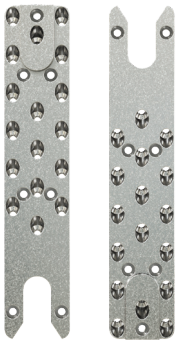
SCBH™ Steel Concealed Beam Hanger

High Drift? High Capacity? High Five!

Introducing the Simpson Strong-Tie® SCBH steel concealed beam hanger



The SCBH matches the beam-to-column download capacity of the ACBH™ while increasing the ability to deform when subjected to joint rotation due to seismic forces and inter-story drift. This combination makes the SCBH ideal for use at glulam beam-to-column connections in high-seismic regions. This hanger installs easily in the factory using our fully-threaded Strong-Drive® SDCF Timber-CF structural screws and offers generous onsite fit-up tolerance for smooth and easy beam installation.

Features

- High download capacity
- Seismic deformation compatibility
- Concealed for architectural aesthetics and fire-rated performance
- +/- 1⁄16" beam length tolerance on each end enables easier installation
- One- and two-hour fire resistance ratings per ASTM E119 for wood-to-wood connection

Options

- Double connectors can be used on a single beam end for increased connection capacity (see load tables)
- SCBH-W backplate option for wood beam to steel support connections (see p. 3)

Material: Steel

Finish:
SCBH backplate: Electrogalvanized;
SCBH-W backplate: Gray paint;
SDCF: Yellow Zinc

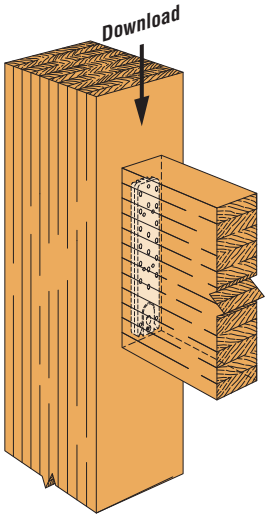
Environment: Dry-service applications only

Seismic Deformation Compatibility Testing: Recommended for use at beam-to-beam and beam-to-column connections in any Seismic Design Category; see L-C-SCBHDRIFT on **strongtie.com** for more information.

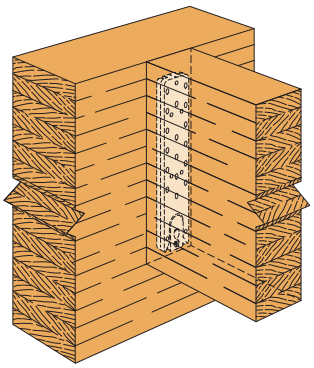
SCBH Allowable Downloads — Wood-to-Wood

Model	Configuration	Assembly Dimensions (in.)		Fasteners			Allowable Download (lb.)					
							DF/SP			SPF		
		W	H	Carried Beam	Carrying Column/Beam		Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)
SCBH3X15.37	Single	3	15⅜	(24) SDCF22614	Column	(24) SDCF22434	19,820	21,935	21,935	13,680	15,735	17,105
					Beam		14,820	17,040	18,525	13,305	15,200	16,630
	Double	6½	15⅜	(48) SDCF22614	Column	(48) SDCF22434	39,640	43,870	43,870	27,360	31,470	34,210
					Beam		29,640	34,080	37,050	26,610	30,400	33,260

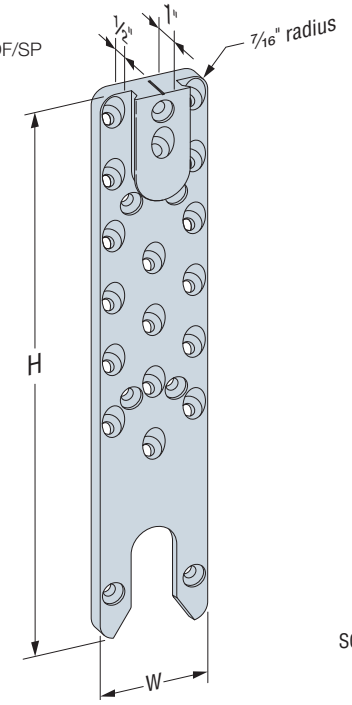
1. Table loads are for e_{side} > 1⅝". For 1⅛" < e_{side} < 1⅝", multiply allowable load by 0.93.
2. When considering uplift forces, use Simpson Strong-Tie® Strong-Drive® SDWC15600 (6" length) screw per detail shown on last page of this flier. Uplift capacity is 555 lb. for DF/SP and 485 lb. for SPF/HF per screw. Use multiple screws for additional uplift.
3. Fasteners: SDCF22434 and SDCF22614 = 0.315" OD by 4¾" long and 6¼" long Strong-Drive SDCF TIMBER-CF screw, respectively.



