

FCB Bypass Framing Fixed-Clip Connector



This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

The FCB clip is an economical, high-performance fixed-clip connector that can be used for a variety of framing applications. It is rated for tension, compression, shear and in-plane loads and offers the designer the flexibility of specifying different screw and anchorage patterns that conform to desired load levels.

Features:

- Rated for tension, compression, shear and in-plane loads
- Provides design flexibility with varying screw and anchorage patterns that achieve different load levels
- Strategically placed stiffeners, embossments and anchor holes maximize connector performance

Material: 54 mil (16 ga.)

Finish: Galvanized (G90)

Installation:

- Use the specified type and number of anchors.
- Use the specified number of #12 self-drilling screws to CFS framing. Note that #10 self-drilling screws can be used per the load tables given on strongtie.com.

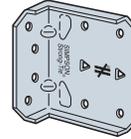
Codes: See p. 11 for Code Reference Key Chart

Ordering Information:

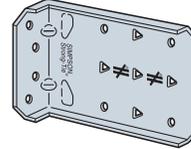
FCB43.5-R25, FCB45.5-R25, FCB47.5-R25, FCB49.5-R25, and FCB411.5-R25 contain:

- Box of 25 connectors (screws not included)

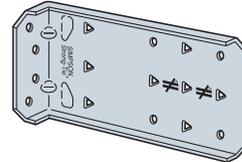
✓ FCB43.5



✓ FCB45.5

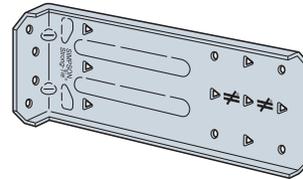


✓ FCB47.5

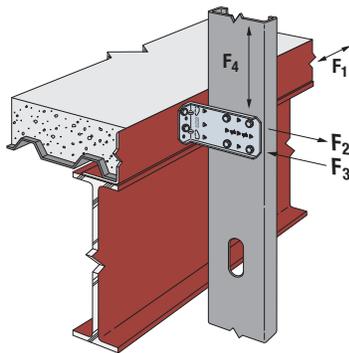
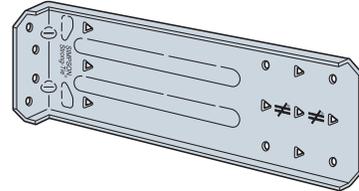


US Patent
8,555,592

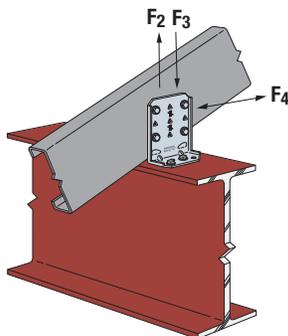
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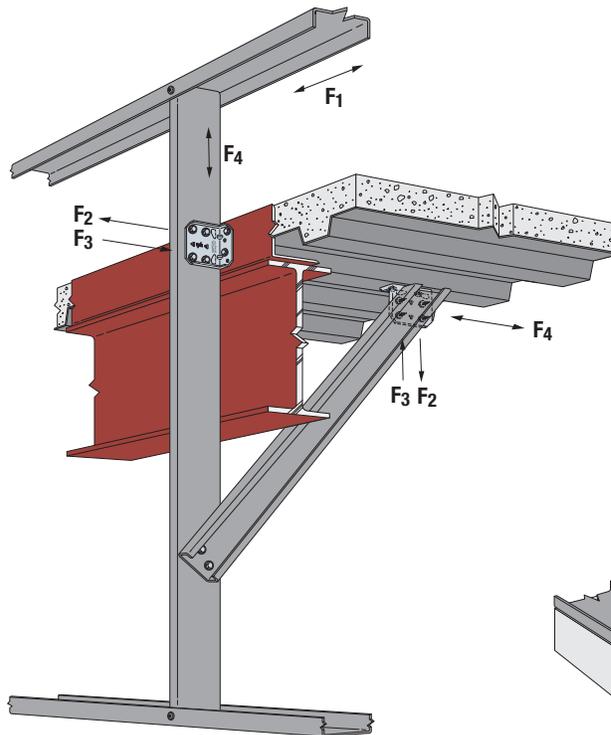
✓ FCB411.5



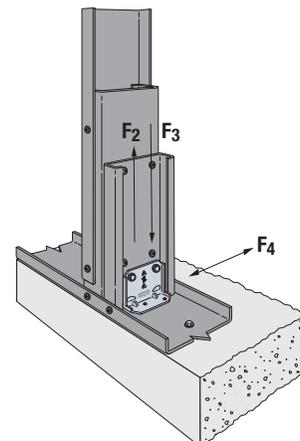
Typical FCB Installation at Bypass Framing



