SIMPSON Strong-Tie®

SBR and DBR Spacer Bracers

The New Tested Solution for Faster Stud Layout

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SBR and DBR Spacer Bracers

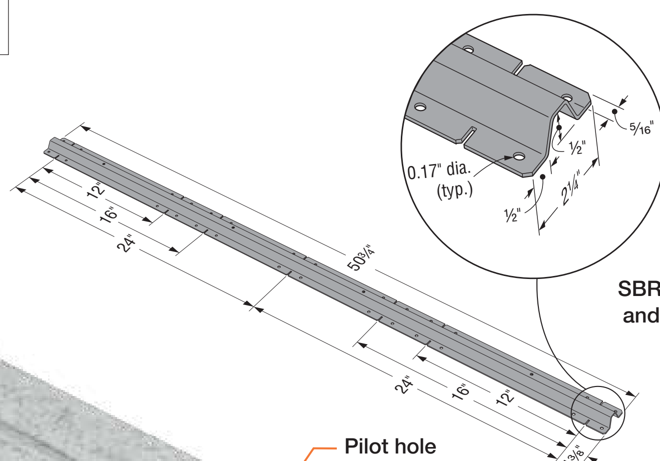
Simpson Strong-Tie introduces the SBR and DBR spacer bracers for cold-formed steel construction. These spacer bracers reduce the installed cost of cold-formed steel stud walls by enabling faster stud layout while minimizing the need for bridging clips.

The DBR is used for interior walls to eliminate stud bow and allow for quicker drywall attachment, while the SBR is designed for structural exterior walls. Both products provide bracing along the length of the stud, and for head-of-wall slip conditions. The SBR and DBR also come with prepunched slots that eliminate the need to use bridging clips with on-module studs.

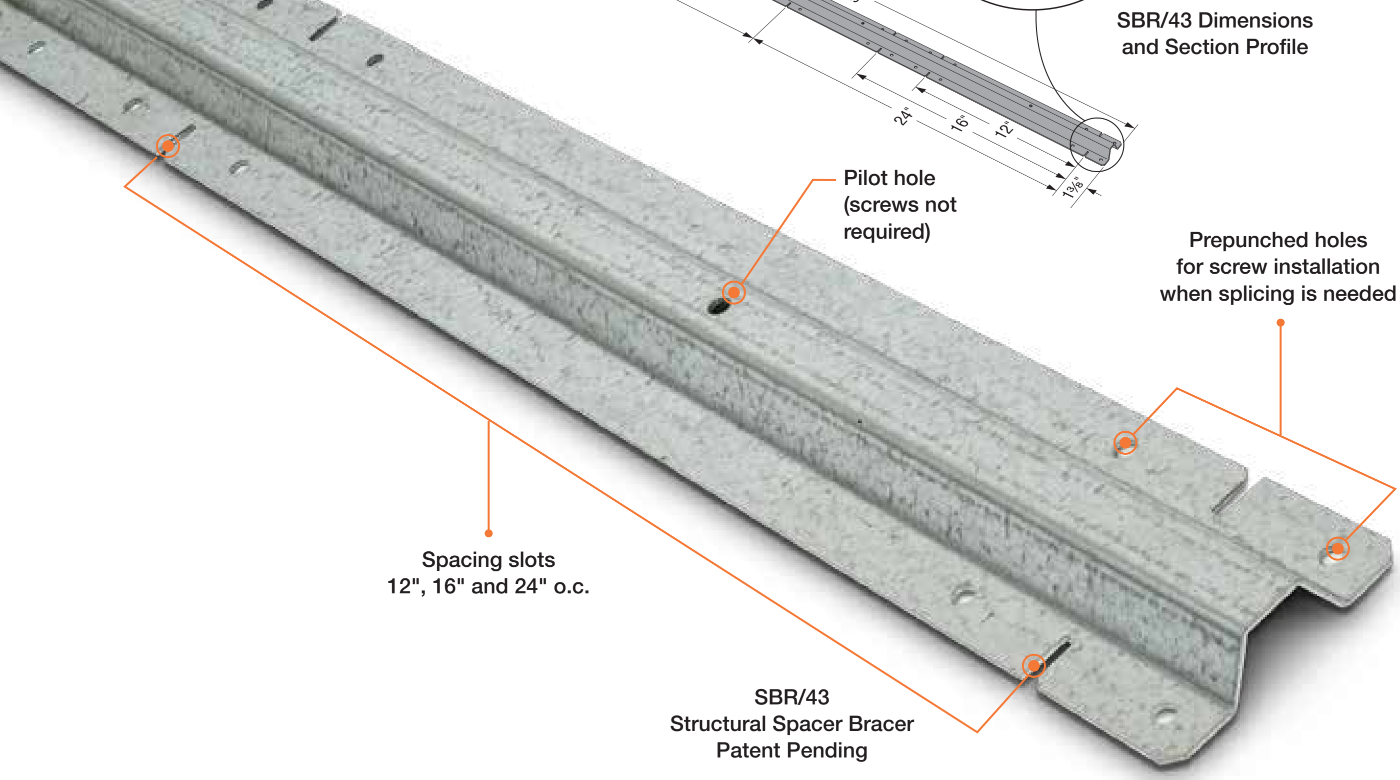
The SBR and DBR spacer bracers come with bracing load data based on assembly testing, thus mitigating risk for designers and maximizing confidence in design specs. In fact, the SBR and DBR are the only spacer bracers on the market with tabulated design values based on assembly tests.