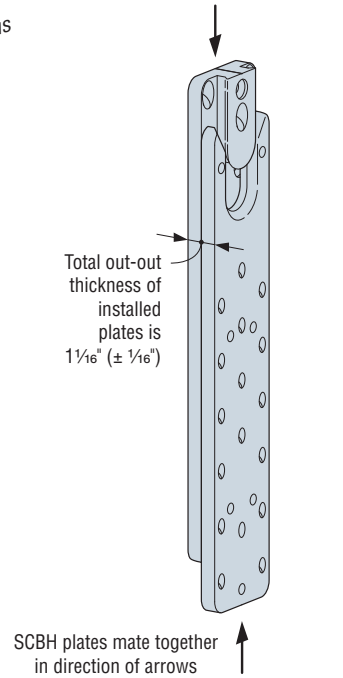
Beam-to-Column Connection



Beam-to-Beam Connection



SCBH3x15.37 Backplate

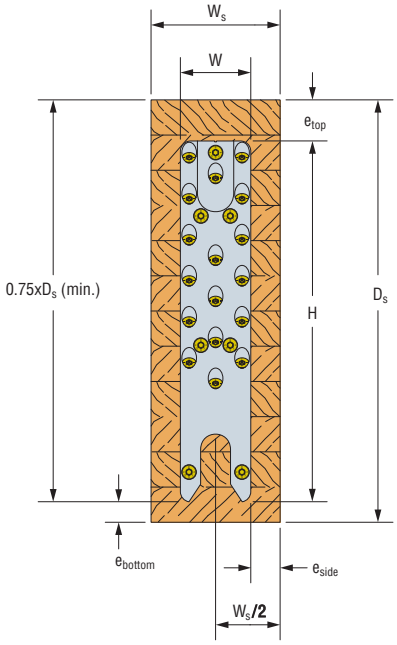


Assembly Thickness and Fit-up Tolerance

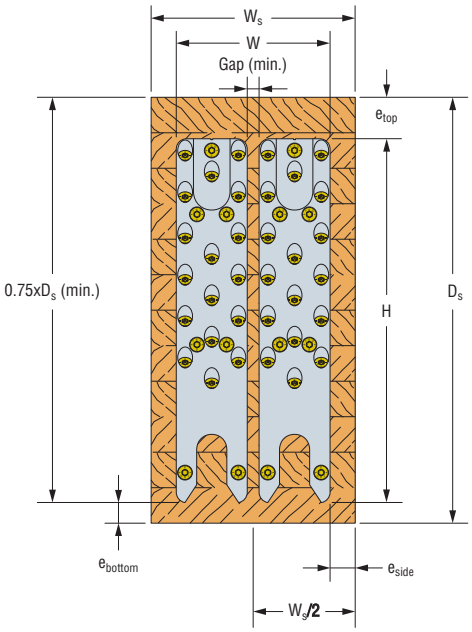
Connection Geometry Requirements — Wood-to-Wood

Model	Configuration	Minimum Carried Beam Sizes (in.)						Assembly Dimensions (in.)			Minimum Edge Distance (in.)						
		Considering Only Fastener Edge Distance		One-Hour Fire Resistance		Two-Hour Fire Resistance					Considering Only Fastener Edge Distance		One-Hour Fire Resistance		Two-Hour Fire Resistance		e_{top}
		W_s	D_s	W_s	D_s	W_s	D_s	W	Gap_{min}	H	e_{side}	e_{bottom}	e_{side}	e_{bottom}	e_{side}	e_{bottom}	
SCBH3X15.37	Single	5⅛	18	6¾	19	10¼	20¾	3	—	15⅜	1 1⁄16	⅞	1⅞	1⅞	3⅝	3⅝	1¾
	Double	8⅝	18	10¼	19½	12¼	21	6½	½	15⅜	1 1⁄16	⅞	1⅞	2⅜	2⅞	3⅞	1¾

