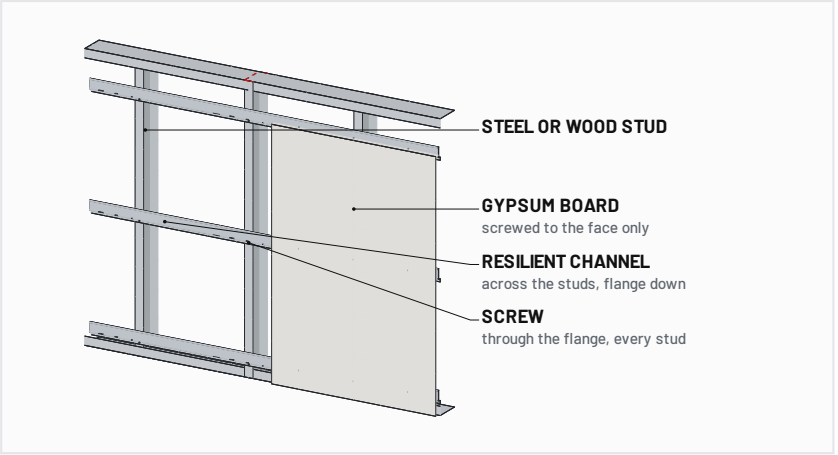
RESILIENT CHANNEL (RESILIENT BAR)

Single-leg RC1 channel that holds gypsum board off the framing for sound control





PRODUCT 12 · STEEL FRAMING ACCESSORIES

Resilient channel, also called **resilient bar** or RC1, is screwed across steel or wood studs and joists, and the gypsum board is screwed to the channel instead of the framing. Its slotted web flexes, so less sound passes from the board into the structure. It is a cost-effective part of an assembly that reaches a specified STC rating, and it also gives a level line under uneven wood joists.

- Single-leg RC1 profile, 1.900" × 0.485"
- 18 mil (25 ga), 33 ksi, G40 galvanized
- Slotted web; pre-punched mounting flange
- 12' lengths; installed to ASTM C754

WIDTH	DEPTH	THICKNESS	LENGTH	YIELD	COATING
1.900"	0.485"	18 mil · 25 ga	12'	33 ksi	G40

1 FOUR NAMES, ONE CHANNEL

Resilient channel
The trade name: a light, springy channel that carries the board on its face and touches the framing only through a slotted web.

Resilient bar
The same member, as many installers and specifiers call it.

RC1 · RC-1
Its short name: the single-leg resilient channel, one mounting flange on one side of the face.

Sound channel
A plain-language name used when the channel is chosen for sound control between rooms or units.

2 THE PARTS

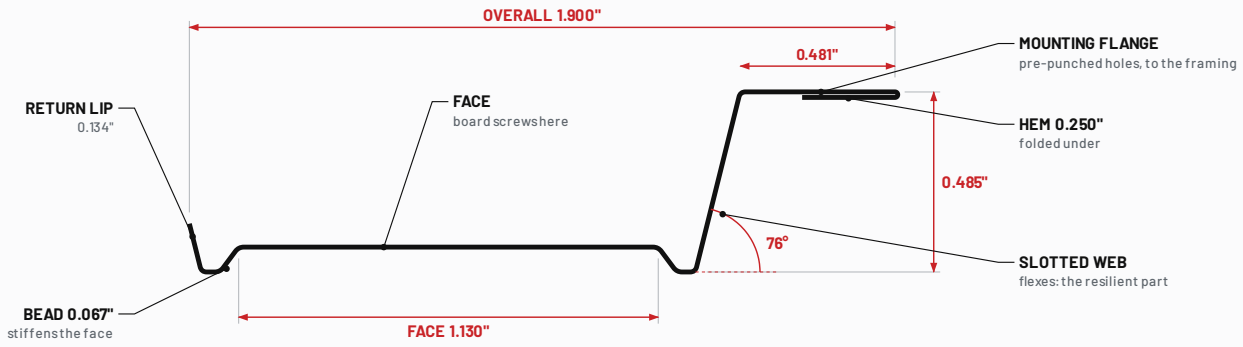
1. **Face.** 1.130" wide between two stiffening beads. Gypsum board is screwed to the face, and only to the face.
2. **Slotted web.** One web at 76°, pre-punched with slots. It is the only link between board and framing, and it flexes.
3. **Mounting flange.** 0.481" wide with pre-punched holes, hemmed at its edge. Screwed to every stud or joist.
4. **Return lip.** A short 0.134" lip on the free edge of the face that keeps it straight along the length.

