

LTT/HTT

Tension Ties

Holdowns and
Tension Ties

Tension ties offer a solution for resisting tension loads that are fastened with nails or Strong-Drive® SD Connector screws. The new LTTP2 light tension tie, designed for wood joist attachments to concrete or masonry walls, features two separate nailing patterns: obround holes spaced 3" apart for I-joist purlins and square holes spaced to accommodate the narrow face of 2x solid-sawn purlins. LTTP2 may also be installed vertically on the wide face of a minimum 2x4 stud for holddown application. It features an extruded anchor bolt hole to accommodate 3/4", 5/8" and 1/2" bolt diameters.

The LTTI31 is designed for wood chord open-web truss attachments to concrete or masonry walls and may also be installed vertically on a minimum 2x6 stud.

The HTT4 and HTT5 tension ties feature an optimized nailing pattern which results in better performance with less deflection. HTT5KT is sold as a kit with the holddown, bearing plate washer and Strong-Drive SD Connector screws.

The HTT5-3/4 is designed to use a 3/4"-diameter anchor bolt.

When using LTT or HTT tension ties with unreinforced concrete masonry, 3/4" post-installed anchor bolts are commonly used.

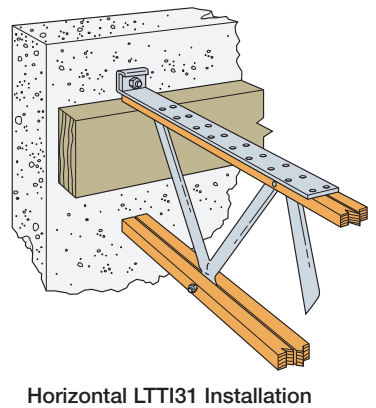
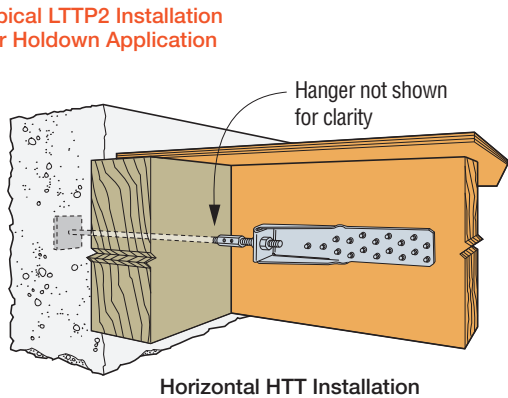
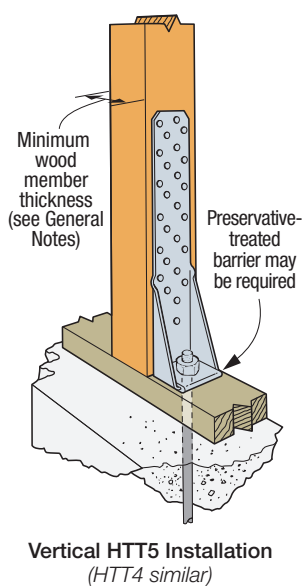
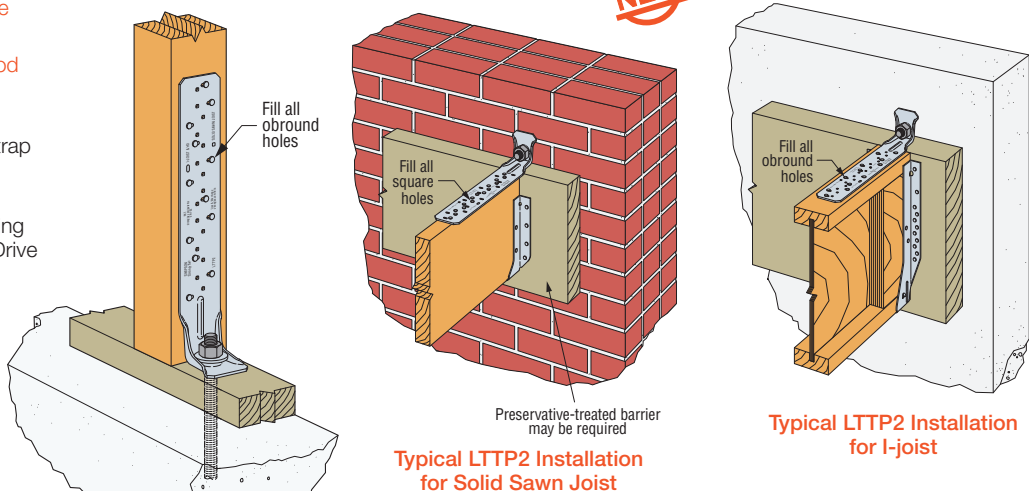
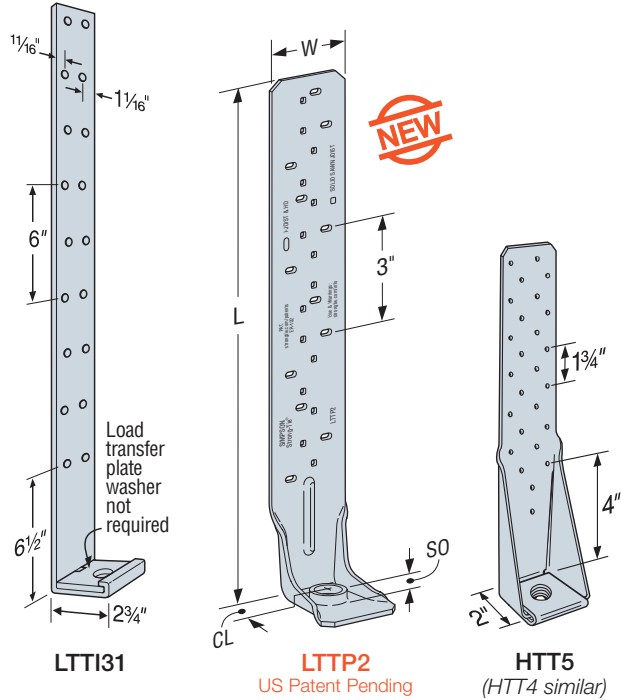
Material: See table

