

# LTT/HTT

## 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.

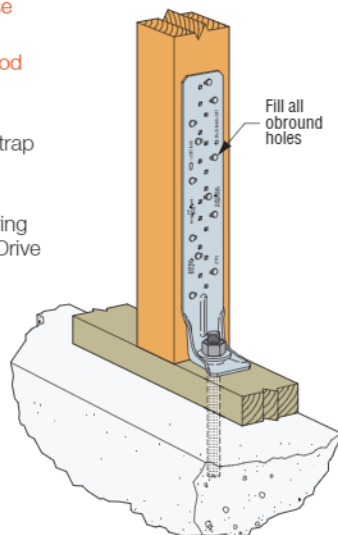
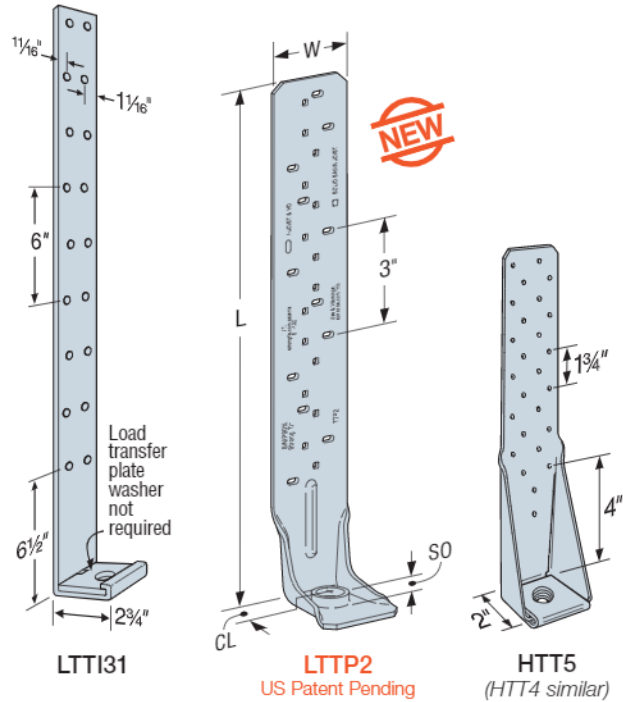
**Material:** See table

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

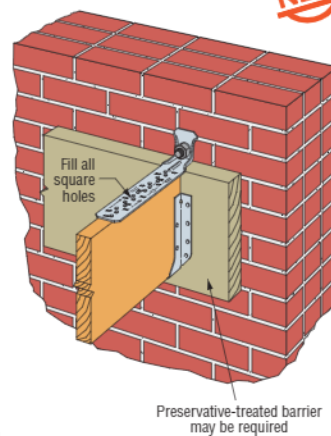
**Installation:**

- 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](http://strongtie.com).
- HTT5-KT requires BP 5/8-2 bearing plate and #10 x 2 1/2" SD Strong-Drive screws (included in kit).

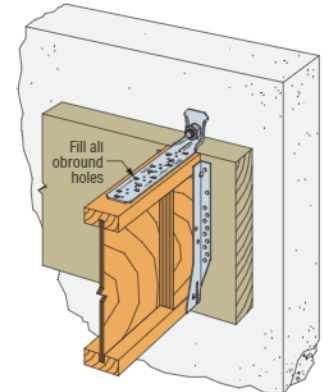
**Codes:** See p. 11 for Code Reference Key Chart



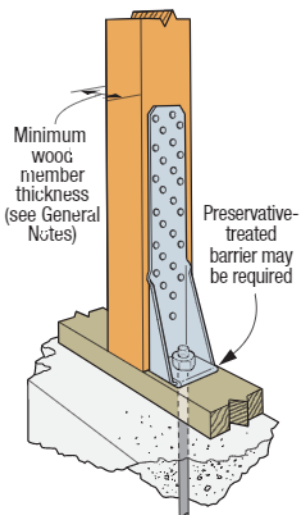
Typical LTTP2 Installation for Holddown Application



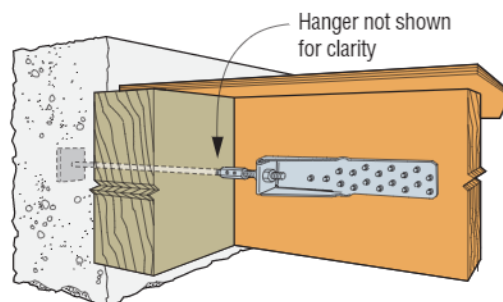
Typical LTTP2 Installation for Solid Sawn Joist



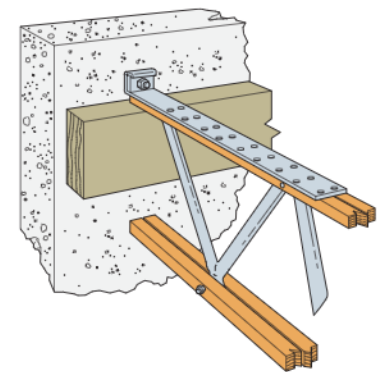
Typical LTTP2 Installation for I-joist



Vertical HTT5 Installation (HTT4 similar)



Horizontal HTT Installation



Horizontal LTTI31 Installation

# 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.

Model No.	Ga.	Dimensions (in.)			SO (in.)	Fasteners (in.)		Minimum Wood Membr. 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		
LTP2	10	2 3/16	14 15/16	1 3/8	7/16	1/2, 5/8, 3/4	(15) 0.148 x 2 1/2	1 1/2 x 3 1/2 (narrow edge) <sup>1,5</sup>	1,545	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	1,545 <sup>6</sup>	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	1,770	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	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	3,300	2,580	0.090	IBC, FL, LA
							(18) 0.148 x 1 1/2	3 x 3 1/2	3,610	3,105	0.086	
							(18) 0.162 x 2 1/2	3 x 3 1/2	4,235	3,640	0.123	
							(18) #10 x 1 1/2" SL	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 7/16	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 7/16	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 7/16	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 2 x 5/8 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 LTP2, 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, LTP2 installed flush with concrete or masonry has an allowable load of 2,560 lb. for DF/SP and 2,355 lb. for SPF/HF.
- LTP2 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, LTP2 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				Slab on Grade				
	Stemwall Width (in.)	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		SSTR24		SSTB16		SSTB16	SSTB20* (2,960)
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				Slab on Grade				
	Stemwall Width (in.)	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		SSTB16		SSTB16		SSTB16	
HDU4	6	SSTB16		SSTB24		SSTB16		SSTB16	SSTB24
HDU5	6	SSTB24* (4,295)		SB5/8X24		SSTB16	SSTB24* (4,295)	SSTB20	SB5/8X24
HDU8	8	SSTB28		SSTB28		SSTB28	SSTB28* (6,395)	SSTB28	SSTB28
HDQ8	8	SSTB28		SSTB28		SSTB28	SSTB28* (6,395)	SSTB28	SSTB28
HDU11	8	SB1X30* (9,505)	PAB8	PAB8		PAB8		SB1X30	SB1X30
HDQ11	8	SB1X30	PAB8	PAB8		PAB8		SB1X30	SB1X30
HDU14	—							SB1X30	SB1X30
HDQ14	—		PAB8		PAB8			SB1X30	SB1X30
LTP2	6		SSTB16		SSTB16		SSTB16		SSTB16
LTTI31	6		SSTB16		SSTB16		SSTB16		SSTB16
HTT4	6	SSTB20		SB5/8X24		SSTB16	SSTB20	SSTB16* (3,780)	SB5/8X24
HTT5	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](http://app.strongtie.com/pfd).