SBR/43 Typical Installation

SBR and DBR spacer bracers are conveniently packaged in durable 20-piece boxes to simplify ordering and storage.



SBR/43 Dimensions and Section Profile



SBR/43 Structural Spacer Bracer Patent Pending

SIMPSON Strong-Tie®

Features:

- SBR and DBR have patent-pending precision-engineered prepunched slots strategically located to enable 12", 16" and 24" on-center stud spacing and can be used to space the studs without having to mark the top track for layout.
- The SBR will accommodate 3⅝" and 6" studs in thicknesses of 33 mil (20 ga.) thru 68 mil (14 ga.).
- The DBR will accommodate 2½", 3⅝" and 6" studs in thicknesses of 15 mil (25 ga. EQ) through 33 mil (20 ga.).
- Prepunched holes in the SBR provide rapid screw installation when spacer-bracer splices are needed for axial load-bearing studs.
- In off-layout or end-of run conditions, the hat-section profiles enable clip attachments to the stud with Simpson Strong-Tie® LSSC or RCA connectors.

Installation:

- Spacer-bracers are fed through the stud knockout at a 90-degree angle until studs align with spacer-bracer slots. With the slots engaging the stud web, the spacer-bracer is then rotated back to the flat position so that the slotted flanges are on the bottom.
- For off-layout or end-of-run studs where a spacer-bracer slot does not engage a stud, manually snip the spacer-bracer flanges with a ½" deep slot and secure the spacer bracer to the stud with Simpson Strong-Tie LSSC or RCA connectors. Use all specified fasteners.
- Wear gloves while handling and installing spacer bracers.

DBR/30 Typical Installation

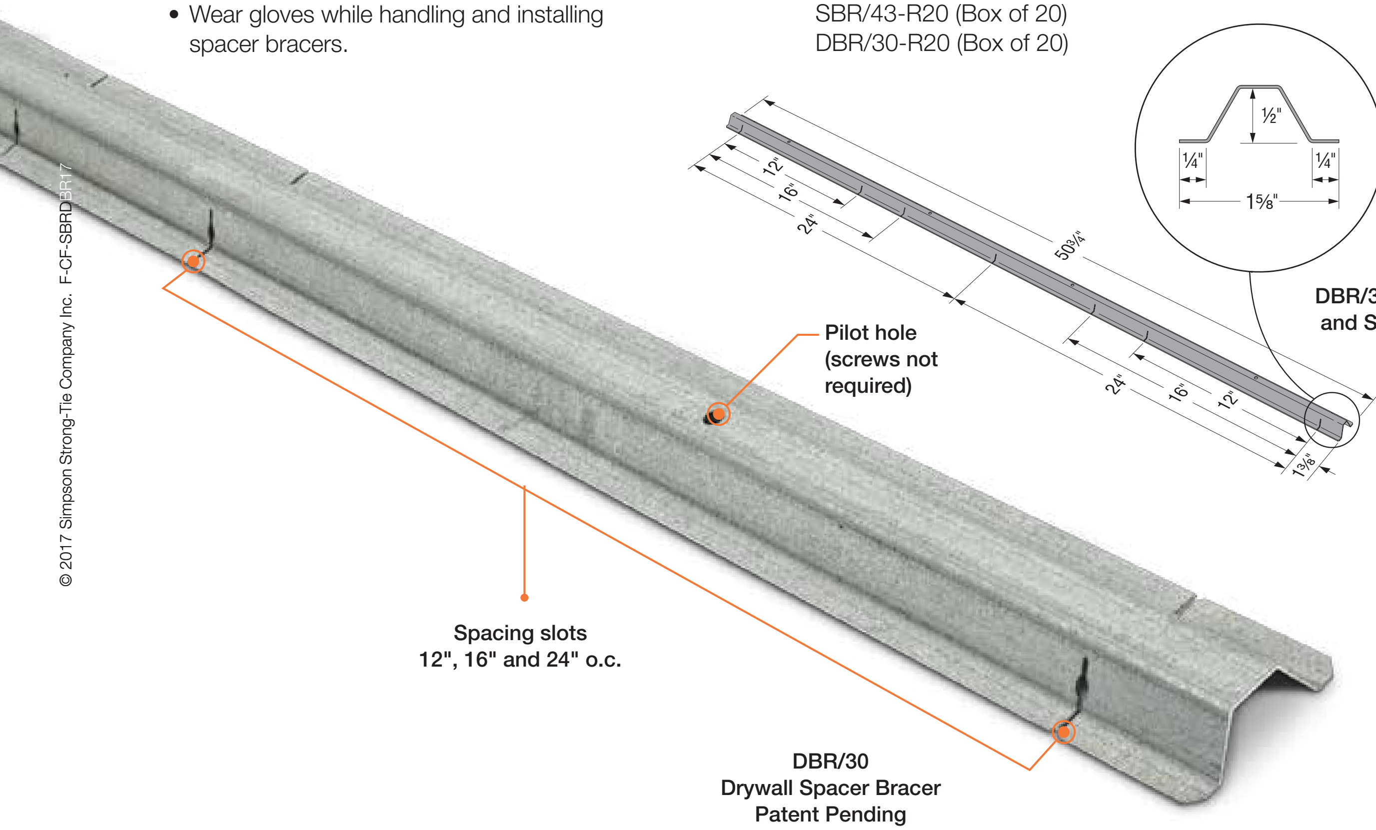
Material: SBR/43 — 43 mil (40 ksi); DBR/30 — 27 mil (33 ksi)

