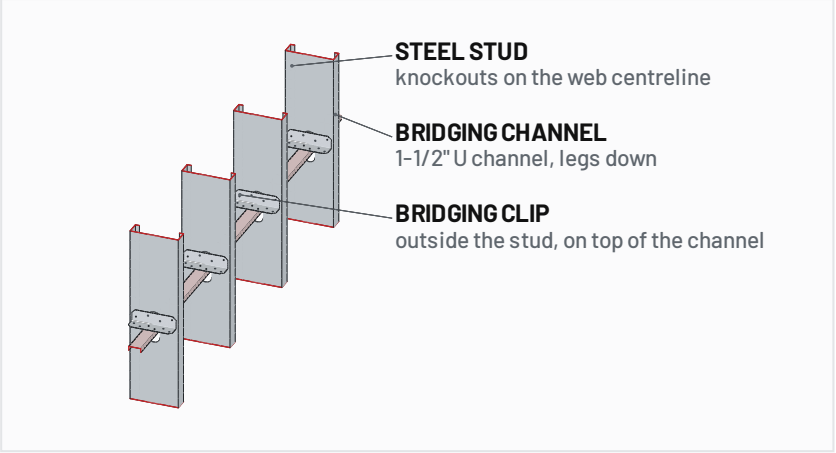
CARRYING CHANNEL / BRIDGING CHANNEL / BRACING CHANNEL

One U channel: ceiling main runner, stud bridging and stud bracing





PRODUCT 10 · STEEL FRAMING ACCESSORIES

One cold-formed steel U channel with three names for its three jobs. As **carrying channel** it is the main runner of a suspended ceiling, hung on wire. As **bridging channel** it runs through the stud knockouts and ties a wall of studs into one line. As **bracing channel** that same row braces every stud against twisting and bowing. Specifiers also call it **U channel**. Saturn Metal offers it in 3/4" and 1-1/2" webs, 43 and 54 mil.

- 4 sizes: 3/4" and 1-1/2" webs, 43 and 54 mil
- 1/2" legs, held to ± 1/16"
- SS Grade 33 steel, G60 galvanized
- Fits standard stud knockouts, bridging clips and Knockdown Tab studs

WEBS	LEG	THICKNESS	LENGTHS	YIELD	COATING
3/4" · 1-1/2"	1/2"	43 · 54 mil	10' · 12'	33 ksi	G60 min.

1 THREE NAMES, THREE JOBS

Carrying channel
Hung on wire from the structure, on edge, it is the main runner that carries a suspended drywall or plaster ceiling. Furring channel is tied across its underside.

Bridging channel
Run through the knockouts of a stud wall and clipped to every stud, it ties the studs into one line so they share load and stay in plane.

Bracing channel
The same row braces each stud against twisting and bowing about its weak axis under wind and axial load, which is what lets a stud reach its design height.

U channel
The name of the shape and its style code in the S-T-U-F system: 150U50 is a 1-1/2" web, U section, 1/2" legs.

2 THE PARTS

1. **Web.** The flat back, 3/4" or 1-1/2" wide. In a ceiling it stands vertical (the channel is on edge); in a bridging row it lies flat through the knockout, legs down under a bridging clip on the outside of the stud, or legs up on a Knockdown Tab.
2. **Legs.** Two 1/2" legs at 90° to the web, no lips. The leg height is held to ± 1/16" so clips and ties fit the same way every time.
3. **Ends.** Plain. Lengths are lapped, nested and screwed or tied at splices.
4. **Finish.** Galvanized, G60 minimum, for interior framing and ceilings.