SOUND CONTROL	STEEL OR WOOD	WALLS AND CEILINGS	LEVELS JOISTS
Holds the board off the framing so less sound passes through	Steel and wood studs, LSF and wood joists	Across studs or joists, in rated and unrated assemblies	Gives a flat line under uneven wood joists

PROFILE & SIZES

The RC1 section, its parts and the item

3 PROFILE



RC1 SECTION TO SCALE, THICKNESS ENLARGED · FLANGE ON THE FRAMING, FACE TO THE BOARD

4 AT A GLANCE

PROFILE	Single leg: face, one slotted web, mounting flange
OVERALL	1.900" × 0.485" deep
FACE	1.130" between the beads
WEB	slotted, at 76°
FLANGE	0.481", pre-punched, 0.250" hem
THICKNESS	18 mil (0.018" min., 0.0188" design) · 25 ga
STEEL	ASTM A653, Grade 33 (33 ksi minimum yield)
COATING	G40, ASTM A653
LENGTH	12'

Single leg

RC1 has one mounting flange. It hangs from that flange, so the board weight pulls the face away from the framing: the way it is meant to work.

5 SIZE

ITEM	PROFILE	THICKNESS	GAUGE	DESIGN T (IN)	COATING	LENGTH	LB/FT *	LB PER 12' *
RC1	1.900" × 0.485"	○ 18	25	0.0188	G40	12'	0.17	2.1

* Approximate weight from the developed width (2.70", hem included) × design thickness, steel at 490 lb/ft^3; for estimating and handling only. Slot and hole spacing are typical; the web slots and flange holes are pre-punched along the full length.

6 WHERE IT IS USED

Party walls and corridors

Wood or steel stud walls between dwelling units, hotel rooms and offices, on one side of the wall.

Floor–ceilings

Under wood joists, steel joists or LSF floors, to cut airborne and impact sound to the room below.

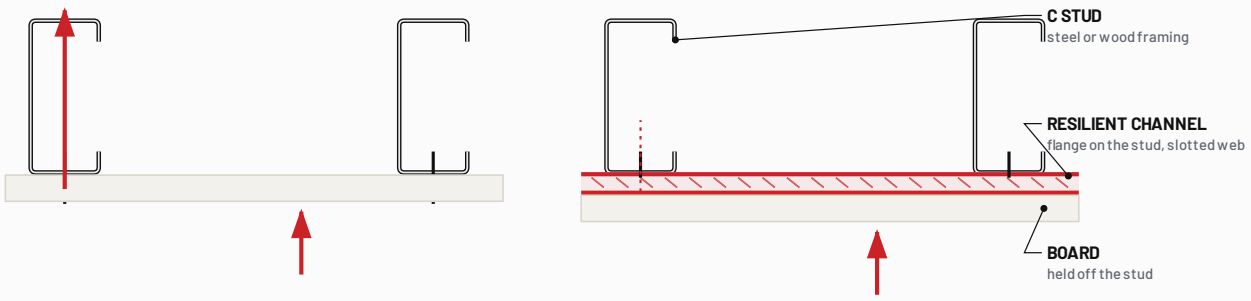
Basements

Under uneven wood joists, to give the ceiling board a straight, level line.

HOW IT WORKS

Breaking the path for sound, flanking, and what the code asks for

7 HOW IT WORKS



A · BOARD SCREWED TO THE STUD
a rigid path: sound passes straight through

B · BOARD ON RESILIENT CHANNEL
the slotted web flexes and breaks the path

PLAN, THROUGH THE WALL · ARROWS SHOW SOUND ENERGY FROM THE ROOM SIDE

What STC measures

Sound Transmission Class is a single-number rating of how well a wall or floor–ceiling stops airborne sound, from laboratory tests to ASTM E90 rated by ASTM E413. The higher the number, the quieter the room next door.