Typical FCB Installation for Roof Rafters



Typical FCB Installation at Sprandrel Studs and Kickers



Typical FCB Installation at the Base of a 6" Jamb Stud

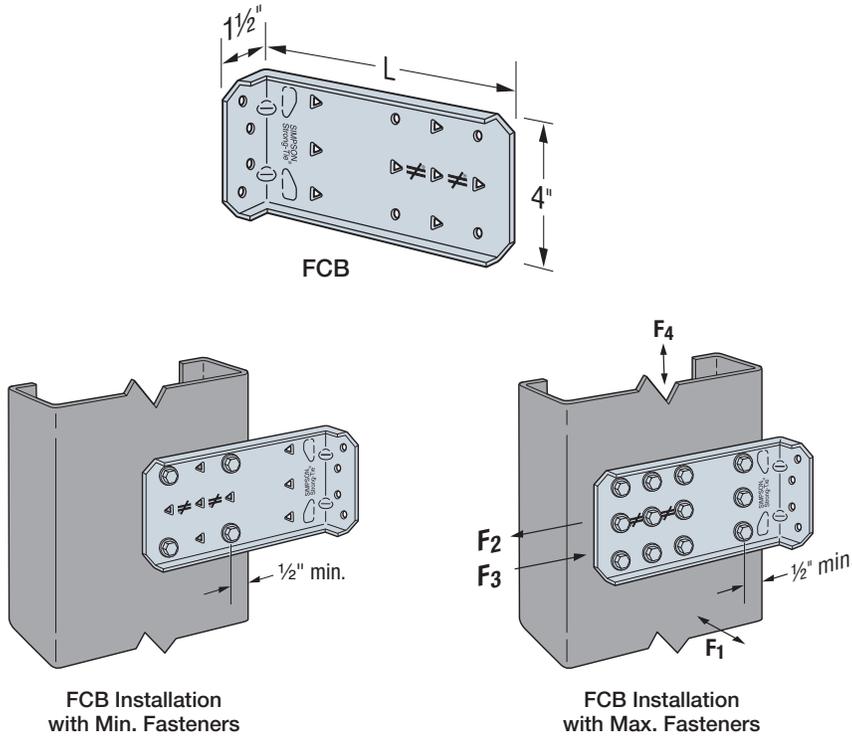
FCB Bypass Framing Fixed-Clip Connector

Rigid Connectors

FCB Allowable Connector Loads (lb.)

Model No.	Connector Material Thickness mil (ga.)	L (in.)	Min./Max.	No. of #12-14 Self-Drilling Screws ⁵	Stud Thickness												Code Ref.				
					33 mil (20 ga.)				43 mil (18 ga.)				54 mil (16 ga.)								
					F ₁ ^{3,4}	F ₂ ²	F ₃ ²	F ₄ ²	F ₁ ^{3,4}	F ₂ ²	F ₃ ²	F ₄ ²	F ₁ ^{3,4}	F ₂ ²	F ₃ ²	F ₄ ²					
FCB43.5	54 (16)	3½	Min.	4	135	755	755	755	205	1,105	975	1,120	345	1,250	975	1,490	IBC, FL, LA				
			Max.	6	205	1,100	1,130	1,130	265	1,105	1,260	1,455	345	1,250	1,735	1,910					
FCB45.5	54 (16)	5½	Min.	4	120	755	755	755	180	1,105	975	945	345	1,105	975	1,325		IBC, FL, LA			
			Max.	9	155	1,100	1,260	1,180	210	1,105	1,260	1,485	345	1,105	1,735	1,925					
FCB47.5	54 (16)	7½	Min.	4	90	755	755	220	135	1,105	945	330	260	1,105	945	365			IBC, FL, LA		
			Max.	12	205	1,100	1,260	705	265	1,105	1,260	1,050	345	1,105	1,735	1,445					
FCB49.5	54 (16)	9½	Min.	4	90	755	755	170	110	1,105	945	255	110	1,105	945	365				IBC, FL, LA	
			Max.	12	205	1,100	1,260	750	265	1,105	1,260	1,115	345	1,105	1,735	1,200					
FCB411.5	54 (16)	11½	Min.	4	90	755	755	140	90	1,105	920	205	90	1,105	920	365					IBC, FL, LA
			Max.	12	205	1,100	1,260	795	265	1,105	1,260	860	345	1,105	1,735	860					

1. Min. fastener quantity and load values — fill all round holes; max. fastener quantity and load values — fill all round and triangular holes.
2. Allowable loads are based on clip capacity only and do not consider anchorage. The capacity of the connection system will be the minimum of the tabulated value and the allowable load from the FCB Allowable Anchorage Loads table on p. 65.
3. Anchorage to the supporting structure using welds or a minimum of (2) #12-24 self-drilling screws is required.
4. Tabulated F₁ loads are based on assembly tests with the load through the centerline of stud. Tested failure modes were due to screw pullout; therefore compare F₁ against F_p calculated per ASCE 7-10 Chapter 13 with a_p = 1.25 and R_p = 1.0.