Finish: Galvanized. May be ordered HDG; contact Simpson Strong-Tie.

Installation:

- See Holddown and Tension Tie General Notes on pp. 49–50.
- LTTP2 — one standard cut-washer is required when using 1/2" and 5/8" anchor bolts; and no additional washer is required for 3/4" anchor bolts.
- LTTP2 — For installations on narrow edge of solid sawn (2x, 3x) joists use (15) square holes; for all other installations use (12) obround holes.
- For tension ties installed over wood structural panel sheathing, use a 2 1/2"-long fastener minimum.
- For information about marriage strap at panelized roof applications, see strongtie.com.
- HTT5-KT requires BP 5/8-2 bearing plate and #10 x 2 1/2" SD Strong-Drive screws (included in kit).

Codes: See p. 11 for Code Reference Key Chart



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LTT/HTT

Tension Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 14.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 348–352 for more information.

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Model No.	Ga.	Dimensions (in.)			SO (in.)	Fasteners (in.)		Minimum Wood Member Size (in.)	Allowable Tension Loads (160)		Deflection at Highest Allowable Load (in.)	Code Ref.
		W	L	CL		Anchor Rod Diameter	Wood Fasteners		DF/SP	SPF/HF		
LTT2	10	2 3/16	14 15/16	1 1/8	7/16	1/2, 5/8, 3/4	(15) 0.148 x 2 1/2	1 1/2 x 3 1/2 (narrow edge) ^{4,5}	1,845	1,695	0.104	IBC, FL, LA
						1/2	(12) 0.148 x 1 1/2	1 1/2 x 3 1/2	1,680 ⁶	1,545 ⁶	0.138	
						5/8, 3/4	(12) #9 x 1 1/2" SD	1 1/2 x 3 1/2	2,135	1,965	0.112	
						1/2			2,320	1,970	0.112	
						5/8, 3/4			2,570	2,045	0.136	
						1/2, 5/8, 3/4	(12) 0.148 x 2 1/2	3 x 3 1/2	2,275	2,230	0.128	
LTTI31	18	3 3/4	31	1 3/8	1/4	5/8	(18) 0.148 x 1 1/2	3 x 3 1/2	1,350	1,160	0.193	
HTT4	11	2 1/2	12 3/8	1 5/16	7/16	5/8	(18) 0.148 x 1 1/2	1 1/2 x 3 1/2	3,000	2,580	0.090	—
							(18) 0.148 x 1 1/2	3 x 3 1/2	3,610	3,105	0.086	IBC, FL, LA
							(18) 0.162 x 2 1/2	3 x 3 1/2	4,235	3,640	0.123	—
							(18) #10 x 1 1/2" SD	1 1/2 x 5 1/2	4,455	3,830	0.112	—
						(18) #10 x 1 1/2" SD	3 x 3 1/2	4,455	3,830	0.112	—	
HTT5	11	2 1/2	16	1 3/8	7/16	5/8	(26) 0.148 x 1 1/2	3 x 3 1/2	4,350	3,740	0.120	IBC, FL, LA
							(26) 0.148 x 3	3 x 3 1/2	4,670	4,015	0.116	
							(26) 0.162 x 2 1/2	3 x 3 1/2	5,090	4,375	0.135	
							(26) #10 x 1 1/2" SD	1 1/2 x 5 1/2	4,555	3,915	0.114	
HTT5KT	11	2 1/2	16	1 3/8	7/16	5/8	(26) #10 x 2 1/2" SD	3 x 3 1/2	5,445	5,360	0.103	—
HTT5-3/4	11	2 1/2	16	1 3/8	7/16	3/4	(26) 0.148 x 1 1/2	1 1/2 x 5 1/2	4,065	3,495	0.103	IBC, FL
							(26) 0.162 x 2 1/2	3 x 3 1/2	5,090	4,375	0.121	
							(26) #10 x 1 1/2" SD	1 1/2 x 7 1/4	4,830	4,155	0.100	