Finish: Galvanized (G90)

Codes: Testing performed in accordance with ICC-ES AC261. Visit **stongtie.com** for the latest load values and testing

Ordering Information:

SBR/43-R20 (Box of 20)
DBR/30-R20 (Box of 20)

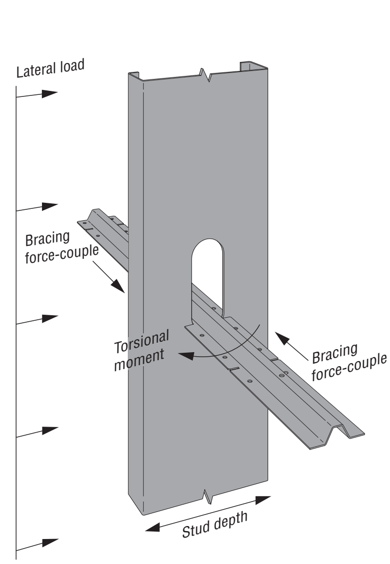


DBR/30 Dimensions and Section Profile

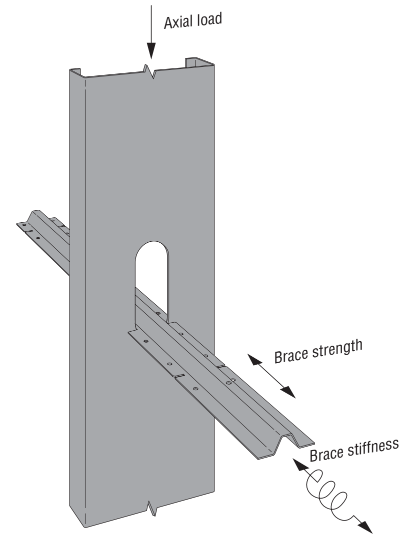
DBR/30
Drywall Spacer Bracer
Patent Pending

SBR and DBR Spacer Bracer — Connection Strength and Stiffness

Model No.	Stud Depth (in.)	Stud Thickness mil (ga.)	Allowable Torsional Moment (in./lb.)	Allowable Brace Strength (lb.)	Brace Stiffness (lb./in.)
SBR/43	3⅝	33 (20)	235	390	845
		43 (18)	310	435	1,390
		54 (16)	400	435	1,390
		68 (14)	400	435	1,390
	6	33 (20)	215	160	495
		43 (18)	310	330	765
		54 (16)	365	450	840
		68 (14)	365	450	840
DBR/30	3⅝	15 (25 EQ)	55	—	—
		18 (25)	55	—	—
		19 (20 EQ)	60	—	—
		30 (20 DW)	85	—	—
		33 (20 STR)	90	—	—
	6	15 (25 EQ)	55	—	—
		18 (25)	55	—	—
		19 (20 EQ)	60	—	—
		30 (20 DW)	85	—	—
		33 (20 STR)	90	—	—



Laterally Loaded C-Stud with SBR Spacer Bracer (DBR Spacer Bracer Similar)



Axially Loaded C-Stud with SBR Spacer Bracer

1. Allowable loads are for use when utilizing the traditional Allowable Stress Design methodology. For LRFD loads multiply the ASD tabulated values by 1.6.
2. Tabulated Allowable Brace Strengths are based on ultimate test load divided by a safety factor. Serviceability limit is not considered, as brace stiffness requirements are given in section D3.3 of AISI S100-2012.
3. Tabulated Brace Stiffness values apply to both ASD and LRFD designs.
4. Allowable loads consider bridging connection only. It is the responsibility of the Designer to verify the strength and serviceability of the framing members.
5. EQ — Equivalent, DW — Drywall, STR — Structural.