Why the channel helps

Board screwed straight to a stud is a rigid path: sound in the board goes straight into the framing. On resilient channel, the board rides on the face and the slotted web flexes, so much less energy reaches the framing.

Where it works best

Over an open stud or joist cavity with sound insulation in it. Fixed over an existing wall finish or masonry, the channel adds little or nothing.

Ratings come from assemblies

The rating belongs to the whole tested or listed assembly: framing, insulation, board layers, channel and fastening. The National Building Code tables of typical assemblies include walls and floors with resilient channel.

8 FLANKING: SOUND THAT GOES ROUND

Sound also travels over, under and round a wall: through gaps at the edges, outlet boxes, recessed lights, ducts and doors. A lab rating does not include these paths, and on site they can take away much of what the channel gains, most of all in high-rated assemblies.

- Seal the perimeter of the board with acoustic (non-hardening) sealant
- Seal round pipes, ducts and anything that passes through the assembly
- Offset outlet boxes into different stud cavities; never back to back
- Prefer surface-mounted fixtures and cabinets to recessed ones
- Fit door seals and a sweep or threshold on doors in rated walls

9 THE CODE

The National Building Code of Canada sets a minimum sound rating for the construction between a dwelling unit and other spaces in the building: STC 50, or an apparent rating of ASTC 47 where that path is used. Provincial codes follow the same approach. Choose a tested or listed assembly that meets the rating; the channel alone does not give a rating.

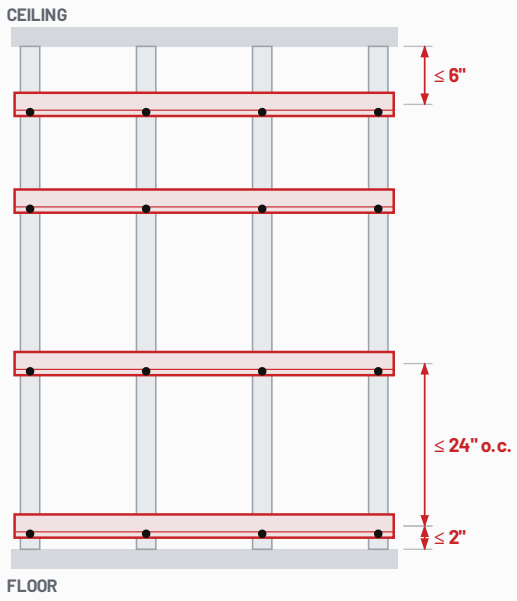
One layer, both sides

Keep the channel between the framing and the first layer of board. A channel sandwiched between two layers of board gives up most of its benefit.

WALLS

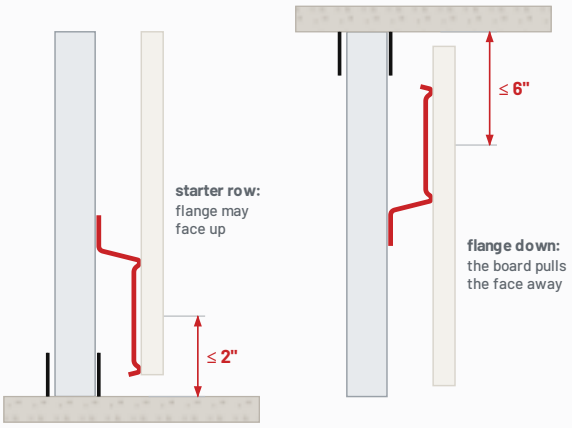
Rows, orientation and edges on a resilient-channel wall