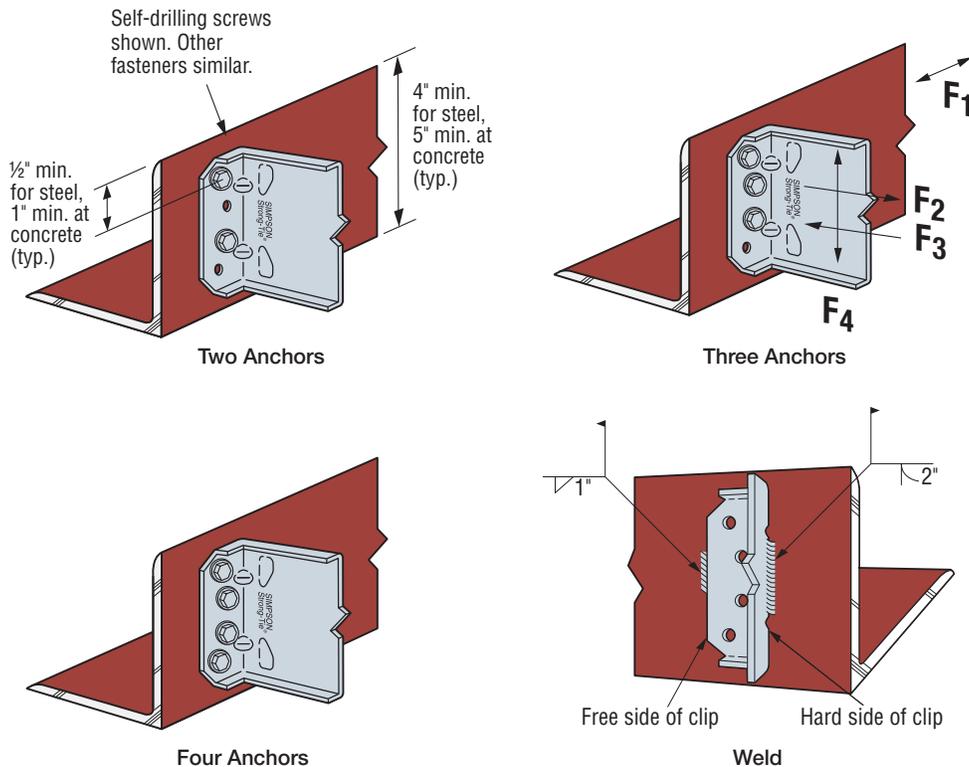


FCB Bypass Framing Fixed-Clip Connector

FCB Allowable Anchorage Loads

Anchorage Type	Minimum Base Material	No. of Anchors	Allowable Load (lb.)								
			F ₂ and F ₃	F ₄						Min.	Max.
				FCB43.5	FCB45.5	FCB47.5		FCB49.5			
Min./Max.	Min./Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
#12–24 self-drilling screws Simpson Strong-Tie® X and XL Metal screws	A36 steel 3/16" thick	2	1,115	625	410	255	445	185	265	120	190
		3	1,645	690	450	280	490	200	295	135	210
		4	2,230	1,255	820	365	890	355	535	275	380
Simpson Strong-Tie 0.157" x 5/8" power-actuated fasteners PDPAT-62KP	A36 steel 3/16" thick	2	390	410	265	165	290	120	175	75	125
		3	715	465	305	190	330	135	195	85	140
		4	970	840	550	340	595	245	355	145	255
Simpson Strong-Tie 0.157" x 5/8" power-actuated fasteners PDPAT-62KP	A572 or A992 steel 3/16" thick	2	585	410	265	165	290	120	175	75	125
		3	800	465	305	190	330	135	195	85	140
		4	1,170	840	550	340	595	245	355	145	255
Simpson Strong-Tie 1/4" x 1 3/4" Titen® 2 TTN25134H	Concrete f' _c = 2,500 psi	2	380	415	315	195	315	140	205	140	150
		3	525	470	470	290	470	210	305	210	225
		4	675	645	630	390	630	280	410	280	300
Weld E70XX electrodes	A36 steel 3/16" thick	Hard side: 2"	1,735	1,910	1,925	365	1,445	365	1,200	365	860
		Free side: 1"									