SBR and DBR Gross Properties

Model No.	Design Thickness (in.)	F_y (ksi)	Area (in.^{2})	I_x (in.^{4})	S_x (in.^{3})	R_x (in.)	I_y (in.^{4})	S_y (in.^{3})	R_y (in.)	Torsional Properties					
										Jx1,000 (in.^{4})	C_w (in.^{6})	Y_o (in.)	m (in.)	R_o (in.)	β
SBR/43	0.0468	40	0.126	0.0047	0.1458	0.1936	0.0436	0.0400	0.5891	0.0916	5.56E-04	0.283	-0.017	0.681	0.828
DBR/30	0.0289	33	0.060	0.0023	0.0082	0.1936	0.0109	0.0141	0.4259	0.0167	7.05E-05	0.346	0.087	0.582	0.647

SBR and DBR Net Properties

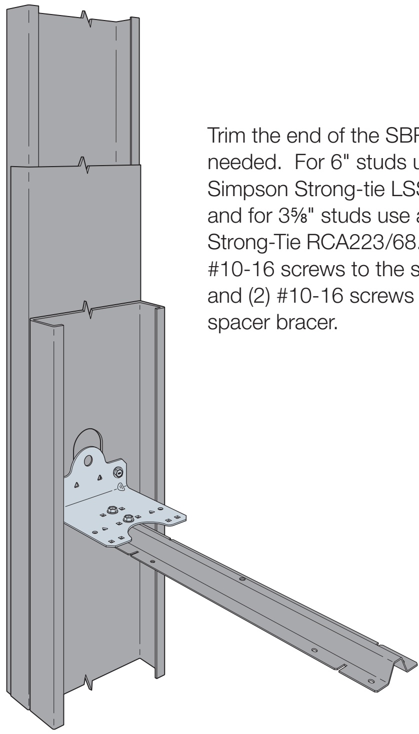
Model No.	Area (in.^{2})	I_x (in.^{4})	S_x (in.^{3})	R_x (in.)	I_y (in.^{4})	S_y (in.^{3})	R_y (in.)	Torsional Properties					
								Jx1,000 (in.^{4})	C_w (in.^{6})	Y_o (in.)	m (in.)	R_o (in.)	β
SBR/43	0.085	0.0028	0.0097	0.1816	0.0120	0.0184	0.3765	0.0617	3.43E-05	0.355	0.141	0.548	0.581
DBR/30	0.022	0.0001	0.0004	0.0479	0.0008	0.0027	0.1944	0.0061	1.09E-06	0.086	0.051	0.218	0.844

SBR and DBR Allowable Member Strengths

Model No.	Ma (F_y) (in.-lb.)	Ma (12" o.c.) (in.-lb.)	Ma (16" o.c.) (in.-lb.)	Ma (24" o.c.) (in.-lb.)	Pa (12" o.c.) (lb.)	Pa (16" o.c.) (lb.)	Pa (24" o.c.) (lb.)
SBR/43	369	369	369	360	945	904	618
DBR/30	44	40	38	32	—	—	—

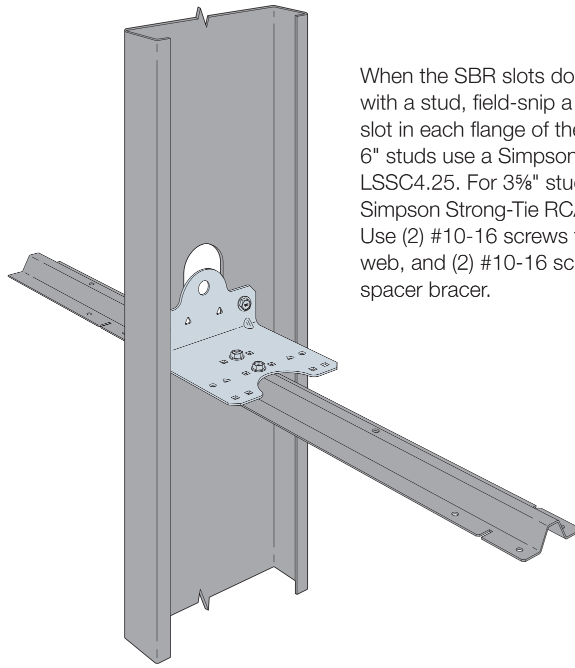
1. Net section properties are based a section that excludes all material that is interrupted by the slots.
2. Member strengths are based on DSM Analysis (non-prequalified section, Ω = 2.0).
3. Cb=1.67 has been applied to Ma to account for a triangular moment diagram with zero end moment.

