall height set the depth and thickness. Deeper studs reach higher walls; 6" is common for tall elevator shafts. The design professional confirms the limiting height for the stud, spacing and deflection limit.

HOW IT GOES TOGETHER

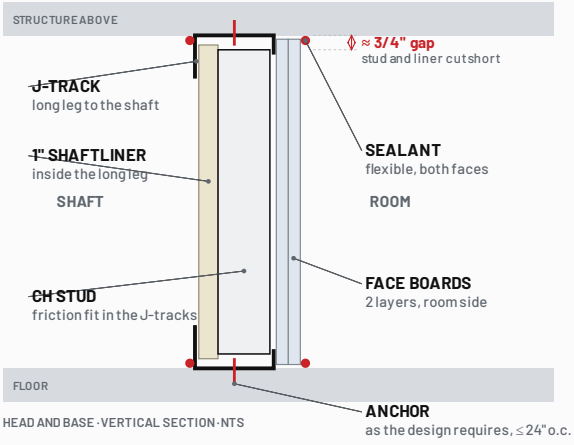
Liner in the slots, boards on the flange, track at top and bottom

6 PLAN AT A STUD



PLAN AT A CH STUD · 4" STUD · TO SCALE

7 HEAD AND BASE



HEAD AND BASE · VERTICAL SECTION · NTS

8 HOW THE PARTS WORK TOGETHER

The CH stud does two jobs. Its tongue and cap, on the shaft side, make a 1" slot on each side that grips the edge of a shaftliner panel, so the liners stand without screws. Its C flange, on the room side, takes the screws for the face boards. The J-track's long leg backs up the liners at the floor and ceiling and keeps them from sliding into the shaft; the short leg is on the room side.

Because every part is placed from the room side, the enclosure can be closed at each floor as the building goes up, with no scaffolding in the shaft.

RATINGS BELONG TO THE ASSEMBLY

Fire resistance (1 or 2 hours) and sound ratings come from a tested, listed assembly that names the liner, boards, stud depth, spacing and fastening. Build the listed assembly exactly, with the board maker's products, and confirm the listing with the authority having jurisdiction.

FITTING & SEQUENCE

Cut short, friction fit, seal the perimeter, build from one side

9 GAPS, SEALANT AND ANCHORS

- Cut CH studs about 3/4" shorter than the floor-to-structure height, so they friction-fit in the J-tracks with equal clearance top and bottom.
- Cut liner panels 3/4" to 1" short of the framed height.
- Fix J-track to the structure at the spacing the design gives, commonly no more than 24" o.c., with fasteners suited to the base.
- Seal the perimeter on both faces with a flexible sealant that stays soft, so air cannot whistle through the wall.
- Where the structure above will deflect, the head detail must allow for it; the design professional and the listing set the detail.
- Fire-stop the cavity at every floor.

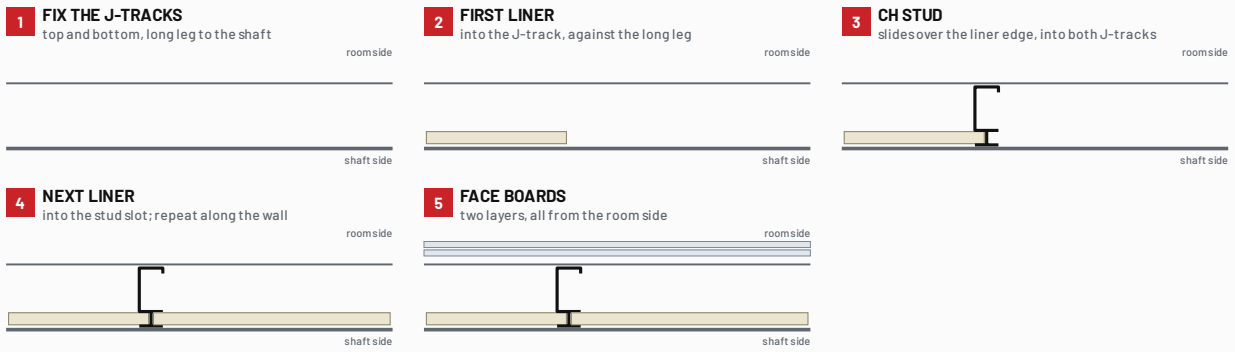
DO NOT STACK WALLS

A shaftwall spans one storey, floor to structure, as a simple span. It is not designed to carry a wall above it, and CH studs are never spliced: each is one full-height piece.