ONE CHANNEL
A plain cold-formed U: web, two 1/2" legs, no lips

THREE JOBS
Carries a ceiling, bridges a stud line, braces the studs

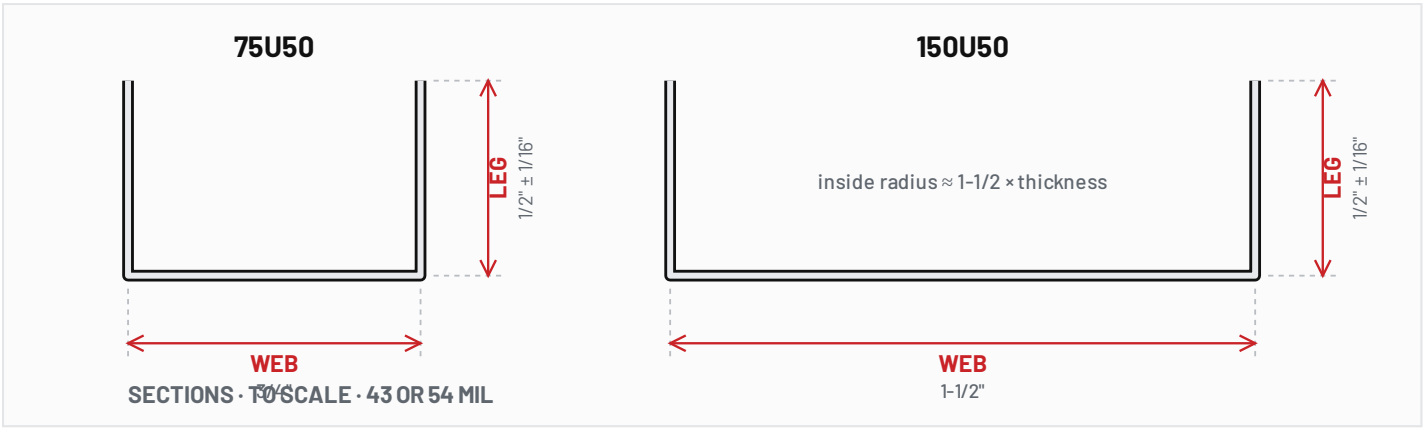
TWO WEBS
3/4" for small studs; 1-1/2" for deeper studs and ceilings

STEEL
SS Grade 33, G60 coating; steel is non-combustible

PROFILE & SIZES

Two webs, one leg, two thicknesses, and which size to use

3 PROFILE

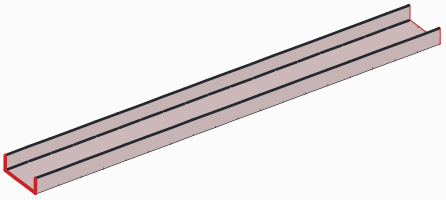


Both webs take the same 1/2" leg. The inside bend radius is about 1-1/2 times the steel thickness. Sections drawn to scale; the channel is shown legs up, as it sits on a Knockdown Tab.

4 AT A GLANCE

SHAPE	Plain U: web and two legs, no lips
WEBS	3/4" · 1-1/2"
LEGS	1/2" ± 1/16"
THICKNESS	43 mil (18 ga) · 54 mil (16 ga)
STEEL	ASTM A1003 SS Grade 33, 33 ksi
COATING	G60 minimum, ASTM A653
LENGTHS	10' · 12'; other lengths on request
STANDARD	ASTM C645 · AISI S220

5 ONE LENGTH



6 SIZES · 4 ITEMS

DESIGNATOR	WEB	LEGS	THICKNESS	GAUGE	DESIGN T (IN)	LB/FT *	KG/M *
75U50-43	3/4"	1/2" ± 1/16"	43	18	0.0451	0.27	0.40
75U50-54	3/4"	1/2" ± 1/16"	54	16	0.0566	0.34	0.50
150U50-43	1-1/2"	1/2" ± 1/16"	43	18	0.0451	0.38	0.57
150U50-54	1-1/2"	1/2" ± 1/16"	54	16	0.0566	0.48	0.72

* Approximate weight from the developed width × design thickness (steel at 490 lb/ft^3), for estimating and handling only; not for design. Other webs and legs, including 1-1/2" × 3/4", on request.

7 WHICH SIZE

3/4" × 1/2" · 75U50
Bridging for 1-5/8" and 2-1/2" studs, whose knockouts are small, and light furring work.

1-1/2" × 1/2" · 150U50
Bridging for 3-5/8" studs and deeper, through the standard 1-1/2" knockout, and the main runner of suspended ceilings.

43 or 54 mil
43 mil is the common choice for interior bridging and ceilings. 54 mil suits longer hanger spacings, heavier ceilings and bridging in structural walls, where the design asks for it.

BRIDGING & BRACING

How a channel row braces a stud wall, and how it is fixed

8 BRIDGING & BRACING

Why studs need bridging

A C-stud is strong about its web but weak about its flange axis, and it wants to twist under load. A row of channel through the knockouts, fixed to every stud, holds each stud straight and shares load along the wall.