1. Min. fastener quantity and load values — fill all round holes; max. fastener quantity and load values — fill all round and triangular holes.
2. For additional important information, see General Information and Notes on p. 22.
3. Allowable loads are for clip anchorage only. The capacity of the connection system will be the minimum of the tabulated allowable anchorage loads the allowable load from the FCB Allowable Connector Load table on p. 64.
4. Allowable loads for #12–24 self-drilling screws and PDPAT powder-actuated fasteners are based on installation in minimum 3/16"-thick structural steel with F_y = 36 ksi. PDPAT values are also provided for A572 steel. Values listed above maybe used where other thicknesses of steel are encountered or other manufacturers are used, provided that the fastener has equal or better tested values (see p. 22). It is the responsibility of the designer to select the proper length fasteners based on the steel thickness installation.
5. For screw fastener installation into steel backed by concrete, predrilling of both the steel and the concrete is suggested. For predrilling use a maximum 3/16"-diameter drill bit.

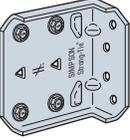
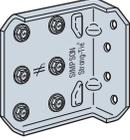
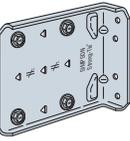
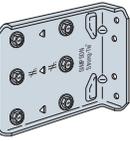
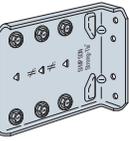
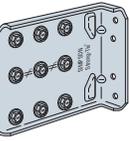
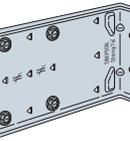
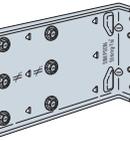
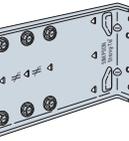
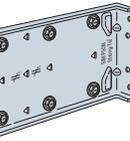
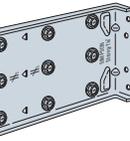
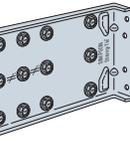
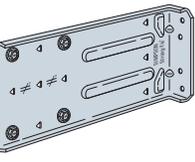
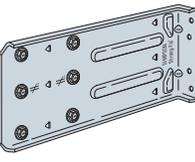
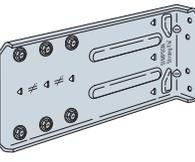
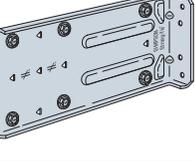
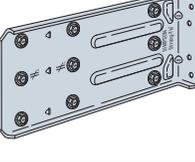
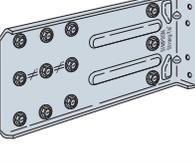
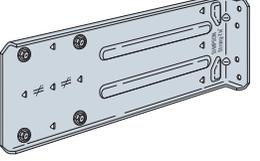
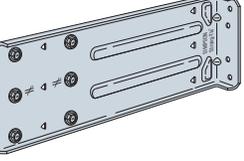
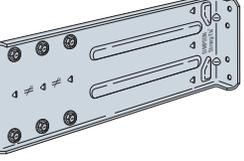


FCB Anchor Layout

FCB Supplemental Information

The following FCB supplemental information is given to help designers with value-engineered solutions for our FCB connectors. Loads are given on our website for fastener patterns other than our standard “min.” (fill all round holes) and “max.” (fill all round and triangle holes). In addition, the tables on the website give LRFD loads and loads for #10 screws as well as #12 screws. Please visit strongtie.com/cfs and reference FCB clip.

Table 1: FCB Screw Patterns

FCB43.5	Pattern “Min.”	Pattern “Max.”	For load capacities for patterns 1 through 10, refer to FCB clip on strongtie.com .			
						
FCB45.5	Pattern “Min.”	Pattern 1	Pattern 2	Pattern “Max.”		
						
FCB47.5	Pattern “Min.”	Pattern 3	Pattern 4	Pattern 5	Pattern 6	Pattern “Max.”
						
FCB49.5	Pattern “Min.”		Pattern 7		Pattern 8	
						
FCB49.5	Pattern 9		Pattern 10		Pattern “Max.”	
						
FCB411.5	Pattern “Min.”		Pattern 11		Pattern 12	
						
FCB411.5	Pattern 13		Pattern 14		Pattern “Max.”	
	