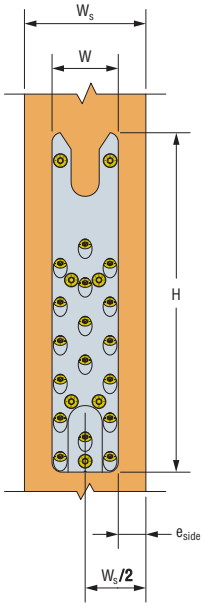
1. Side edge distances for carrying vertical columns must meet or exceed the e_{side} table values for the carried beam.
2. For 1 1⁄16" ≤ e_{side} < 1 5⁄16", see footnotes of the Allowable Download table for allowable load reduction.
3. Minimum carried beam sizes and edge distances for one-hour and two-hour fire resistance are based on ASTM E119 fire testing. Test specimens included 3M Expantrol E-FIS intumescent fire seal at the beam-to-column interface. Substitutions for the 3M Expantrol are permitted provided they meet or exceed the 3M Expantrol's specifications for flame spread, smoke developed index, intumescent activation temperatures (expansion rate) and service temperatures.
4. Top edge distances in the table assume full coverage of the top of carried beam. A full coverage condition occurs when the top of the beam is not directly exposed to fire (i.e., roof or floor members attached to the top of the supported beam and providing complete continuous cover to the top of the carried beam). For conditions where the top of the carried beam is exposed to fire, increase the minimum top edge distance to e_{side} for the installed condition.
5. For one-hour and two-hour fire resistance, the gap between the end of the carried member and the face of the carrying member shall not exceed ¼".



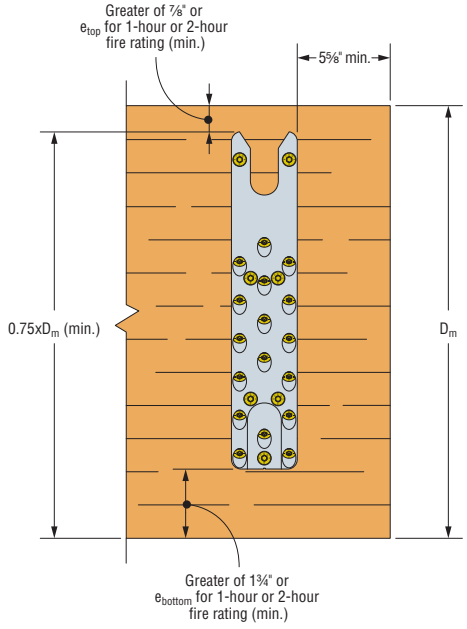
Single SCBH on Carried Beam



Double SCBH on Carried Beam



Single SCBH on Carrying Column

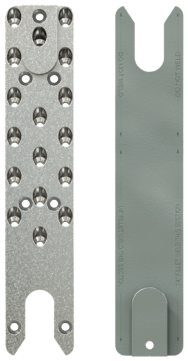


Single SCBH on Carrying Beam

SCBH-W for hybrid wood-to-steel construction

A second backplate option is available for specifiers connecting glulam beams to steel supporting structures (e.g., steel columns, steel embed plates in concrete walls). The SCBH-W backplate is welded to the steel support and mated with a standard SCBH backplate that is attached to the end grain of a glulam beam.

Testing of the connection has demonstrated high download capacity and robust seismic deformation compatibility (see L-C-SCBHDRIFT). The SCBH-W backplate is engraved to communicate the required weld size, location and length for the convenience of the welder and building inspector.



SCBH-W Allowable Downloads — Wood-to-Steel

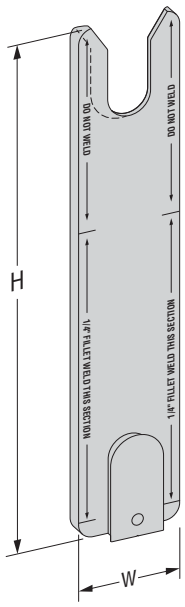
Model	Configuration	Asembly Dimensions (in.)		Fasteners		Allowable Download (lb.)					
						DF/SP			SPF		
		W	H	Carried Beam	Carrying Column/Beam	Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)
SCBH3X15.37W	Single	3	15⅜	(24) SDCF22614	See Figure for weld size/location/length	20,050	20,575	20,575	14,135	16,255	17,670
	Double	7	15⅜	(48) SDCF22614		40,100	41,150	41,150	28,270	32,510	35,340

