

# LSTHD/STHD

## Strap-Tie Holdowns



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 STHD is an embedded strap-tie holddown offering high load and a staggered nail pattern to help minimize splitting. The STHD incorporates many features that aid correct installation and improve performance. When installed on the forms with the StrapMate® strap holder the unique design of the STHD delivers enhanced stability before and during the pour to help prevent both parallel and perpendicular movement (relative to the form). This results in accurate positioning of the strap and reduced possibility of spalling.

### Features

- The pattern allows for nailing to the edges of double 2x's
- Strap nail slots are countersunk to provide a lower nail head profile
- The slots below the embedment line enable increased front-to-back concrete bond and help to reduce spalling
- Rim joist (RJ) models accommodate up to a 17" clear span without any loss of strap nailing

**Material:** LSTHD8, LSTHD8RJ — 14 gauge; all others — 11 gauge

**Finish:** Galvanized

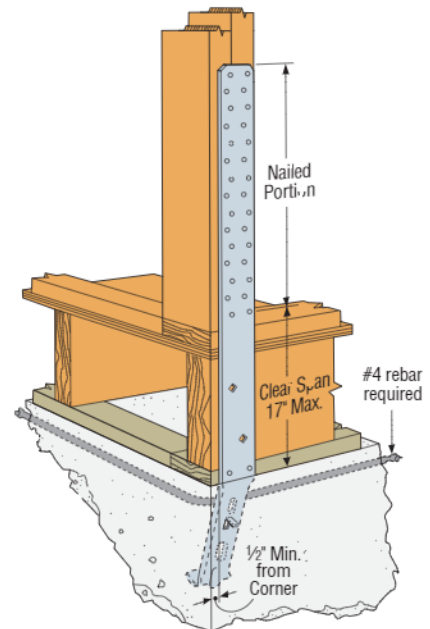
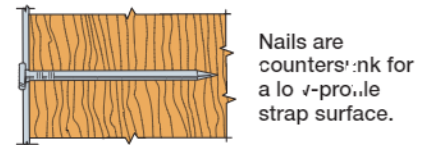
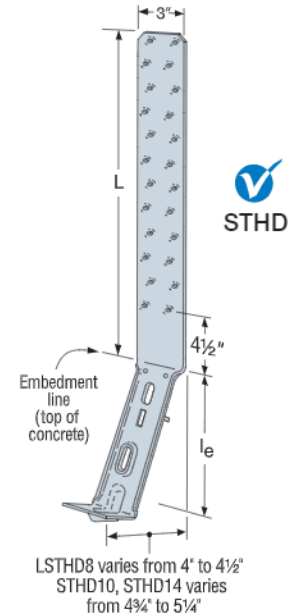
### Installation:

- See Holddown and Tension Tie General Notes on pp. 49–50.
- Use tables for both standard concrete and post-tension slab installations.
- Install before concrete pour with a StrapMate, or other holding device.
- Nail strap from the bottom up. Install strap plumb.
- Strap may be bent one full cycle (bent horizontal 90° then bent vertical) to aid wall placement, but may cause spalling behind the strap. If the spall is 1" or less, measured from the embedment line to the bottom of the spall, full loads apply. 1" to 4" spalls for LSTHD8 achieve 0.9 times table loads. STHD10 and STHD14 achieve full load for spalls less than 4". Any portion of the strap left exposed should be protected against corrosion.
- Other than where noted in the two-pour detail, do not install where:
  - (a) A horizontal cold joint exists within the embedment depth between the slab and foundation wall or footing beneath, unless provisions are made to transfer the load, or the slab is designed to resist the load imposed by the anchor;
  - (b) Slabs are poured over concrete block foundation walls.
- Additional studs attached to the shearwall studs or post may be required by the designer for wall sheathing nailing.
- Wood shrinkage after strap installation across horizontal members may cause strap to buckle outward.
- For installations in severe corrosion environments, refer to [strongtie.com/cipcorrosion](http://strongtie.com/cipcorrosion) for additional considerations.
- See installation illustrations on p. 60 for rebar information.