SBR and DBR Spacer Bracers



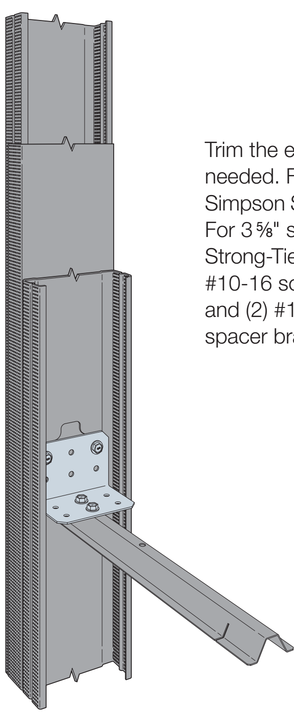
Trim the end of the SBR as needed. For 6" studs use a Simpson Strong-tie LSSC4.25 and for 3⅝" studs use a Simpson Strong-Tie RCA223/68. Use (2) #10-16 screws to the stud web, and (2) #10-16 screws to the spacer bracer.

SBR End-of-Run for 6" Studs with LSSC4.25 (3⅝" Studs with RCA223/68 Similar)



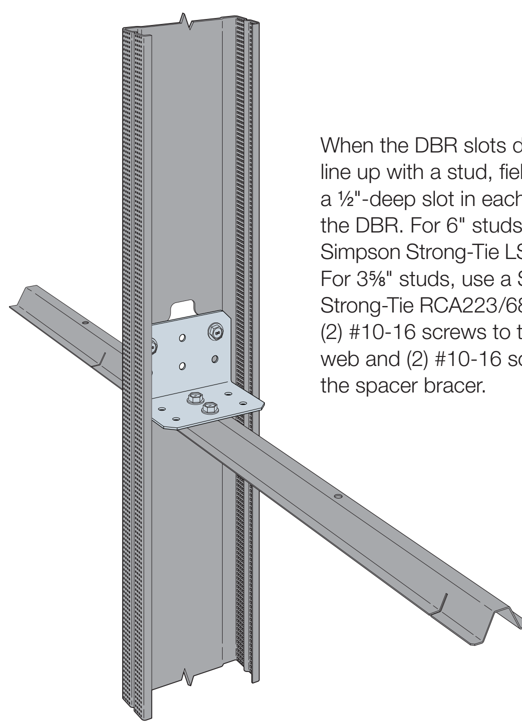
When the SBR slots do not line-up with a stud, field-snip a ½"-deep slot in each flange of the SBR. For 6" studs use a Simpson Strong-Tie LSSC4.25. For 3⅝" studs use a Simpson Strong-Tie RCA223/68. Use (2) #10-16 screws to the stud web, and (2) #10-16 screws to the spacer bracer.

SBR Off-Module for 6" Studs with LSSC4.25 (3⅝" Studs with RCA 223/68 Similar)



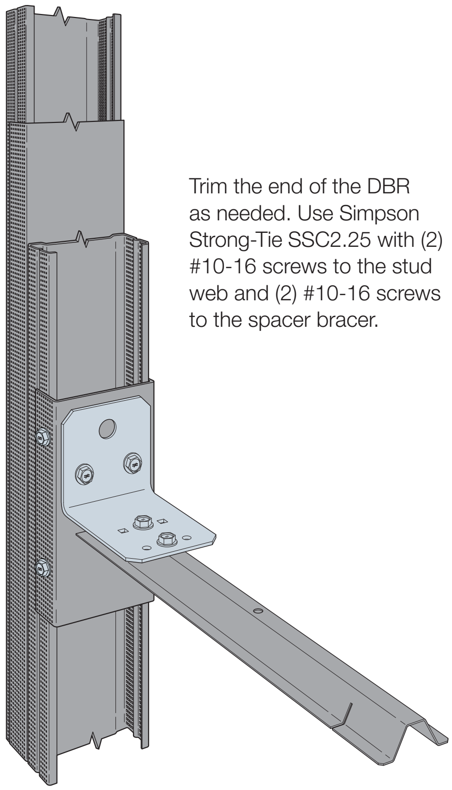
Trim the end of the DBR as needed. For 6" studs use a Simpson Strong-Tie LSSC4.25. For 3⅝" studs use a Simpson Strong-Tie RCA223/68. Use (2) #10-16 screws to the stud web and (2) #10-16 screws to the spacer bracer.