10 ROWS ON A WALL



ELEVATION · TO THE CENTRE OF THE FACE

11 AT THE FLOOR AND THE CEILING



SECTIONS · 1/4" GAP AT TRACKS, SEALANT AT THE BOARD EDGE

12 COMMONLY SPECIFIED ON WALLS

ITEM	COMMONLY SPECIFIED	NOTE
Direction	across the studs	at right angles, slots over the framing
Orientation	mounting flange down	floor row may be flange up for fastening
Rows	24" o.c. max.	where studs are 24" o.c. or closer
Lowest row	within 2" of the floor	to the centre of the face
Highest row	within 6" of the ceiling	to the centre of the face
Clearance	1/4" to the tracks	channel and board clear of floor and ceiling
To steel studs	Type S 3/8" pan head	through the flange holes
To wood studs	Type W or S, 1-1/4" min.	screws only, no nails

From ASTM C754 and common practice; the tested or listed assembly governs where a rating applies.

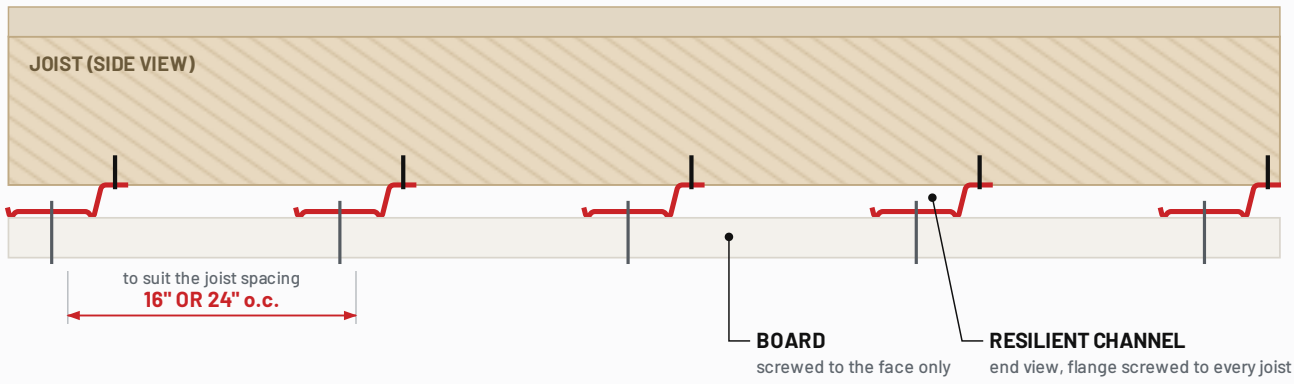
13 KEEP IT RESILIENT

1. **Board screws.** Into the face only, between the studs, with a length that stops short of the framing.
2. **No shortcuts.** Never fasten board, trim or fixtures through the channel into a stud: one screw can bridge the gap.
3. **Edges.** Hold board 1/4" off the floor and abutting walls and seal the joint with acoustic sealant.
4. **Heavy items.** Cabinets, TVs and grab bars need backing or a detail from the design; do not hang them from the channel alone.

CEILINGS & DETAILS

Spacing under joists, splices, and the board screw

14 CEILINGS UNDER JOISTS



SECTION ALONG A JOIST · CHANNELS ACROSS THE JOISTS · ROWS WITHIN 6" OF EACH WALL

15 COMMONLY SPECIFIED ON CEILINGS

JOIST OR FRAMING SPACING	CHANNEL ROWS, COMMONLY	NOTE
16" o.c.	24" o.c. max.	first and last rows within 6" of the walls
24" o.c.	16" o.c. max.	closer rows for the wider joist spacing
Any	across the joists	flange screwed to every joist

Spacing and board weight limits come from the design, the board maker and the listed assembly. Light fixtures and ducts are supported from the structure, not from the channel.

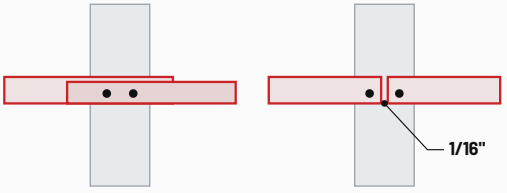
Wood, steel or LSF joists

The same channel and spacing rules apply under dimensional lumber, wood I-joists, steel joists and LSF floors.