### For Two-Pour Installation for Downturn Footings

- For STHD10 installed through a 4"-thick slab, use the equivalent 8"-stemwall loads of the LSTHD8
- For STHD14 installed through a 4"-thick slab, use the equivalent 8"-stemwall loads of the STHD10
- For STHD14 installed through a 6"-thick slab, use the equivalent 8"-stemwall loads of the LSTHD8

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



Typical STHD14RJ  
Rim Joist Application

# LSTHD/STHD

## Strap-Tie Holdowns (cont.)

### Tension Loads for STHD Installations

Min. Stem Wall (in.)	Model No.		Strap Length (L)		l <sub>e</sub> (in.)	Required Nails (in.)	Uncracked			Cracked			Code Ref.
	Standard	Rim Joist	Standard (in.)	Rim Joist (in.)			Midwall	Corner	Endwall	Midwall	Corner	Endwall	
<b>Wind and SDC A&amp;B – Allowable Tension Loads for DF/SP/SP/HF (160)</b>													
6	LSTHD8	LSTHD8RJ	18½"	32½"	8	(20) 0.148 x 3¼"	2,985	2,590	1,600	2,565	2,225	1,395	IBC, FL
	STHD10	STHD10RJ	24½"	38½"	10	(24) 0.148 x 3¼"	3,535	3,535	1,960	2,910	2,910	1,635	
	STHD14	STHD14RJ	26½"	39½"	14	(30) 0.148 x 3¼"	4,935	4,935	3,065	4,935	4,935	3,065	
8	LSTHD8	LSTHD8RJ	18½"	32½"	8	(20) 0.148 x 3¼"	2,985	2,590	2,135	2,565	2,225	1,835	
	STHD10	STHD10RJ	24½"	38½"	10	(28) 0.148 x 3¼"	4,755	4,075	3,015	4,020	3,350	2,480	
	STHD14	STHD14RJ	26½"	39½"	14	(30) 0.148 x 3¼"	5,285	5,285	4,410	5,285	5,285	4,410	
<b>SDC C-F – Allowable Tension Loads for DF/SP/SP/HF (160)</b>													
6	LSTHD8	LSTHD8RJ	18½"	32½"	8	(16) 0.148 x 3¼"	2,270	2,090	1,220	2,250	1,950	1,220	IBC, FL
	STHD10	STHD10RJ	24½"	38½"	10	(18) 0.148 x 3¼"	2,750	2,750	1,615	2,550	2,550	1,435	
	STHD14	STHD14RJ	26½"	39½"	14	(22) 0.148 x 3¼"	3,695	3,695	2,685	3,695	3,695	2,685	
8	LSTHD8	LSTHD8RJ	18½"	32½"	8	(16) 0.148 x 3¼"	2,615	2,125	1,635	2,250	1,950	1,610	
	STHD10	STHD10RJ	24½"	38½"	10	(20) 0.148 x 3¼"	3,400	2,940	2,295	3,400	2,940	2,175	
	STHD14	STHD14RJ	26½"	39½"	14	(24) 0.148 x 3¼"	3,815	3,815	3,500	3,815	3,815	3,500	

