Concealed Beam Hangers (End Grain)

Computer modeling and CNC manufacturing enable glulam beams to be delivered to the jobsite in precise lengths and with preinstalled concealed hangers. The CBH and ACBH are concealed end-grain beam hangers specifically designed for such applications. The connector backplates slide together for fast assembly on-site and the concealed design provides a wood-only aesthetic and fire protection. Both the CBH and ACBH have been tested for inter-story drift and have achieved one-hour and two-hour fire resistance ratings according to ASTM E119.

Material: CBH — 3 gauge;
ACBH — ASTM B221 6061-T6 Aluminum

Finish: CBH — Electrogalvanized or HDG;
ACBH — None

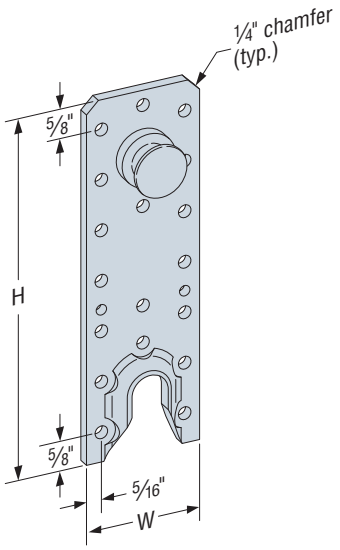
Installation:

- Use all specified fasteners; see General Notes
- ACBH is recommended for dry-service applications only

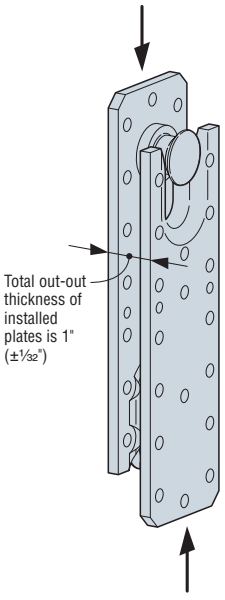
Codes: ICC-ES ESR-2552

Seismic Deformation Compatibility Testing: Recommended for use at beam-to-beam connections in any Seismic Design Category. For recommendations at beam-to-column connections, see engineering letters L-C-ACBHDRIFT and L-C-CBHDRIFT at **strongtie.com**.

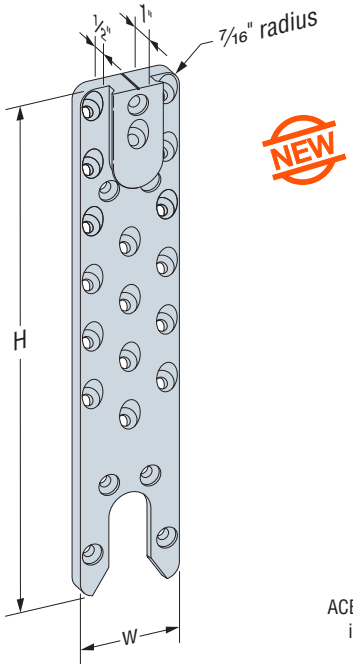
For additional information, including installation instructions, lateral loads and ordering information, see **strongtie.com**.



CBH2.37x7.63
(CBH2.37x5.5, CBH2.37x9.75 similar)

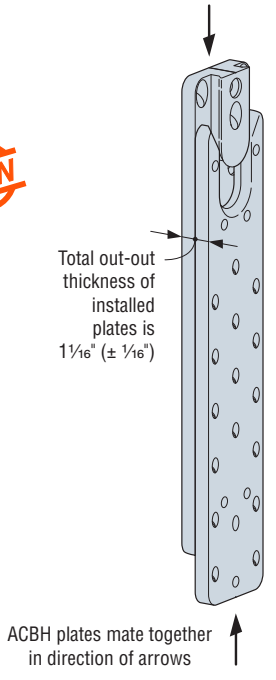


Assembly Thickness and Fit-Up Tolerance



NEW

ACBH3x15.37



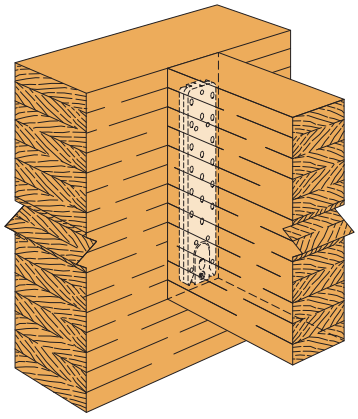
Assembly Thickness and Fit-Up Tolerance

Concealed Beam Hangers (End Grain) (cont.)

