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 holdown application. It features an extruded anchor bolt hole to accommodate ¾", ⅝" and ½" bolt diameters.

The LTTI31 is designed for wood chord open-web truss attachments to concrete or masonry walls.

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 holdown, bearing plate washer and Strong-Drive SD Connector screws.

The HTT5-¾ is designed to use a ¾"-diameter anchor bolt.

When using LTT or HTT tension ties with unreinforced concrete masonry, ¾" post-installed anchor bolts are commonly used.

Material: See table

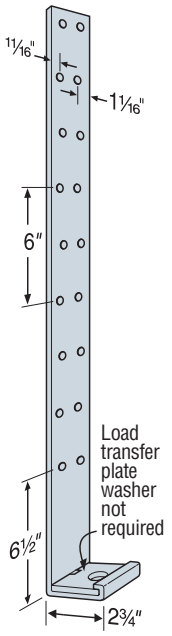
Finish: Galvanized. May be ordered HDG.

Installation:

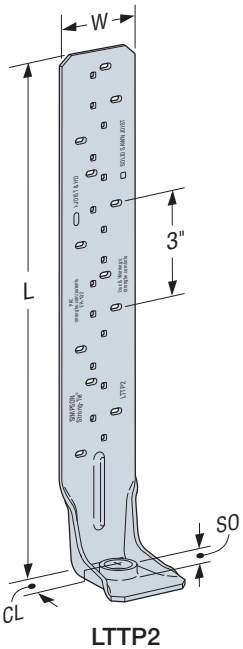
- See Holdown and Tension Tie General Notes on pp. 51–52.
- LTTP2 — one standard cut-washer is required when using ½" and ⅝" anchor bolts; and no additional washer is required for ¾" anchor bolts.
- LTTP2 — For installations on narrow edge of solid sawn (2x, 3x) joists use (15) square holes; for all other installations use (12) obround holes.
- For tension ties installed over wood structural panel sheathing, use a 2½"-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 2½" SD Strong-Drive screws (included in kit).

Codes: Codes: See p. 13 for Code Reference Key Chart

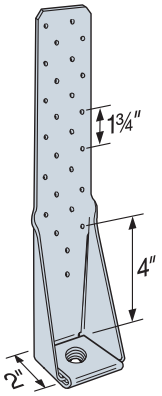
Web Applications: Visit **app.strongtie.com/pfd** to access our Post-to-Foundation Designer web application.



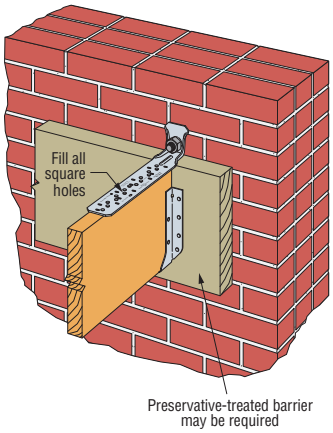
LTTI31



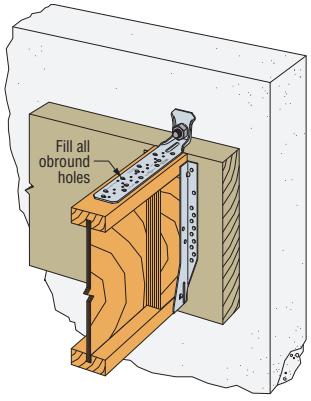
LTTP2
US Patent Pending



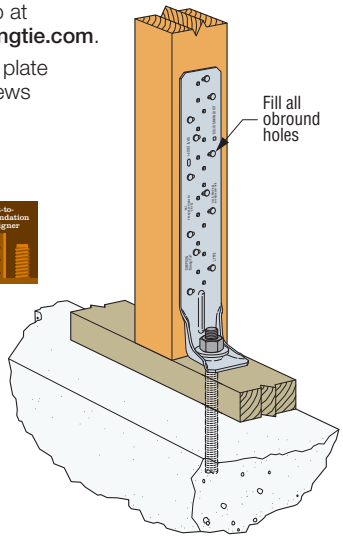
HTT5
(HTT4 similar)