Where the rows go

Row spacing is set by the design. Guide specifications commonly call for rows at about 4'(1219 mm) o.c. in axially loaded walls and about 5'(1524 mm) o.c. in wind-loaded walls, with the row nearest the track within the limit the design gives.

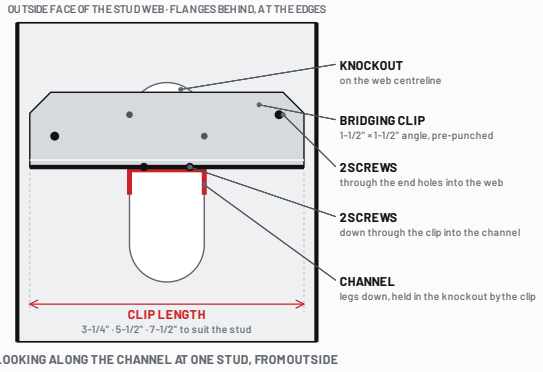
Two ways to fix it

On a standard stud the channel runs legs down through the knockout and a bridging clip, a 1-1/2" × 1-1/2" angle, sits on top of it on the outside of the stud: two screws into the web, two down into the channel. On a Knockdown Tab stud (DS-07) the channel lies legs up on the folded tab with one screw, and no clip.

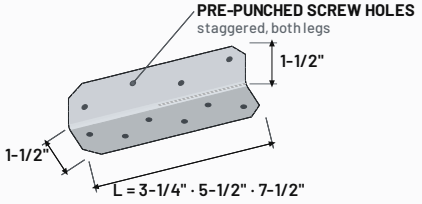
What it is not

Bridging is not a header, a strongback or a fire-stop, and it does not replace the design of the wall. Rows, clip type and fastening come from the engineer of record.

9 SECTION AT A BRIDGING ROW



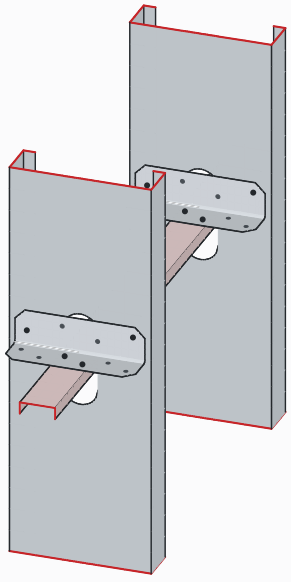
10 THE BRIDGING CLIP



11 CHANNEL ORIENTATION: STANDARD STUD AND KNOCKDOWN TAB STUD

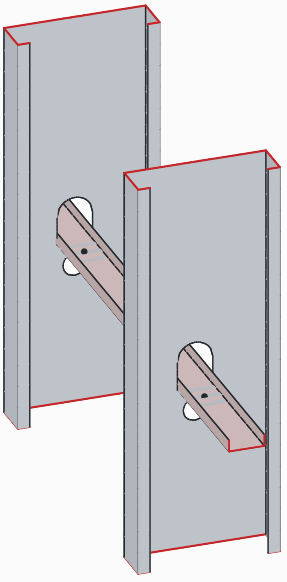
A **STANDARD STUD + BRIDGING CLIP**

clip OUTSIDE the stud, on top of the channel · 4 screws per stud



B **KNOCKDOWN TAB STUD (DS-07)**

channel legs UP, on the folded tab · 1 screw per stud

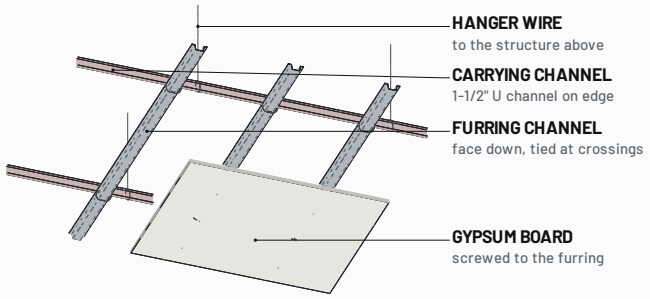


Both arrangements use the same 1-1/2" × 1/2" channel. A, standard stud, seen from outside: channel legs down through the knockout, bridging clip on top of it on the outside face of the web, two screws into the web and two down into the channel. B, seen from inside the C. Knockdown Tab stud: channel legs up on the tab, one screw through the channel web into the tab. Fastening is by the design and the clip data.