Basement ceilings

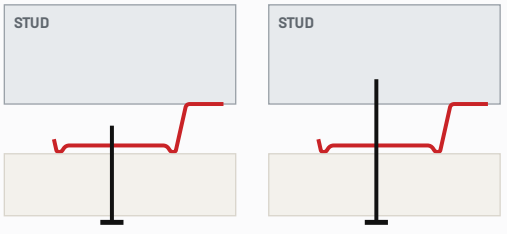
Shim the channel at low or crowned joists so the face runs level before boarding.

16 SPLICES



ELEVATION · SPLICES ONLY OVER A STUD OR JOIST

17 BOARD SCREW LENGTH



BOARD SCREW LENGTH

MATERIAL, FASTENERS & TAKEOFF

Steel and coating, screws for each connection, and two worked takeoffs

18 MATERIAL

STEEL	Galvanized sheet steel to ASTM A653, Grade 33: 33 ksi (230 MPa) minimum yield
COATING	G40 hot-dip galvanized, ASTM A653
THICKNESS	18 mil: 0.018" minimum, 0.0188" design (25 ga)
MEMBER STANDARD	ASTM C645
INSTALLATION	ASTM C754; board to ASTM C840
MATERIAL CERTIFICATES	On request, with the order

19 FASTENERS

CHANNEL TO STEEL FRAMING	Type S 3/8" pan head framing screws, through the pre-punched flange holes, at every stud or joist
CHANNEL TO WOOD FRAMING	Type W or Type S screws, 1-1/4" minimum; screws only
BOARD TO THE CHANNEL	Type S bugle head drywall screws, into the face only; length chosen so the point stops short of the framing
SPLICES	Nested over a framing member and screwed through both flanges, or butted over the member with a 1/16" gap

20 TAKEOFF EXAMPLES

WALL EXAMPLE · 20' LONG × 8' HIGH, CHANNEL ON ONE SIDE, STUDS 16" O.C.	QTY	HOW
Rows: first at 2", last within 6" of the ceiling, 24" o.c. max.	5 rows	(90" – 2") ÷ 24" = 3.7 → 4 spaces, 5 rows
Channel, + 10% for splices	10 × 12'	5 × 20' = 100 LF × 1.10 ÷ 12
Screws, channel to studs	80	16 studs × 5 rows
CEILING EXAMPLE · 12' × 16' ROOM, JOISTS 16" O.C.	**QTY**	**HOW**
Rows across the joists, within 6" of each wall, 24" o.c. max.	7 rows	(144" – 12") ÷ 24" = 5.5 → 6 spaces, 7 rows
Channel, + 10% for splices	11 × 12'	7 × 16' = 112 LF × 1.10 ÷ 12
Screws, channel to joists	91	13 joists × 7 rows

Worked with commonly specified limits and rounded up; your rows, spacing and splices come from the design and the board layout. Approximate weight 0.17 lb/ft (0.26 kg/m), 2.1 lb per 12' length.

21 READING AN STC ASSEMBLY

Framing
Wood or steel studs or joists, their size and spacing.

Cavity
Sound insulation type and thickness; the cavity is left open behind the channel.

Channel
Resilient channel, its spacing and the side it is on.

Board
Number of layers and type on each side; fastening as listed.

Match every line of the listed or tested assembly; a change in any one of them can change the rating.

INSTALLATION & STANDARDS

General guidance for installers and design professionals

22 TYPICAL INSTALLATION

1. Check the assembly: framing, insulation, channel spacing and board layers as tested or listed.
2. Mark the rows: on walls the lowest within 2" of the floor and the highest within 6" of the ceiling; on ceilings the first and last within 6" of the walls.
3. Run the channel across the framing, slots over the members. On walls keep the mounting flange down; the floor row may be flange up.
4. Screw the flange to every stud or joist through the pre-punched holes. Splice only over a framing member: nested, or butted with a 1/16" gap.
5. Fill the cavity with insulation as listed. Screw the board to the face only, with screws that stop short of the framing.
6. Hold the board 1/4" clear at floors and abutting walls and seal all edges and penetrations with acoustic sealant.