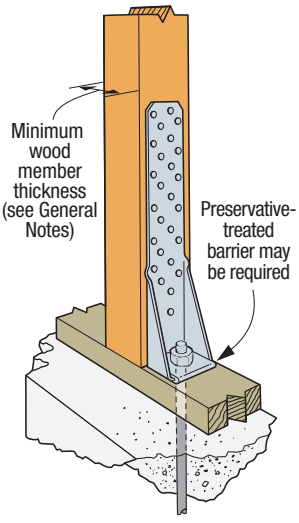
Typical LTTP2 Installation for Solid Sawn Joist



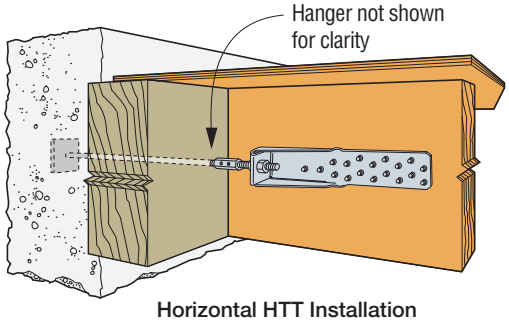
Typical LTTP2 Installation for I-joist



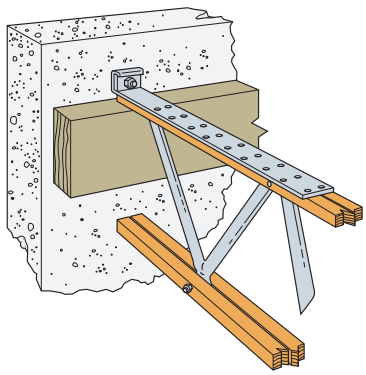
Typical LTTP2 Installation for Holdown Application



Vertical HTT5 Installation
(HTT4 similar)



Horizontal HTT Installation



Horizontal LTTI31 Installation

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Tension Ties (cont.)

These products are available with additional corrosion protection. For more information, see p. 16.

SD Many of these products are approved for installation with Strong-Drive® SD Connector screws. See pp. 362–366 for more information.

Model No.	Ga.	Dimensions (in.) W	L	CL	SO (in.)	Fasteners (in.) Anchor Rod Diameter	Wood Fasteners	Minimum Wood Member Size (in.)	Allowable Tension Loads (160) DF/SP	SPF/HF	Deflection at Highest Allowable Load (in.)	Code Ref.
LTTP2	10	2⁹⁄₁₆	14¹⁵⁄₁₆	1⅛	7⁄16	½, ⅝, ¾	(15) 0.148 x 2½	1½ x 3½ (narrow edge)[4,5]	1,845	1,695	0.104	IBC®, FL, LA
						½	(12) 0.148 x 1½	1½ x 3½	1,680[6]	1,545[6]	0.138	
						⅝, ¾			2,135	1,965	0.112	
						½	(12) #9 x 1½" SD	1½ x 3½	2,320	1,970	0.112	
						⅝, ¾			2,570	2,045	0.136	
						½, ⅝, ¾	(12) 0.148 x 2½	3 x 3½	2,275	2,230	0.128	
LTTI31	18	3¾	31	1⅜	¼	⅝	(18) 0.148 x 1½	3 x 3½	1,350	1,160	0.193	
HTT4	11	2½	12⅜	1⁵⁄₁₆	7⁄16	⅝	(18) 0.148 x 1½	1½ x 3½	3,000	2,580	0.090	—
							(18) 0.148 x 1½	3 x 3½	3,610	3,105	0.086	IBC, FL, LA
							(18) 0.162 x 2½	3 x 3½	4,235	3,640	0.123	
							(18) #10 x 1½" SD	1½ x 5½	4,455	3,830	0.112	—
							(18) #10 x 1½" SD	3 x 3½	4,455	3,830	0.112	
HTT5	11	2½	16	1⅜	7⁄16	⅝	(26) 0.148 x 1½	3 x 3½	4,350	3,740	0.120	IBC, FL, LA
							(26) 0.148 x 3	3 x 3½	4,670	4,015	0.116	
							(26) 0.162 x 2½	3 x 3½	5,090[2]	4,375[2]	0.135	
							(26) #10 x 1½" SD	1½ x 5½	4,555	3,915	0.114	—
HTT5KT	11	2½	16	1⅜	7⁄16	⅝	(26) #10 x 2½" SD	3 x 3½	5,445	5,360	0.103	
HTT5-3/4	11	2½	16	1⅜	7⁄16	¾	(26) 0.148 x 1½	1½ x 5½	4,065	3,495	0.103	IBC, FL
							(26) 0.162 x 2½	3 x 3½	5,090	4,375	0.121	
							(26) #10 x 1½" SD	1½ x 7¼	4,830	4,155	0.100	