CEILINGS

The carrying channel as the main runner of a suspended drywall ceiling

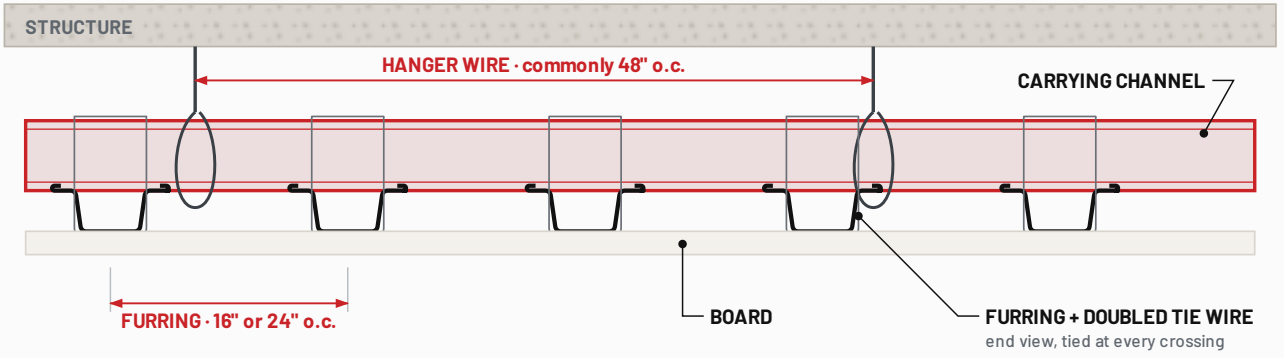
12 SUSPENDED DRYWALL CEILING



13 THE PARTS, TOP DOWN

1. **Hanger wire.** 9 or 12 ga galvanized wire from the structure, commonly 48" o.c. along each channel, saddle-tied round it with three tight turns, each on its own anchor.
2. **Carrying channel.** 1-1/2" × 1/2" channel on edge, hung level, rows commonly at 48" o.c. Lengths lapped and tied or screwed at splices; the splice lands near a hanger.
3. **Furring channel.** 7/8" furring (hat) channel across the underside, commonly 16" or 24" o.c. to suit the board, wire-tied to the carrying channel at every crossing with doubled 18 ga tie wire.
4. **Board.** Gypsum board screwed to the furring channel, never to the carrying channel. Perimeter angle or track supports the edges.

14 SECTION



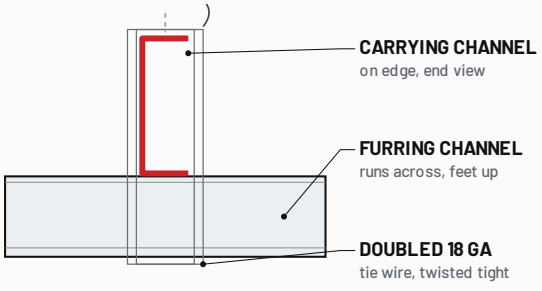
SECTION ALONG A CARRYING CHANNEL · SUSPENDED CEILING · NTS

15 COMMONLY SPECIFIED SPACINGS

ITEM	COMMONLY SPECIFIED	NOTE
Hanger wire along the channel	48" o.c.	and within 6" of each channel end
Carrying channel rows	48" o.c.	closer for heavier ceilings or by design
Furring channel	16" or 24" o.c.	to suit the board; 16" for 1/2" board on ceilings
Furring ties	every crossing	doubled 18 ga tie wire or a clip
Channel splices	lapped, tied or screwed	splice near a hanger; stagger splices
Perimeter	angle or track at the walls	furring ends supported, not cantilevered

Commonly specified values from industry practice (ASTM C754), for planning a takeoff; hanger loads, anchor capacity and spacing come from the design. Where a fire or sound rating applies, the listed assembly sets the grid. Before boarding: hangers plumb and tight, channel level, splices lapped, every crossing tied, services supported on their own.