DBR End-of-Run for 3⅝" Studs with RCA223/68 (6" Studs with LSSC4.25 Similar)

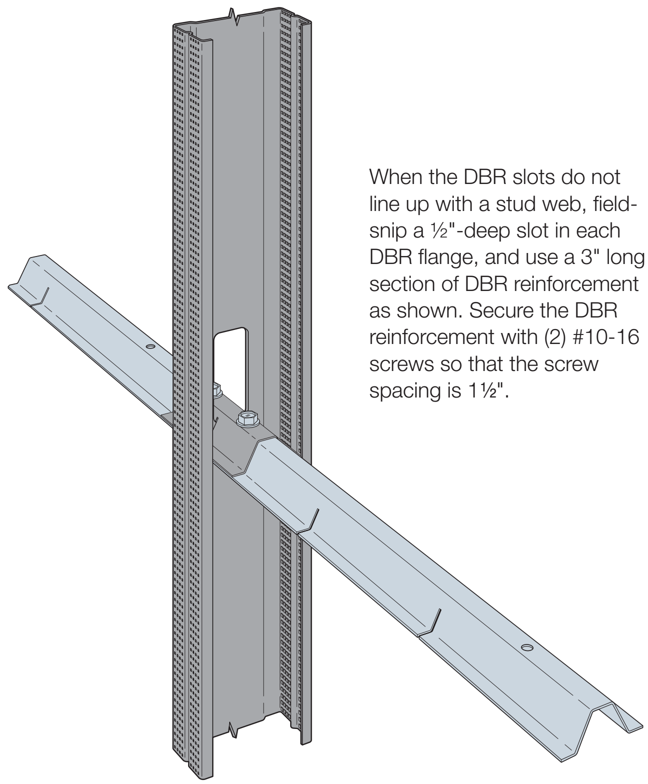


When the DBR slots do not line up with a stud, field-snip a ½"-deep slot in each side of the DBR. For 6" studs, use a Simpson Strong-Tie LSSC4.25. For 3⅝" studs, use a Simpson Strong-Tie RCA223/68 with (2) #10-16 screws to the stud web and (2) #10-16 screws to the spacer bracer.

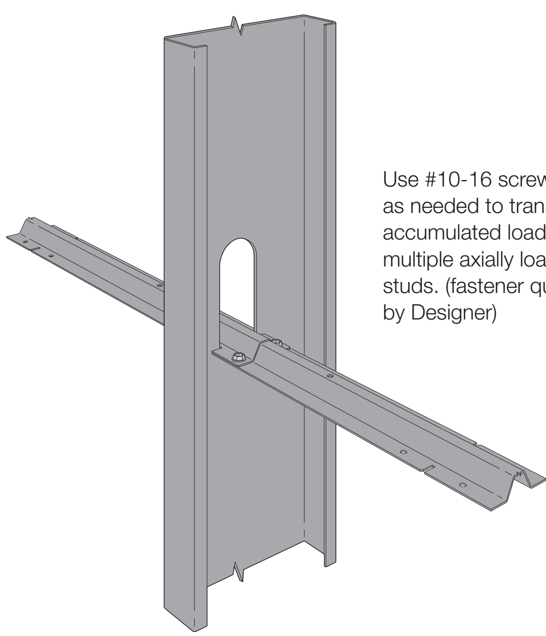
DBR Off-Module for 3⅝" Studs with RCA223/68 (6" Studs with LSSC4.25 Similar)



DBR End-of-Run for 2.5" Studs with SSC2.25



DBR Off-Module for 2½" Studs with DBR Reinforcement (DBR and SBR with 3⅝" Studs and 6" Studs Similar)



Typical SBR Splice for Axially Loaded Studs

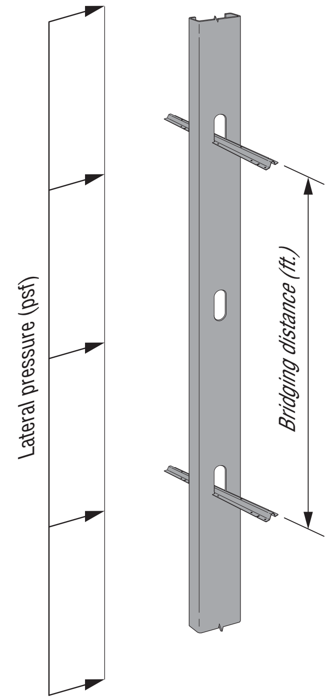
SBR/43 Maximum Bridging Distance (ft.)