1. LTTI31 installed flush with concrete or masonry has an allowable load of 2,285 lb.
2. 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.
3. For LTTP2, standard cut washer is required when using ½" and ⅝" anchor rods.
4. For (15) nail installations on narrow edge of 2x4 (minimum) joist, LTTP2 installed flush with concrete or masonry has an allowable load of 2,560 lb. for DF/SP and 2,355 lb. for SPF/HF.
5. LTTP2 installed with (15) #9 x 1½" 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.
6. For (12) nail installations on I-joist or wide face of 2x member, LTTP2 installed flush with concrete or masonry has an allowable load of 1,950 lb. for DF/SP and 1,795 lb. for SPF/HF.
7. **Fasteners:** Nail dimensions are listed diameter by length. SD screws are Simpson Strong-Tie Strong-Drive SD Connector screws. See pp. 23–24 for fastener information.

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

Holdown on DF/SP Lumber	Stemwall Width (in.)	Stemwall: Wind and Seismic Design Category A&B: Midwall/Corner	Stemwall: Wind and Seismic Design Category A&B: End Wall	Stemwall: Seismic Design Category C–F: Midwall/Corner	Stemwall: Seismic Design Category C–F: End Wall	Slab on Grade: Wind and Seismic Design Category A&B: Midwall/Corner	Slab on Grade: Wind and Seismic Design Category A&B: Garage Curb	Slab on Grade: Seismic Design Category C–F: Midwall/Corner	Slab on Grade: Seismic Design Category C–F: Garage Curb
HDU2	6	SSTB16		SSTB24		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
HDU8									
HD08									
HDU11									
HHDQ11									
HDU14									
HHDQ14									
LTTP2									
LTTI31									
HTT4									
HTT5									
HD3B									
HD5B									
HD7B									
HD9B									
HD12									

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

Holdown on SPF/HF Lumber	Stemwall Width (in.)	Stemwall: Wind and Seismic Design Category A&B: Midwall/Corner	Stemwall: Wind and Seismic Design Category A&B: End Wall	Stemwall: Seismic Design Category C–F: Midwall/Corner	Stemwall: Seismic Design Category C–F: End Wall	Slab on Grade: Wind and Seismic Design Category A&B: Midwall/Corner	Slab on Grade: Wind and Seismic Design Category A&B: Garage Curb	Slab on Grade: Seismic Design Category C–F: Midwall/Corner	Slab on Grade: Seismic Design Category C–F: 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* (6,395)	SSTB28		SSTB28	SSTB28
HDQ8	8	SSTB28		SSTB28	SSTB28* (6,395)	SSTB28		SSTB28	SSTB28
HDU11	8	SB1X30* (9,505)	PAB8	PAB8	PAB8	SB1x30		SB1x30	
HHDQ11	8	SB1X30	PAB8	PAB8					
HDU14	—	PAB8		PAB8		SB1x30		SB1x30	
HHDQ14	—								
LTTP2	6	SSTB16		SSTB16		SSTB16		SSTB16	
LTTI31	6								
HTT4	6	SSTB20		SB5/8X24		SSTB16	SSTB20	SSTB16* (3,780)	SB5/8X24
HTT5	6	SB5/8X24		SB5/8X24		SSTB20	SB5/8X24	SSTB24	SB5/8X24
HD3B	6	SSTB16		SSTB24		SSTB16		SSTB16	SSTB20* (2,960)

We've made selecting the right anchor bolt for the holdown easier; check out our Holdown Anchorage Solutions table on p. 46 or visit **app.strongtie.com/pfd** to access the Post-to-Foundation Designer web application.

PFD Post-to-Foundation Designer

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