LINER JOINTS

Where the wall is taller than the liner, liners may be stacked with the joint in the top or bottom third of the wall, joints staggered between neighbours, and each piece long enough to engage at least two stud tabs. Some jurisdictions ask for back-blocking at the joint.

10 BUILDING THE WALL, STEP BY STEP



Plan views, schematic. The J-track is covered in detail on DS-09.

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OPENINGS & CONDITIONS

Doors, ducts, corners, ends, control joints and penetrations

11 OPENINGS, CORNERS AND OTHER CONDITIONS

Door and duct openings

Frame the opening with J-track: 3" leg track as jamb struts, head and sill, screwed at every intersection. Elevator door frames need their own support; the shaftwall does not carry them.

Corners

Inside corner: screw a J-track to the first wall before the second is built. Outside corner: J-track at the end of the liner, with corner bead on the boards.

Wall ends and abutments

End the wall in a J-track screwed to the abutting construction, with sealant at the joint.

Control joints

Limit a continuous run to about 30 feet and line joints up with the structure's joints where possible. Use a listed joint detail in rated walls.

Penetrations

Pipes, ducts and boxes through a rated wall need listed fire-stop and box details. Keep box cut-outs small and back them with liner where the listing asks.

Horizontal use

CH studs can frame a corridor ceiling or stair soffit where the listing and the design allow, with the ends screwed to the J-track flanges and no live, equipment or storage load.

OPENINGS ARE NOT PART OF THE FIRE TEST

Rated shaftwall assemblies are tested without openings. Any door, duct or penetration framing is accepted practice, not a tested detail, and must meet the building code's rules for openings in fire separations. CH studs are non-structural; where an opening or penetration is framed, the J-track around it needs its own designed support. Doors, ducts and equipment need their own support.

12 LIMITS OF USE

- Interior, non-load-bearing walls only
- Simple span, floor to structure; do not stack walls
- No splices in CH studs or in J-tracks that are not fixed to the structure
- Not in areas of high moisture
- Not as an unlined supply duct or air shaft
- Hollow cavities fire-stopped at each floor
- Heavy items (handrails, cabinets) fastened to plates behind or between the boards, not to the stud alone
- Limiting heights, spans and board requirements come from the listed assembly and the design professional

WEIGHTS, MATERIAL & FASTENERS

Approximate weights for handling, the steel, and typical screws

13 APPROXIMATE WEIGHT, LB/FT

STUD	18	33
250CH · 2-1/2"	0.50	0.91
400CH · 4"	0.59	1.09
600CH · 6"	–	1.32

Approximate weights from the nominal developed width and design thickness, base steel only, knockouts not deducted. For handling and shipping estimates, not for design. 1 lb/ft = 1.488 kg/m.

14 MATERIAL

MILS	GAUGE REF.	MIN. THICKNESS	DESIGN THICKNESS	COLOUR	MIN. YIELD	COATING
18	25	0.018" · 0.46 mm	0.0188" · 0.48 mm	None	33 ksi	G40 min.
33	20	0.033" · 0.84 mm	0.0346" · 0.88 mm	White	33 ksi	G40 min.

Steel to ASTM A1003, coating to ASTM A653. Minimum thickness is 95% of design thickness. Yield and coating shown are the minimums commonly specified; the material certificate governs. Gauge is a reference only; order by mils.

15 WALL WEIGHT

A finished shaftwall with 1" liner and two layers of board is commonly in the order of 10 to 13 lb per square foot, against 20 to 45 lb for masonry. That saving reaches down into the floors and foundations. Use the board and liner makers' data for the actual weight of a given assembly.

16 FASTENERS, TYPICAL

- Type S screws into 18 mil framing, Type S-12 into 33 mil
- Base layer: #6 × 1" Type S, 24" o.c.; face layer: 1-5/8" Type S, 12" o.c.
- Stud ends to J-track (horizontal use only): #8 pan head, 1/2" min.
- Track to structure: as the design requires, commonly ≤ 24" o.c.

INSTALLATION & STANDARDS

General guidance for installers and design professionals

17 TYPICAL INSTALLATION · VERTICAL WALL

1. Set out the wall. Fix J-track to the floor and to the structure above, plumb, long leg to the shaft, with sealant under each.
2. Plan studs at 24" o.c. so no stud lands within 12" of the wall end.
3. Stand the first 1" liner in the tracks against the long leg; bend out the track tabs or screw it in place.
4. Slide a CH stud, cut 3/4" short, over the liner edge and into both tracks.
5. Stand the next liner into the open slot of the stud; repeat to the end of the wall.
6. Screw the base layer of board horizontally and the face layer vertically to the stud flanges, joints offset between layers.
7. Seal the perimeter and all penetrations; tape and finish the face layer.