16 TIES

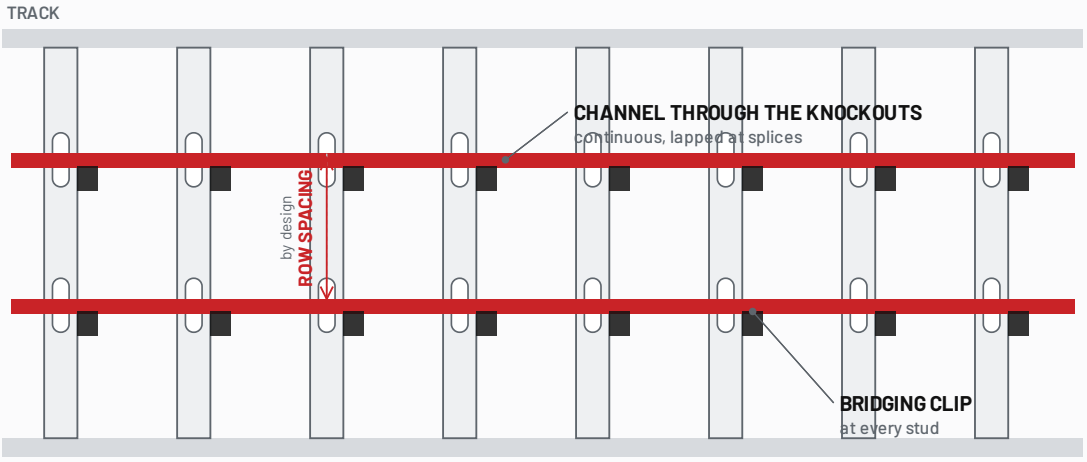


TIE AT EVERY CROSSING

DETAILS & CONDITIONS

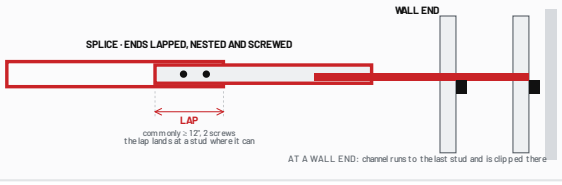
Rows, splices, wall ends, openings, corners and joints

17 ROWS ALONG THE WALL

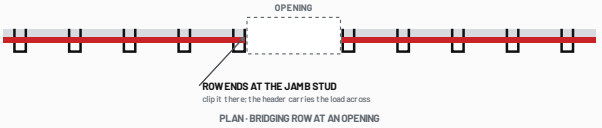


ELEVATION · BRIDGING ROWS

18 SPLICES AND ENDS



19 AT AN OPENING



PLAN · BRIDGING ROW AT AN OPENING

20 CONDITIONS

1. **Splices.** Lap the ends, nest one channel inside the other and fix with two screws (bridging) or wire ties (ceilings). A lap of about 12" is commonly specified. Land the lap at a stud or near a hanger.
2. **Wall ends.** Run the row to the last stud and clip it there. At an abutting wall or column, the design may call for a clip or angle to the structure.
3. **Openings.** The row stops at the jamb studs on each side of a door or window; the header and sill framing carry across. Jamb and king studs get their own clips.
4. **Corners.** Each wall has its own row; the rows meet at the corner studs and are clipped there, not bent round the corner.
5. **Control joints and deflection heads.** Bridging stops either side of a control joint. Keep rows clear of the slotted or deep-leg track at the head so the wall can still move.
6. **Tall, furred and rated walls.** Furred walls and tall partitions use the same channel to brace the studs; the design sets how many rows. In a listed fire or sound assembly, use only the rows the listing shows.

21 GOOD TO KNOW

Knockouts

Standard knockouts are on the web centreline, commonly at 24" o.c. with the first knockout about 12" from the end, so the rows line up across the wall. The 1-1/2" channel passes through a 1-1/2" knockout; 1-5/8" and 2-1/2" studs take the 3/4" channel.

Strap-and-blocking alternative

Some designs brace studs with flat strap on the flanges and solid blocking between studs instead of channel through the knockouts. The two are not interchangeable on site: use the method the drawings show.

When the knockout is in the wrong place

Where a cut stud leaves no knockout at the row height, the design professional may allow a clip angle on the web face to carry the channel past that stud. Never cut a new hole in the web without approval.

WEIGHTS, MATERIAL & TAKEOFF

Approximate weights, steel and coating, fasteners, and two worked takeoffs

22 APPROXIMATE WEIGHTS (NOT FOR DESIGN)

DESIGNATOR	THICKNESS	DESIGN T (IN)	DEVELOPED WIDTH (IN)	LB/FT *	KG/M *	LB PER 12' LENGTH *
75U50-43	43	0.0451	1.75	0.27	0.40	3.2
75U50-54	54	0.0566	1.75	0.34	0.50	4.0
150U50-43	43	0.0451	2.50	0.38	0.57	4.6
150U50-54	54	0.0566	2.50	0.48	0.72	5.8

* Developed width × design thickness × 3.40 lb/ft per in^2 of section (steel at 490 lb/ft^3), rounded. Coating adds a small amount. Use for estimating, handling and hanger loads at the design professional's discretion only.