- LTTI31 installed flush with concrete or masonry has an allowable load of 2,285 lb.
- Allowable load for HTT5 with a BP5/8-2 bearing-plate washer installed in the seat of the holdown is 5,295 lb. for DF/SP and 4,555 lb. for SPF/HF.
- For LTT2, standard cut washer is required when using 1/2" and 5/8" anchor rods.
- For (15) nail installations on narrow edge of 2x4 (minimum) joist, LTT2 installed flush with concrete or masonry has an allowable load of 2,560 lb. for DF/SP and 2,355 lb. for SPF/HF.
- LTT2 installed with (15) #9 x 1 1/2" SD screws on narrow edge of 2x joist has an allowable load of 2,105 lb. for DF/SP and 1,935 lb. for SPF/HF.
- For (12) nail installations on I-joist or wide face of 2x member, LTT2 installed flush with concrete or masonry has an allowable load of 1,950 lb. for DF/SP and 1,795 lb. for SPF/HF.
- Fasteners:** Nail dimensions are listed diameter by length. SD screws are Simpson Strong-Tie® Strong-Drive SD Connector screws. See pp. 21–22 for fastener information.

Table 1 — Anchorage Selection Guide for Holdowns Attached to DF/SP Lumber

Holdown on DF/SP Lumber	Stemwall Width (in.)	Stemwall				Slab on Grade			
		Wind and Seismic Design Category A&B		Seismic Design Category C-F		Wind and Seismic Design Category A&B		Seismic Design Category C-F	
		Midwall/Corner	End Wall	Midwall/Corner	End Wall	Midwall/Corner	Garage Curb	Midwall/Corner	Garage Curb
HDU2	6	SSTB16		SSTB24		SSTB16		SSTB16	
HDU4	6	SB5/8X24		SB5/8X24		SSTB16	SB5/8X24	SSTB20	SB5/8X24
HDU5	6	SB5/8X24		SB5/8X24		SSTB20	SB5/8X24	SSTB24	SB5/8X24

Table 2 — Anchorage Selection Guide for Holdowns Attached to SPF/HF Lumber

Holdown on SPF/HF Lumber	Stemwall Width (in.)	Stemwall				Slab on Grade			
		Wind and Seismic Design Category A&B		Seismic Design Category C-F		Wind and Seismic Design Category A&B		Seismic Design Category C-F	
		Midwall/Corner	End Wall	Midwall/Corner	End Wall	Midwall/Corner	Garage Curb	Midwall/Corner	Garage Curb
LTT2	6	SSTB16		SSTB16		SSTB16		SSTB16	
LTTI31	6	SSTB16		SSTB24		SSTB16		SSTB16	
HTI4	6	SSTB24* (4.295)		SB5/8X24		SSTB16	SSTB24* (4.295)	SSTB20	SB5/8X24
HTI5	8	SSTB28		SSTB28		SSTB28	SSTB28* (6.395)	SSTB28	SSTB28
HD38	8	SSTB28		SSTB28		SSTB28	SSTB28* (6.395)	SSTB28	SSTB28
HD58	8	SB1X30* (9.505)	PAB8	PAB8	PAB8	SB1X30		SB1X30	
HD7B	8	SB1X30	PAB8	PAB8	PAB8	SB1X30		SB1X30	
HD9B	—	PAB8		PAB8		SB1X30		SB1X30	
HD12	—	PAB8		PAB8		SB1X30		SB1X30	
LTT2	6	SSTB16		SSTB16		SSTB16		SSTB16	
LTTI31	6	SSTB16		SSTB24		SSTB16		SSTB16	
HTI4	6	SSTB20		SB5/8X24		SSTB16	SSTB20	SSTB16* (3.780)	SB5/8X24
HTI5	6	SB5/8X24		SB5/8X24		SSTB20	SB5/8X24	SSTB24	SB5/8X24

We've made selecting the right anchor bolt for the holdown easier. Check out our Holdown Anchorage Solutions table on p. 44 or the Post-to-Foundation Designer at app.strongtie.com/pfd.