- Allowable loads have been increased for wind or earthquake loading with no further increase allowed. Reduce where other loads govern.
- Concrete shall have a minimum compressive strength of  $f'_{c} = 2,500$  psi.
- 0.148" x 3" or 0.148" x 2 ½" nails may be used as a direct replacement for the required nails shown in the table with no load reduction when they are installed directly over framing or over ½" maximum structural sheathing.
- Use the number of nails listed in the table or as otherwise specified. In many cases, not all nail holes will be filled. Nail strap from the bottom up.
- Deflection at the highest allowable loads for installations over wood double studs is as follows: Installed on framing: LSTHD8 = 0.089", STHD10 = 0.117", and STHD14 = 0.118". Installed over ½" maximum structural sheathing: LSTHD8 = 0.114", STHD10 = 0.146", and STHD14 = 0.164".
- To obtain LRFD values, multiply ASD seismic load values by 1.43 and wind load values by 1.67.
- Per 2012, 2015, 2018 and 2021 IBC, Section 1613.1, detached one- and two-family dwellings in Seismic Design Category (SDC) C may use "Wind and SDC A&B" allowable loads.
- Minimum center-to-center spacing is three times the required embedment,  $3 \times l_e$ , for STHD strap-tie holdowns acting in tension simultaneously. Midwall installation is based on  $1.5 \times l_e$  end distance.
- See technical bulletin T-C SCLCLM at [strongtie.com](http://strongtie.com) for installation on structural composite lumber posts or columns.
- For brick ledge applications, use full loads shown for STHD14 installed in 8" stem wall.
- For slab-on-grade installation, use full loads shown for LSTHD/STHD installed in 8" stem wall.**
- Fastener Size:** Nail dimensions are listed diameter by length. See pp. 21–22 for fastener information.

### Spall Reduction System for STHD Holdown

#### Features

- Built-in tab
- StrapMate® locator line
- Additional diamond hole in RJ versions

#### Benefits

##### Built-in Tab:

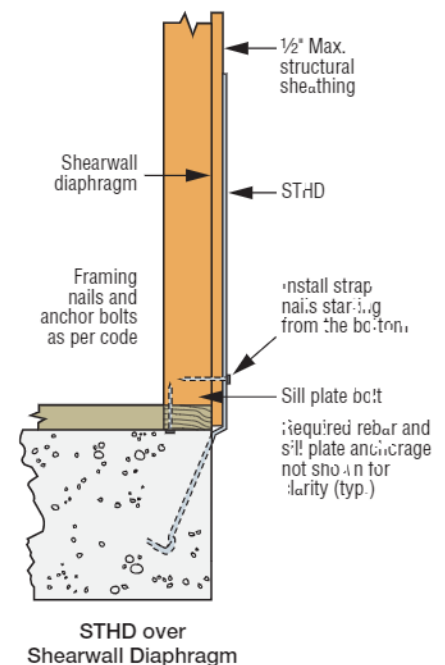
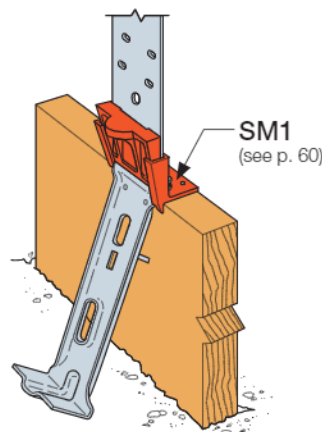
- Reduces spalling and costly retrofits
- No additional labor to install
- Holds STHD away from form board

##### StrapMate Locator Line:

- Easy inspection to ensure proper location
- Allows adjustment without removing STHD