23 MATERIAL

STEEL	ASTM A1003, structural grade SS Grade 33: 33 ksi (230 MPa) minimum yield
COATING	Hot-dip galvanized, G60 minimum, ASTM A653
THICKNESS	43 mil (0.043" min., 0.0451" design) · 54 mil (0.054" min., 0.0566" design)
TOLERANCE	Leg height ± 1/16"
MATERIAL CERTIFICATES	On request, with the order

24 FASTENERS & TIES

BRIDGING CLIPS	1-1/2" × 1-1/2" angle, 3-1/4", 5-1/2" or 7-1/2" long to suit the stud depth, on the outside of the stud; four #8 or #10 screws in the pre-punched holes: 2 to the web, 2 to the channel
KNOCKDOWN TAB	One #8 screw through the channel web into the tab (DS-07)
CEILING TIES	18 ga galvanized tie wire, doubled, three tight turns
HANGERS	9 or 12 ga galvanized hanger wire with an anchor rated for the load
SPLICES	2 screws (bridging) or wire ties (ceilings) per lap

25 READING THE DESIGNATOR

150U50-54

150	web width in hundredths of an inch: 1-1/2" (75 = 3/4")
U	style code: U channel, no lips
50	leg in hundredths of an inch: 1/2"
-54	minimum steel thickness in mils (54 mil = 16 ga)

The same S-T-U-F system names our studs (S), tracks (T) and furring channel (F), so a takeoff reads consistently across the wall or ceiling.

26 TAKEOFF EXAMPLES

BRIDGING EXAMPLE	QTY	HOW
Wall 40' long, 2 rows of 150U50-43	80 LF	40' × 2 rows
Add 10% for laps and cuts	88 LF	80 × 1.10
12' lengths	8 pcs	88 ÷ 12 = 7.3, rounded up
Bridging clips, studs at 16" o.c.	62	31 studs × 2 rows
CEILING EXAMPLE · 20' × 30' ROOM, 600 FT^2	**QTY**	**HOW**
Carrying channel rows at 48" o.c. across 20'	5 rows · 150 LF	5 rows × 30'
Hanger wires at 48" o.c. along each row	45	9 per row × 5
7/8" furring at 16" o.c. across 30'	24 lines · 480 LF	24 × 20'

Worked with commonly specified spacings and rounded up; your rows, spacings and laps come from the design. Count clips per stud per row, hangers per row, and add perimeter angle, furring and tie wire separately.

INSTALLATION & STANDARDS

General guidance for installers and design professionals

27 TYPICAL INSTALLATION · BRIDGING

1. Set the row heights from the design and mark them on the studs so the knockouts line up.
2. Feed the channel through the knockouts; on a Knockdown Tab stud bend every tab first (DS-07).
3. Fix at every stud: bridging clip on the outside of the stud, on top of the channel, two screws into the web and two down into the channel; or one screw through the channel into the tab.
4. Lap splices about 12", nest the ends and fix with two screws. Clip the row at wall ends, jambs and corners.
5. Keep rows clear of the deflection head and of control joints.

28 TYPICAL INSTALLATION · CEILINGS

1. Anchor hanger wires to the structure at the spacing shown, plumb, with no kinks.
2. Hang the carrying channel on edge, level it, and saddle-tie each wire with three tight turns.
3. Lap and tie or screw the channel splices near a hanger.
4. Tie the furring channel across the underside at the board spacing with doubled tie wire at every crossing.
5. Check level and alignment before boarding; board screws go into the furring only.

General information only; the project documents, the clip data and ASTM C754 govern.

29 DO & DON'T

DO	use the clip or tab fixing the design shows at every stud, and fix both the web and the channel
DO	keep the channel straight and continuous across the wall, lapping rather than butting
DO	support fixtures and services from the structure, not from the ceiling grid
DON'T	screw drywall into the carrying channel, or hang the ceiling from ducts, pipes or deck flutes
DON'T	leave a stud without a fixing because the knockout was in the wrong place; add a clip
DON'T	use bridging channel as a header, a lintel or a shelf for loads

30 STORAGE

Store bundles dry, off the ground and under ventilated cover, banded so the legs are not crushed. Edges are sharp: use gloves and appropriate PPE.