Stud Spacing (in.)	Stud Section	Stud Thickness mil (ga.)	Lateral Stud Pressure (psf)									
			5	10	15	20	25	30	35	40	45	50
12	362S162	33 (20)	8	8	8	8	7	6	5	4	4	—
		43 (18)	8	8	8	8	8	8	7	6	5	5
		54 (16)	8	8	8	8	8	8	8	7	7	6
		68 (14)	8	8	8	8	8	8	8	8	7	6
	362S200	33 (20)	8	8	8	7	6	5	4	—	—	—
		43 (18)	8	8	8	8	8	6	5	5	4	4
		54 (16)	8	8	8	8	8	8	6	6	5	4
		68 (14)	8	8	8	8	8	8	6	6	5	4
	600S162	33 (20)	8	8	8	8	8	7	6	5	4	4
		43 (18)	8	8	8	8	8	8	8	7	6	6
		54 (16)	8	8	8	8	8	8	8	8	8	7
		68 (14)	8	8	8	8	8	8	8	8	8	7
	600S200	33 (20)	8	8	8	7	6	5	4	—	—	—
		43 (18)	8	8	8	8	8	7	6	5	5	4
		54 (16)	8	8	8	8	8	8	7	6	6	5
		68 (14)	8	8	8	8	8	8	7	6	6	5
16	362S162	33 (20)	8	8	8	7	5	4	4	—	—	—
		43 (18)	8	8	8	8	7	6	5	4	4	—
		54 (16)	8	8	8	8	8	7	6	5	5	4
		68 (14)	8	8	8	8	8	8	6	6	5	4
	362S200	33 (20)	8	8	7	5	4	—	—	—	—	—
		43 (18)	8	8	8	7	6	5	4	—	—	—
		54 (16)	8	8	8	8	7	6	5	4	4	—
		68 (14)	8	8	8	8	7	6	5	4	4	—
	600S162	33 (20)	8	8	8	7	6	5	4	—	—	—
		43 (18)	8	8	8	8	8	7	6	5	5	4
		54 (16)	8	8	8	8	8	8	7	6	6	5
		68 (14)	8	8	8	8	8	8	7	6	6	5
	600S200	33 (20)	8	8	7	5	4	—	—	—	—	—
		43 (18)	8	8	8	8	6	5	4	4	—	—
		54 (16)	8	8	8	8	8	6	5	5	4	4
		68 (14)	8	8	8	8	8	6	5	5	4	4
24	362S162	33 (20)	8	8	6	4	—	—	—	—	—	—
		43 (18)	8	8	8	6	5	4	—	—	—	—
		54 (16)	8	8	8	7	6	5	4	—	—	—
		68 (14)	8	8	8	7	6	5	4	—	—	—
	362S200	33 (20)	8	7	5	—	—	—	—	—	—	—
		43 (18)	8	8	6	5	4	—	—	—	—	—
		54 (16)	8	8	7	5	4	—	—	—	—	—
		68 (14)	8	8	7	5	4	—	—	—	—	—
	600S162	33 (20)	8	8	7	5	4	—	—	—	—	—
		43 (18)	8	8	8	7	6	5	4	—	—	—
		54 (16)	8	8	8	8	7	6	5	4	4	—
		68 (14)	8	8	8	8	7	6	5	4	4	—
	600S200	33 (20)	8	7	5	—	—	—	—	—	—	—
		43 (18)	8	8	7	5	4	—	—	—	—	—
		54 (16)	8	8	8	6	5	4	—	—	—	—
		68 (14)	8	8	8	6	5	4	—	—	—	—

DBR/30 Maximum Bridging Distance (ft.)

Stud Spacing (in.)	Stud Section	Stud Thickness mils (ga.)	Lateral Stud Pressure (psf)	
			5	10
12	362S125	15 (25 EQ)	8	5
		18 (25)	8	5
		19 (20 EQ)	8	5
		30 (20 DW)	8	5
		33 (20 STR)	8	5
	600S125	15 (25 EQ)	8	6
		18 (25)	8	6
		19 (20 EQ)	8	6
		30 (20 DW)	8	6
		33 (20 STR)	8	6
16	362S125	15 (25 EQ)	7	—
		18 (25)	7	—
		19 (20 EQ)	7	—
		30 (20 DW)	7	—
		33 (20 STR)	7	—
	600S125	15 (25 EQ)	8	4
		18 (25)	8	4
		19 (20 EQ)	8	4
		30 (20 DW)	8	4
		33 (20 STR)	8	4
24	362S125	15 (25 EQ)	4	—
		18 (25)	4	—
		19 (20 EQ)	4	—
		30 (20 DW)	4	—
		33 (20 STR)	4	—
	600S125	15 (25 EQ)	4	—
		18 (25)	4	—
		19 (20 EQ)	4	—
		30 (20 DW)	5	—
		33 (20 STR)	5	—

1. Tabulated solutions are for ASD lateral pressure. Contact Simpson Strong-Tie for LRFD solutions.
2. Lateral pressures shall be determined based on the load combinations of the applicable building code. For designs in accordance with the 2009 IBC and earlier, wind pressures are at the working stress level and may be used directly. For designs in accordance with the 2012 and 2015 IBC, wind pressures are at the strength level and must be multiplied by 0.6 for ASD load combinations.
3. Tabulated values are based on the minimum of the tested connection strength and the calculated SBR/DBR member strength. Studs must be checked separately for unbraced length.