1. Table loads are for e_{side} > 1⅝" . For 1⅛" < e_{side} < 1⅝", multiply allowable load by 0.93.
2. Fasteners: SDCF22614 = 0.315" OD by 6¼" long Strong-Drive® SDCF TIMBER-CF screw.
3. Loads assume E-70XX weld material.
4. Welds must conform to the current AWS D1.1 structural welding code for steel. Follow proper welding procedures and safety precautions.
5. Minimum steel thickness of supporting steel member to be evaluated by the designer.
6. Connection not evaluated for uplift.
7. The SCBH-W backplate is engraved with instructions for the required weld size, location, and length. Portions of the part edges that are engraved with the text "Do not weld" shall not be welded.

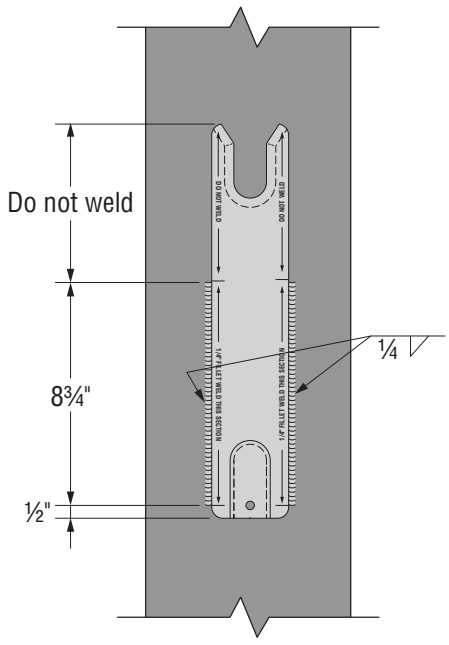
Connection Geometry Requirements — Wood-to-Steel

Model	Configuration	Minimum Carried Beam Sizes (in.)		Assembly Dimensions (in.)			Minimum Edge Distance (in.)		e_{top}
		W_s	D_s	W	Gap	H	e_{side}	e_{bottom}	
SCBH3X15.37W	Single	5⅛	18	3	—	15⅜	1 1⁄16	⅞	1¾
	Double	9⅛	18	7	1	15⅜	1 1⁄16	⅞	1¾

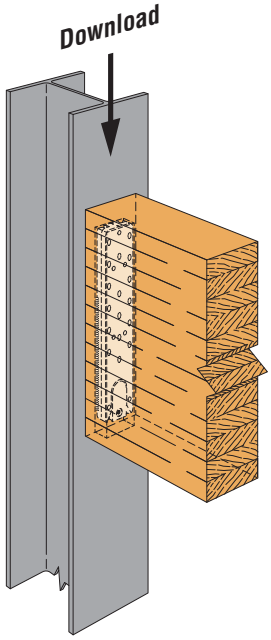
1. Minimum carried beam sizes and minimum edge distances consider only fastener edge distance in the carried beam. SCBH3X15.37W was not evaluated for fire resistance.
2. For 1 1⁄16" ≤ e_{side} < 1⅝", see footnotes of the Allowable Download table for allowable load reduction.
3. Assembly dimension for double configuration is measured form outside edge of part to outside edge of adjacent part.