General information only; the project documents, the listed assembly and ASTM C754 / C840 govern.

23 DO & DON'T

DO	keep the flange down on walls so the board pulls the face away from the framing
DO	land every splice on a stud or joist
DO	seal the perimeter and every penetration
DON'T	screw board into a stud or joist through the channel, or use screws long enough to reach it
DON'T	fix the channel over an existing wall finish or masonry and expect a gain
DON'T	place the channel between two layers of board

24 STORAGE

Store bundles flat, dry and off the ground under ventilated cover; the light channel bends if carried by one end. Edges are sharp: use gloves and appropriate PPE.

25 STANDARDS

- ASTM C645 · member
- ASTM A653 · A1003 · steel and coating
- ASTM C754 · installation
- ASTM C840 · gypsum board
- ASTM C1002 · screws
- ASTM E90 · E413 · STC
- ASTM E492 · E989 · IIC
- National Building Code of Canada

26 COMMON QUESTIONS

Is resilient bar the same as resilient channel?
Yes. Resilient bar, RC1 and RC-1 all name this single-leg channel.

Which side of the wall?
Usually one side is enough; the listed assembly says which side and how many layers of board.

Flange up or down?
Down on walls, so the weight of the board works with the web. Only the floor row may be flange up, for easier fastening.

Can I use it on masonry?
It will hold board, but over masonry or an existing wall it gives little or no sound gain. Its benefit comes over an open, insulated cavity.

What screws do I use?
Type S 3/8" pan head to steel framing; Type W or S 1-1/4" to wood; Type S bugle head for the board, short of the framing.

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

27 BEFORE YOU ORDER: CHECKLIST

- The tested or listed assembly and its STC (and IIC for floors)
- Rows and lengths: 12' lengths, + 10% for splices
- Screws to the framing: Type S 3/8" pan head (steel) or 1-1/4" Type W or S (wood)
- Board screws: Type S bugle head, length checked against the framing
- Sound insulation and acoustic sealant as listed
- Material certificates, if the specification asks for them

28 TYPICAL SUBMITTALS

- Product data for the resilient channel and screws
- The listed or tested assembly and its rating
- Layout drawings: rows, spacing, splices and edge clearances
- Material test reports, when requested
- Proof of certification for the framing members

29 SPECIFICATION GUIDE

Section 09 22 16, Non-Structural Metal Framing, and 09 29 00, Gypsum Board, with the acoustic requirements of the project. Resilient furring channel (resilient bar), single-leg RC1 profile, 1.900" wide × 0.485" deep, slotted web and pre-punched mounting flange, 18 mil (25 ga), 33 ksi steel, G40 hot-dip galvanized to ASTM A653; member to ASTM C645; Saturn Metal DS-12. Installed to ASTM C754 at right angles to the framing at the spacing of the listed assembly; on walls with the mounting flange down, lowest row within 2" of the floor and highest within 6" of the ceiling; on ceilings first and last rows within 6" of the walls; screwed to every framing member; splices over framing only. Gypsum board to ASTM C840, screwed to the channel face only; perimeter and penetrations sealed with acoustic sealant.

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 · cold-formed joist DS-03 · 7/8" furring channel DS-11 · Angle/L-Track DS-14.
Technical questions and quotes: +1 (416) 746-8000 · Sales@SaturnMetal.ca · www.SaturnMetal.ca

30 GOES WITH

Interior steel stud · DS-01
The stud walls most often finished on resilient channel.

Cold-formed joist · DS-03
LSF floors with a resilient-channel ceiling below.

7/8" furring channel · DS-11
For furring and ceilings where a resilient path is not needed.

Angle/L-Track · DS-14
Perimeter support at ceiling edges.

IMPORTANT NOTICE

This data sheet gives general product information only. It is not engineering, acoustic, 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 STC, IIC or fire ratings; those belong to tested or listed assemblies and depend on every component and on workmanship and flanking on site. 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