General information only, not installation instructions. Install to ASTM C754 and C840, the listed assembly, the drawings and specifications, and applicable codes.

18 DO & DON'T

DO

- Long leg to the shaft
- Cut studs and liners short
- Stagger liner joints
- Seal both faces at the perimeter

DON'T

- Splice studs or free tracks
- Stack one wall on another
- Hang doors or ducts from the wall
- Change the listed assembly

19 STORAGE

Store bundles dry, off the ground and under ventilated cover; keep liner panels dry and flat. The tongue and cap are thin: lift CH studs by the C and do not drop bundles on their ends. Edges are sharp: use gloves and appropriate PPE.

20 STANDARDS

- ASTM C645 · AISI S220 · members
- ASTM A1003 · steel
- ASTM A653 · coating
- ASTM C754 · installation
- ASTM C840 · gypsum board
- ASTM C475 · joint compound
- CAN/ULC-S101 · ASTM E119 · fire tests
- ASTM E90 · sound tests
- National Building Code of Canada

21 COMMON QUESTIONS

Can I build it from inside the shaft?

You can, but the point of the system is that you do not have to. Liners, studs and boards all go in from the room side.

Which J-track leg goes where?

The long leg (2-1/4" or 3") faces the shaft and backs up the liner. The short leg is on the room side, behind the boards.

Do I screw the studs to the track?

Not in a vertical wall; they friction-fit. Screw them only at openings and in horizontal (ceiling) use, as the detail shows.

What gives the fire rating?

The listed assembly: liner, boards, stud depth and fastening together. The CH stud alone has no rating.

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SPECIFYING & NOTICE

Checklist, submittals, specification guide and certification

22 BEFORE YOU ORDER: CHECKLIST

- Fire rating required, and the listed assembly that gives it
- CH stud web and thickness from the listing and the height
- J-track leg: 2-1/4", or 3" at openings and jambs
- Stud and track lengths from the floor-to-structure height
- Liner and board types named in the listing
- Screws for framing and boards
- Sealant, fire-stopping and corner bead

23 TYPICAL SUBMITTALS

- Product data for CH studs and J-track
- The listed fire-resistive assembly and sound test, where required
- Shop drawings showing openings, corners, control joints and head details
- Material test reports, when requested
- Proof of certification for the framing members

24 SPECIFICATION GUIDE

Section 09 21 16, Gypsum Board Shaft Wall Assemblies. Shaftwall framing: cold-formed steel CH studs, web depth and thickness as shown on the drawings and as required by the listed assembly, with a 1" tongue and 1-5/8" cap on the shaft side forming a slot for 1" shaftliner on each side; J-track with 2-1/4" long leg (3" leg at jambs and openings) and 1" short leg; steel to ASTM A1003, 33 ksi minimum, G40 minimum coating to ASTM A653; members to ASTM C645 / AISI S220; Saturn Metal DS-08. Studs at 24" o.c., friction-fit in J-track, cut 3/4" short; liner and face boards, fastening and joint treatment as required by the listed assembly; perimeter sealed with flexible sealant; installed to ASTM C754 and C840.

Certification: our cold-formed framing members are product certified by CISC to CSSBI 61:24. Certification covers only the members named in our current Product Scope Listing; confirm the status of a specific member with us before relying on it.
Related: shaftwall J-track DS-09 · interior steel studs DS-01 · resilient channel Product 12.
Technical questions and quotes: +1 (416) 746-8000 · Sales@SaturnMetal.ca · www.SaturnMetal.ca

IMPORTANT NOTICE

This data sheet gives general product information only. It is not engineering, design or installation advice. A qualified design professional must review every application, and the building code and project documents always govern. It does not give limiting heights, spans, fire or sound ratings; those belong to the listed assembly and the design. Drawings are schematic and not to scale unless noted; dimensions are nominal and subject to standard tolerances. Values marked typical, approximate or commonly specified are for reference only. Standards are referenced by name for identification; always use the edition required by the governing code. Saturn Metal may change products and information without notice; confirm current data before ordering or specifying. Warranties and remedies, if any, are only those in Saturn Metal's written terms of sale. Names of standards bodies and certification programs belong to their owners. Saturn Metal is a manufacturer and/or supplier of metal products; this data sheet does not mean that the product shown is manufactured by Saturn Metal. © Saturn Metal