##### Additional Diamond Hole:

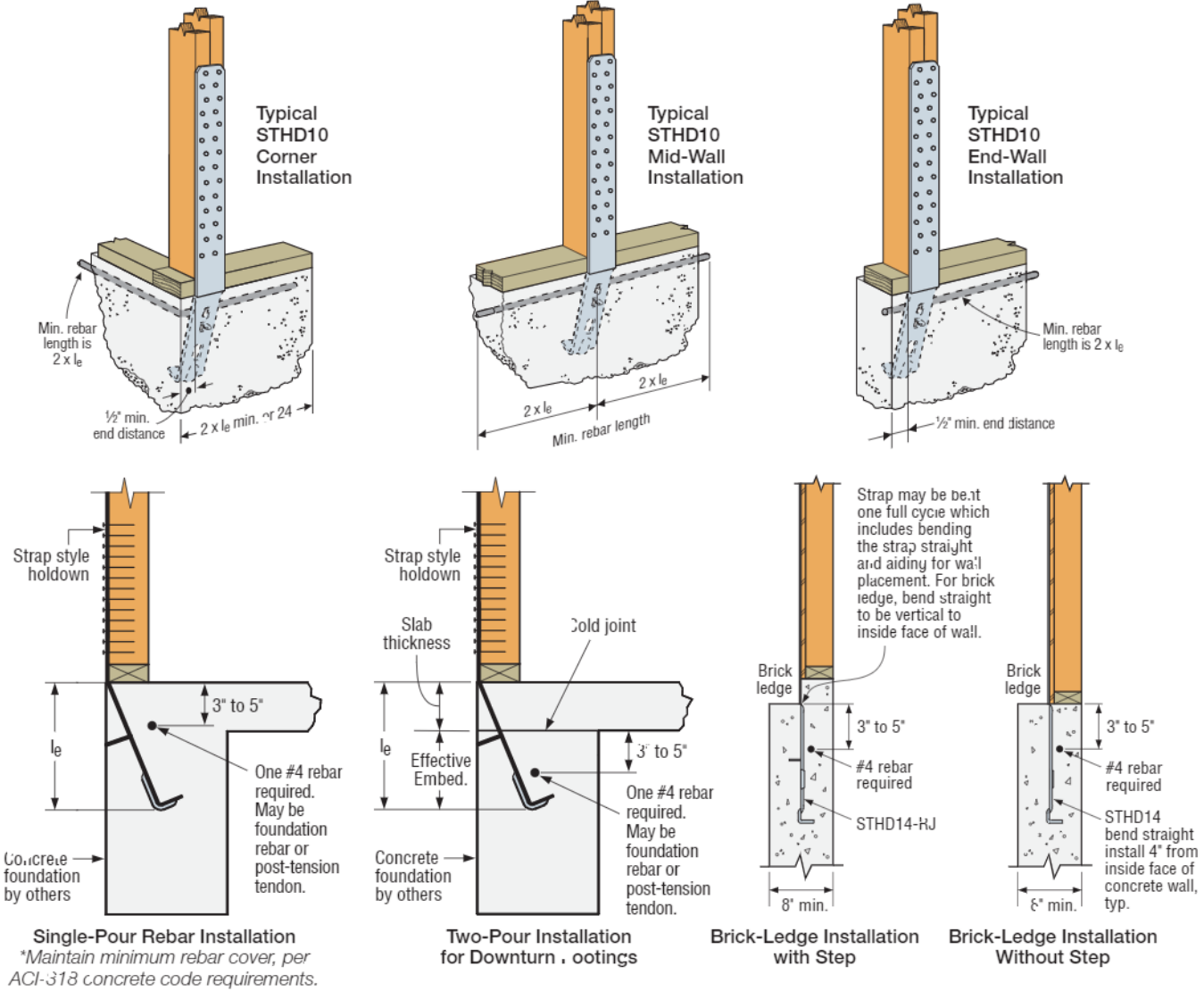
- One more fastener to help prevent the STHD RJ models from bowing out at the rim joist section



# LSTHD/STHD

## Strap-Tie Holdowns (cont.)

Holdowns and  
Tension Ties



## StrapMate®

### Strap Holder

The StrapMate is designed to keep the STHD and LSTHD straps vertically aligned during the concrete pour to minimize possibility of spalling. The friction fit allows for quick and easy installation.

**Features:**

- The StrapMate is reusable
- Works with STHD, LSTHD
- Designed to fit  $\frac{3}{4}$ " plywood forms up to  $1\frac{1}{4}$ " LVL forms and larger
- The strap is positioned off the front edge of the form board

**Material:** Engineered composite plastic

Model No.	Nails (in.)
SM1	(2) 0.131 x 2 1/2 Durlex