31 STANDARDS

- ASTM C645 · AISI S220 · members
- ASTM A1003 · steel
- ASTM A653 · coating
- ASTM C754 · installation
- ASTM C840 · gypsum board
- CSA S136 · AISI S240 · bridging design
- CAN/ULC-S101 · ASTM E119 · fire tests
- National Building Code of Canada

32 COMMON QUESTIONS

Is bridging channel the same as carrying channel?

Yes. It is one cold-formed U channel; the name follows the job. The 1-1/2" × 1/2" size does both.

Which size do I need for bridging?

1-1/2" for 3-5/8" studs and deeper, 3/4" for 1-5/8" and 2-1/2" studs. The design confirms thickness and row spacing.

Does the channel need a clip at every stud?

On a standard stud, yes, the design normally calls for a bridging clip at each stud, fitted on the outside of the stud. A Knockdown Tab stud takes the channel on its own tab with one screw.

How far apart are the rows?

By design. Guide specifications commonly use about 4' o.c. for axially loaded walls and about 5' o.c. for wind-loaded walls.

Can I hang a ceiling with 43 mil channel?

Commonly, yes, with hangers at about 48" o.c. The design checks the hanger spacing and load; heavier ceilings may call for 54 mil or closer hangers.

Is it certified?

Our cold-formed framing members are product certified by CISC to CSSBI 61:24; see page 8 for the scope wording.

SPECIFYING & NOTICE

Checklist, submittals, specification guide and certification

33 BEFORE YOU ORDER: CHECKLIST

- Web: 3/4" or 1-1/2", to suit the stud knockout or the ceiling design
- Thickness: 43 or 54 mil, from the design
- Lengths: wall length × rows + 10% for laps; ceiling rows × room length
- Bridging clips or Knockdown Tab studs, one fixing per stud per row
- Hanger wire, tie wire and anchors for ceilings
- 7/8" furring channel and perimeter angle for ceilings
- Material certificates, if the specification asks for them

34 TYPICAL SUBMITTALS

- Product data for the channel, clips and ties
- Shop drawings showing row heights, hanger layout, splices and conditions at openings and ends
- The listed assembly, where a fire or sound rating applies
- Material test reports, when requested
- Proof of certification for the framing members

35 SPECIFICATION GUIDE

Section 09 22 16, Non-Structural Metal Framing (bridging), and 09 22 26, Suspension Systems (ceilings); 05 40 00 where the wall is structural.
Cold-formed steel U channel (carrying / bridging / bracing channel), 3/4" or 1-1/2" web with 1/2" legs as shown, 43 or 54 mil as shown; steel to ASTM A1003 SS Grade 33, 33 ksi minimum, hot-dip galvanized G60 minimum to ASTM A653; members to ASTM C645 / AISI S220; Saturn Metal DS-10.
Bridging: continuous through the stud knockouts, fixed at every stud with bridging clips or on Knockdown Tab studs, rows at the spacing shown.
Ceilings: hung on edge from the structure on 9 or 12 ga hanger wire at the spacing shown, with 7/8" furring channel wire-tied below; installed to ASTM C754.

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: interior steel stud DS-01 · load-bearing stud DS-02 · Knockdown Tab stud DS-07 · furring channel DS-11 · clips & connectors DS-21.
Technical questions and quotes: +1 (416) 746-8000 · Sales@SaturnMetal.ca · www.SaturnMetal.ca

36 GOES WITH

Knockdown Tab stud · DS-07
Takes this channel on its own folded tab with one screw per stud, legs up, no clip.

Bridging clip · DS-21
1-1/2" × 1-1/2" angle, 3-1/4" to 7-1/2" long. Sits on top of the channel on the outside of a standard stud: 2 screws to the web, 2 into the channel.

7/8" furring channel · DS-11
The hat channel tied under the carrying channel that the ceiling board screws to.

Hanger wire, tie wire · DS-15, DS-16
9 and 12 ga hanger wire from the structure; 18 ga tie wire for every tie.

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 bridging spacings, hanger loads, limiting heights, fire or sound ratings; those belong to the design and the listed assembly. 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