SCBH3x15.37W Backplate

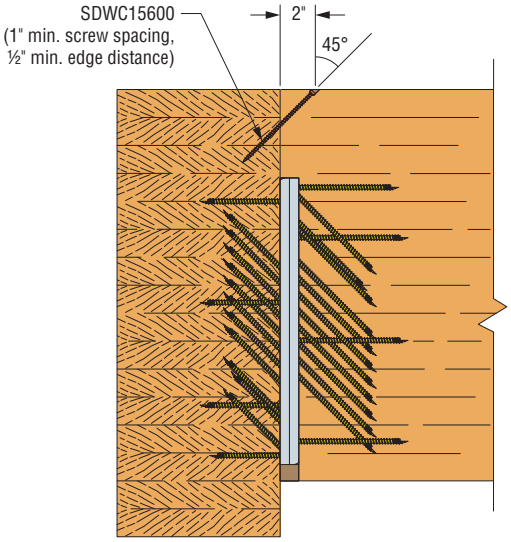


SCBH3x15.37W Welded Installation

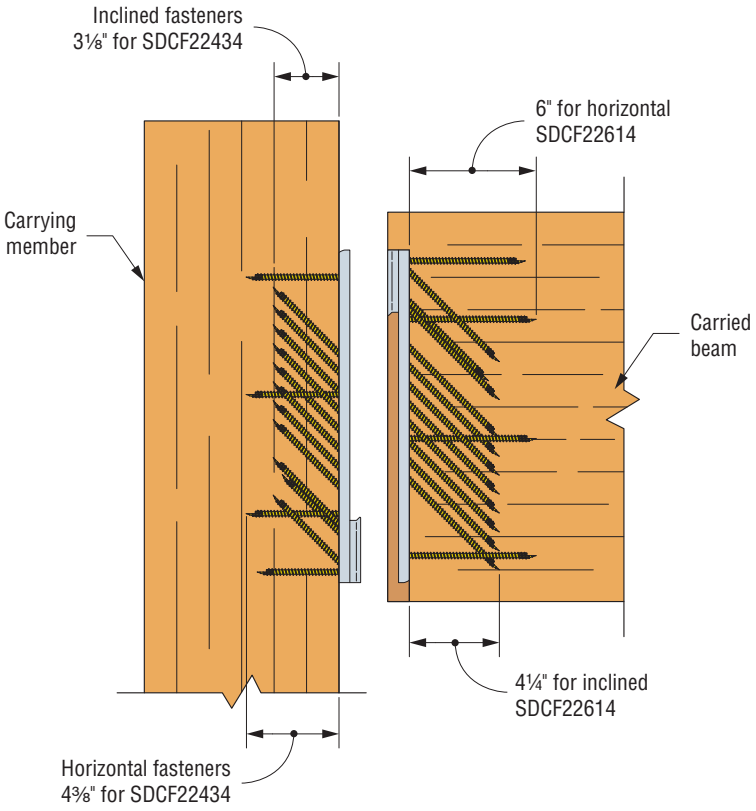


Beam to Steel Column Using SCBH3x15.37W-KT

Installation



SCBH3x15.37 Installation with SDWC15600 for Uplift Capacity



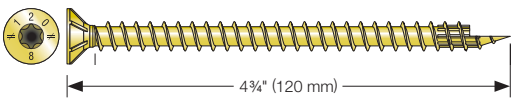
SCBH3x15.37 Side View with Screw Depths

Installation

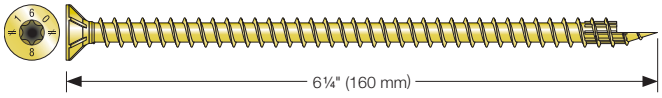
- Use all specified fasteners; install horizontal screws first, then inclined screws.
- Centerline notch at the top of the part can be used to help locate the connector on the wood member.
- Do not overdrive SDCF screws during installation of fasteners. Predrilling lead holes for the SDCF screws is recommended if wood members tend to split or if driving the SDCF fasteners at the proper angle is difficult due to wood grain resistance. Predrilled holes for the SDCF screws shall be 3⁄16" diameter maximum.
- Rout carried and/or carrying member according to application needs. The minimum recommended rout width and length is 1⁄16" larger than the tabulated part dimensions. The recommended corner radius is ⅜" (10 mm). The backplates must seat flush against the surfaces to which they are being fastened.
- A ⅛" minimum to ¼" maximum gap is recommended between the carried and carrying members to prevent binding between beam end and carrying member during field assembly.
- When attaching to glulam members in end grain, members with multiple piece laminations across the width must have no gap between edge joints to achieve table load capacities.
- Welding of SCBH™-W backplate to steel supports shall be performed by qualified welders.

Product Information

Ordering SKU	Description	Quantity
SCBH3X15.37-KT (wood-wood connection kit)	(2) SCBH3x15.37 backplates (24) SDCF22614 screws (24) SDCF22434 screws	1
SCBH3X15.37W-KT (wood-steel connection kit)	(1) SCBH3x15.37 backplate (1) SCBH3x15.37W backplate (24) SDCF22614 screws	1



SDCF22434 – Strong-Drive® SDCF TIMBER-CF Screw



SDCF22614 – Strong-Drive SDCF TIMBER-CF Screw

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