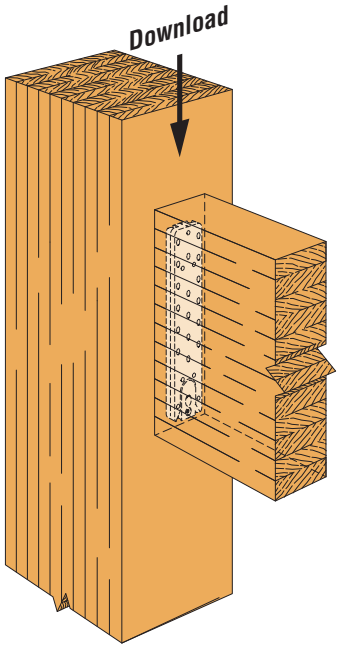
Allowable Downloads

Model No.	Dimensions (in.)		Fasteners		Allowable Downloads							Code Ref.
	Width	Height	Supported Beam	Supporting Column or Beam	Configuration	DF/SP			SPF/HF			
				Straight/ Inclined		Floor (100)	Snow (115)	Roof (125)	Floor (100)	Snow (115)	Roof (125)	
ACBH3x15.37	3	15⅝	(24) SDCF22614	(7) SDCF22434/ (17) SDCF22434	Beam to Column	19,815	19,815	19,815	13,635	15,680	17,045	IBC®
					Beam to Beam	14,820	17,040	18,525	13,305	15,200	16,630	
				(7) SDCF22434/ (17) SDCF22614	Beam to Column	19,815	19,815	19,815	14,095	16,210	17,200	
					Beam to Beam	18,420	19,815	19,815	14,095	16,210	17,200	
				(7) SDCF22614/ (17) SDCF22614	Beam to Column	20,050	20,575	20,575	14,095	16,210	17,620	
					Beam to Beam	19,555	20,575	20,575	14,095	16,210	17,620	
CBH2.37x5.5	2⅜	5½	(13) SDS25600	(13) SDS25300	Beam to Beam	5,045	5,045	5,045	3,900	4,320	4,320	
				(13) SDS25600	Beam to Column	5,460	5,700	5,700	3,900	4,485	4,485	
CBH2.37x7.63	2⅜	7⅝	(18) SDS25600	(18) SDS25300	Beam to Beam	6,790	6,790	6,790	5,400	5,815	5,815	
				(18) SDS25600	Beam to Column	6,925	6,925	6,925	5,400	5,930	5,930	
CBH2.37x9.75	2⅜	9¾	(23) SDS25600	(23) SDS25300	Beam to Beam	9,175	9,175	9,175	6,900	7,855	7,855	
				(23) SDS25600	Beam to Column	9,335	9,335	9,335	6,900	7,935	7,935	

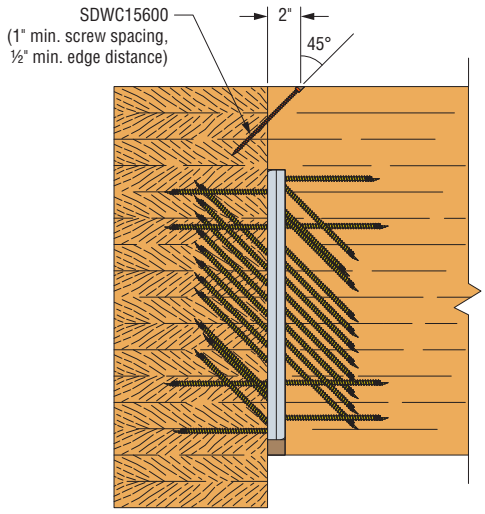
1. Table loads for ACBH are for e_{side} > 1 5/16". For 1⅛" < e_{side} < 1 5/16", multiply allowable load by 0.93.
2. Table loads for CBH are for e_{side} ≥ 1 3/16". For 9/16" < e_{side} < 1 3/16", refer to engineering letter L-C-CBH4XSKEW at **strongtie.com**. For the CBH installed centered on a 3½" wide member, e_{side} = 9/16".
3. For installation of Simpson Strong-Tie Strong-Drive® SDWC15600 screws into the top of the beam for uplift: install screw at a 45° angle 2" from the end of the beam. Minimum spacing requiremens for SDWC15600 screws are ½" edge distance and 1" screw spacing when using multiple screws. Uplift capacity is 555 lbf for DF/SP and 485 lbf for SPF/HF per screw. Use multiple screws for additional uplift.
4. Allowables load for double connections are equivalent to the allowable load of one connection multiplied by 2.
5. CBH may be installed on supporting vertical columns using SDS ¼" x 3" screws with reduced download capacities. Beam to beam allowable download capacities apply.
6. **Fasteners:** SDCF22434 and SDCF22614 = 0.315" O.D. by 4¾" long and 6¼" long Strong-Drive SDCF Timber-CF™ screw, respectively. SDS25600 and SDS25300 are ¼" x 6" long and 3" long Strong-Drive SDS Heavy-Duty Connector screw, respectively. See pp. 23–24 for fastener information.