SBR Bridging Distance (DBR Similar)

SIMPSON Strong-Tie®

Given

- 2015 IBC (ASCE 7-10 and AISI S100-2012)
- 600S162-54 (50 ksi) studs at 24" o.c., 10' stud height
  - o Mid-point bracing (5' o.c.)
  - o Distance from shear center to mid-plane of web, m = 0.663 in. (2013 AISI Manual, Table I-2)
- Wind design pressure = 34 psf
- P_{ra} = Required ASD axial load = 3,000 lb.

Axially Loaded Stud

Required brace strength (AISI S100, Eq. D3.3-1)
$P_{rb} = 0.01P_{ra} = (0.01)(3{,}000\text{ lb.}) = 30\text{ lb.}$

Required brace stiffness (AISI S100, Eq. D3.3-2a)
$\beta_{rb} = (2[4-(2/n)]/L_b)(\Omega P_{ra}) = (2[4-(2/1)]/60)(2)(3{,}000) = 400\text{ lb./in.}$

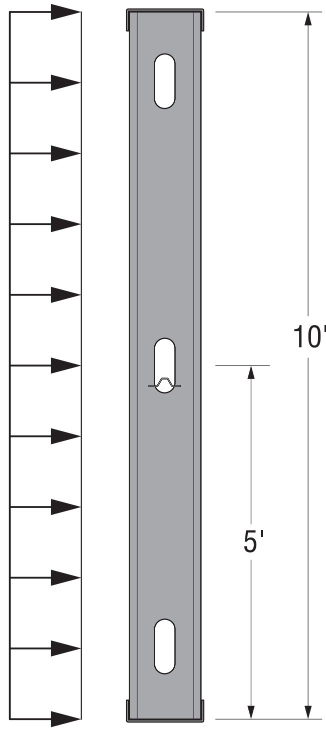
Check connection strength and stiffness from Strength and Stiffness table (page 4) for the SBR/43 for 6" deep, 54 mil studs

- Allowable brace strength = 450 lb. > 30 lb. **OK**
- Allowable brace stiffness = 840 lb./in. > 400 lb./in. **OK**

Check member strength from Allowable Strengths table (page 4) for the SBR/43 for 24" o.c.

- P_a (24" o.c.) = Allowable member strength = 618 lb. > 30 lb. **OK**

Note: Member stiffness and the effects of accumulated load for multiple axially loaded studs have not been accounted for in the above calculations. Reference CFSEI Tech Note W400-16 for additional guidance on these topics.



Laterally Loaded Stud

ASD Design load tributary to brace:
W = (0.6)(34 psf)(2 ft.)(5 ft.) = 204 lb.

Note: 2015 IBC load combinations for ASD include a factor of 0.6

Required flange force (AISI S100 Eq. D3.2.1-3)
$P_{L1} = -P_{L2} = 1.5(m/d)W = (1.5)(0.663\text{ in.}/6\text{ in.})(204\text{ lb.}) = 33.8\text{ lb.}$

Torsional moment
$M_z = P_{L1}d = -P_{L2}d = (33.8)(6) = 202.8\text{ in.-lb.}$

Moment applied to bridging member
$M_m = 0.64M_z = (0.64)(202.8) = 129.8\text{ in.-lb.}$

Note: The 0.64 factor is from an analysis of a five-span continuous beam that is loaded with equal support moments (Reference AISI Design Guide D110-07, page 2-9, Figure 2-6)

Check connection strength from Strength and Stiffness table (page 4) for the SBR/43 for 6" deep, 54 mil studs

- Allowable torsional moment = 365 in.-lb. > 202.8 in.-lb. **OK**

Check member strength from Allowable Strengths table (page 4) for the SBR/43 for 24" o.c.

- M_a (24" o.c.) = Allowable moment = 360 in.-lb. > 129.8 in.-lb. **OK**

Combined-Loading Check of Connection

(P_{br}/Allowable brace strength) + (M_z/Allowable torsional moment) ≤ 1.0
(30 lb./450 lb.) + (202.8 in.-lb./365 in.-lb.) = 0.62 < 1.0 **OK**

Combined-Loading Check of Bridging Member

Reference AISI Eqs. C5.2.1-1, C5.2.1-2, or Eq. C52.1-3 as applicable. For this condition, Eq. C5.2.1-3 applies.

$$\frac{\Omega_c P}{P_n} + \frac{\Omega_b M}{M_n} \leq 1.0$$

$$P_n = 2P_a \qquad M_n = 2M_a$$

$$\frac{1.8\,(30)}{2\,(618)} + \frac{1.67\,(129.8)}{2\,(360)} = 0.34 < 1.0 \textbf{ OK}$$

Note: The allowable strengths given in the Allowable Strengths table (page 4) have been converted to nominal strengths by multiplying by Ω=2.0.

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