Beam to Beam
(ACBH shown, CBH similar)



Beam to Column
(ACBH shown, CBH similar)



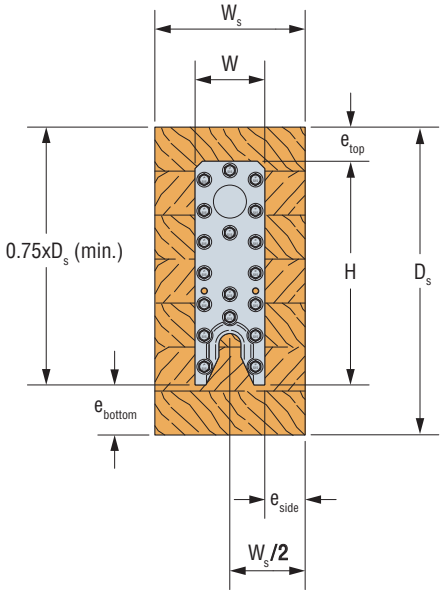
Installation with SDWC15600 for Uplift Capacity
(ACBH shown, CBH similar)

Concealed Beam Hangers (End Grain) (cont.)

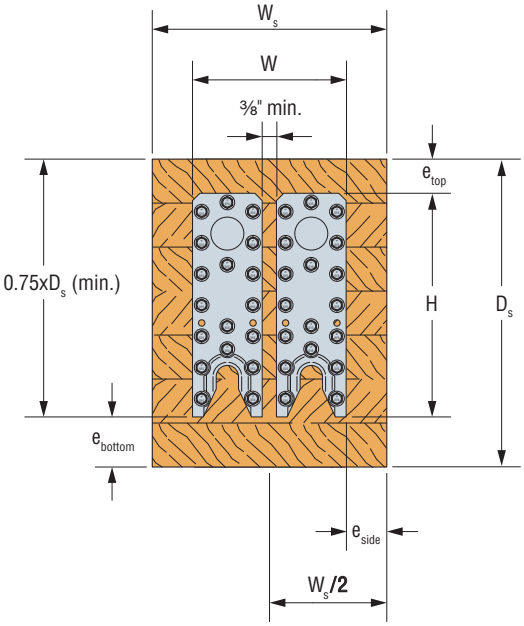
Connection Geometry Requirements

Model No.	Qty.	Configuration	Top of Beam Coverage	Minimum Carried Beam Sizes (in.)						Assembly Dimensions		Minimum Edge Distances (in.)						
				Considering Only Fastener Edge Distance		One-Hour Fire Resistance		Two-Hour Fire Resistance				Considering Only Fastener Edge Distance		One-Hour Fire		Two-Hour Fire		e_{top}
				W_s	D_s	W_s	D_s	W_s	D_s	W	H	e_{side}	e_{bottom}	e_{side}	e_{bottom}	e_{side}	e_{bottom}	
CBH2.37x5.5	1	Single	Full coverage	4¾	7⁹⁄₁₆	6¾	8⅞	9¾	10⅜	2⅜	5½	1³⁄₁₆	⅞	2³⁄₁₆	2³⁄₁₆	3¹¹⁄₁₆	3¹¹⁄₁₆	1³⁄₁₆
CBH2.37x7.63				4¾	9¹¹⁄₁₆	6¾	11	9¾	12½	2⅜	7⅝	1³⁄₁₆	⅞	2³⁄₁₆	2³⁄₁₆	3¹¹⁄₁₆	3¹¹⁄₁₆	1³⁄₁₆
CBH2.37x9.75				4¾	11 ¹³⁄₁₆	6¾	13⅛	9¾	14⅝	2⅜	9¾	1³⁄₁₆	⅞	2³⁄₁₆	2³⁄₁₆	3¹¹⁄₁₆	3¹¹⁄₁₆	1³⁄₁₆
NEW ACBH3x15.37				5⅛	18	6¾	19	10¼	20¾	3	15⅜	1 ¹⁄₁₆	⅞	1⅞	1⅞	3⅝	3⅝	1¾
CBH2.37x5.5	2	Double		7½	7⁹⁄₁₆	8¾	8½	11½	9⅞	5⅛	5½	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆
CBH2.37x7.63				7½	9¹¹⁄₁₆	8¾	10⅝	11½	12	5⅛	7⅝	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆
CBH2.37x9.75				7½	11 ¹³⁄₁₆	8¾	12¾	11½	14⅛	5⅛	9¾	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆
NEW ACBH3x15.37				8⅝	18	10¼	19½	12¼	21	6½	15⅜	1 ¹⁄₁₆	⅞	1⅞	2⅜	2⅞	3⅞	1¾
CBH2.37x5.5	2	Double stacked		6½	13 ¹⁄₁₆	7¾	14	10½	15⅜	4⅛	11	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆
CBH 2.37x7.63				6½	17⁵⁄₁₆	7¾	18¼	10½	19⅝	4⅛	15¼	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆
CBH2.37x9.75				6½	21⁹⁄₁₆	7¾	22½	10½	23⅞	4⅛	19½	1³⁄₁₆	⅞	1 ¹³⁄₁₆	1 ¹³⁄₁₆	3³⁄₁₆	3³⁄₁₆	1³⁄₁₆

1. Side edge distances for supporting vertical columns must meet or exceed the e_{side} table values for the supported beam.
   CBH: for conditions where fire resistance need not be considered and ⁹⁄₁₆" < e_{side} < 1³⁄₁₆", refer to engineering letter L-C-CBH4XSKEW at **strongtie.com**.
   ACBH: for 1 ¹⁄₁₆" ≤ e_{side} < 1⁵⁄₁₆", see footnotes of the Allowable Download table on p. 151 for allowable load reduction.
2. Side edge distances for supporting vertical columns must meet or exceed the e_{side} table values for the supported beam.
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 allowable 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. Full coverage for the top of beam is for conditions where 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 with the top of the carried beam being 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".

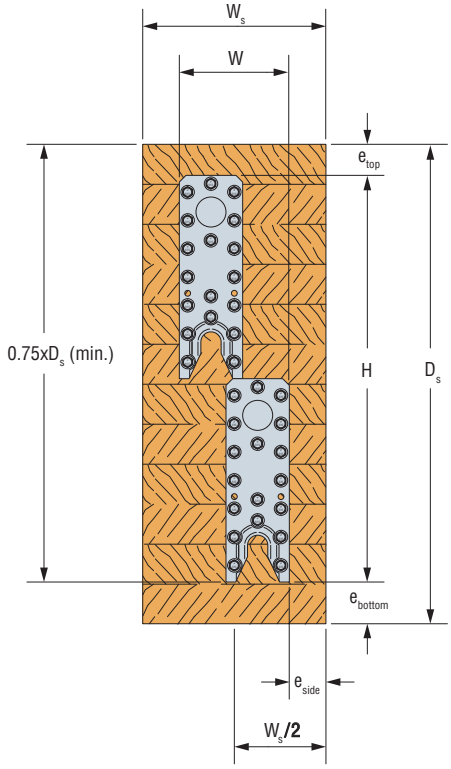


Single CBH on Carried Beam



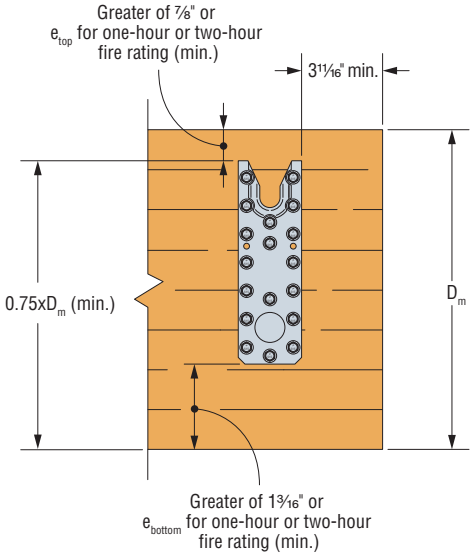
Double CBH on Carried Beam

Concealed Beam Hangers (End Grain) (cont.)

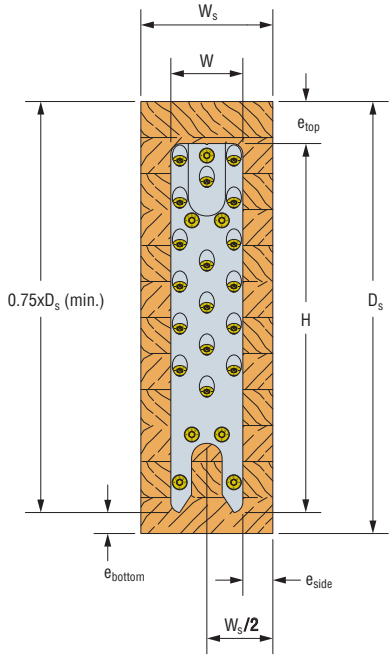


Double CBH Stacked on Carried Beam

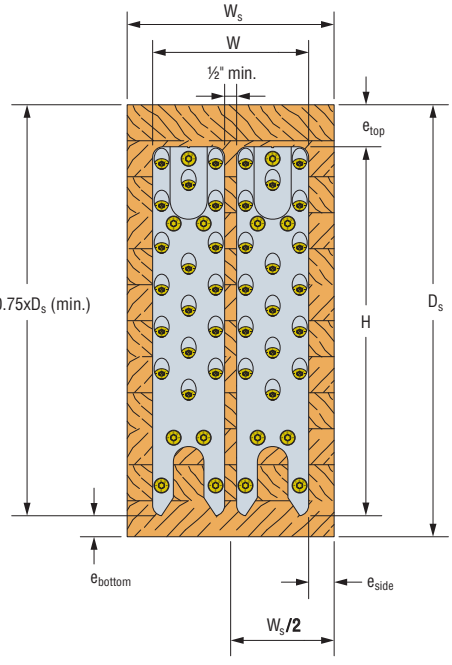
NOTE: Where connection geometry requirements of 0.75xD_s or 0.75D_m cannot be met, it is recommended to reinforce the beam with fully threaded screws based on guidance in TEB-F-SDCFRINF.



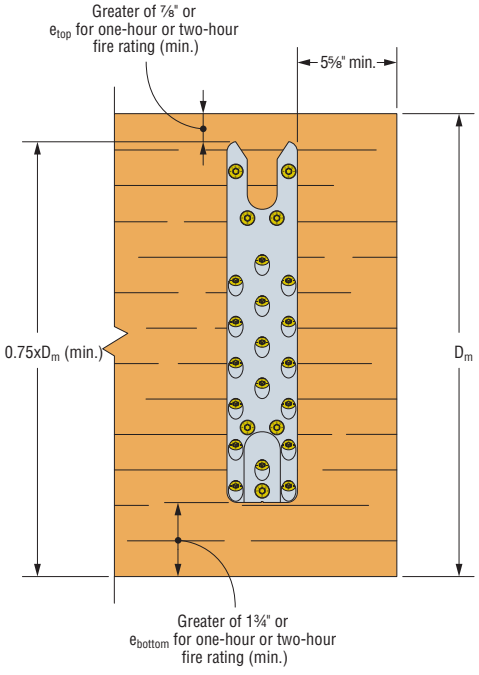
Single CBH on Carrying Beam



Single ACBH on Carried Beam



Double ACBH on Carried Beam



Single ACBH on Carrying Beam