

## **Code-Compliant** Repair and Protection Guide



FOR THE INSTALLATION OF UTILITIES IN WOOD-FRAME CONSTRUCTION

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## A Word About Building Codes

All of the major building codes feature regulations on the size and/or location of penetrations in wood members for plumbing, HVAC and electrical components. In many cases, in order to comply with the code, hardware is required to:

- Restore strength to wood members
- Protect utilities within the wall

This guide is intended to illustrate the penetrations that are allowed under the various codes with and without repair or

protection. Simpson Strong-Tie® offers a range of products to help meet these code requirements.

The information in this guide is a summary of requirements from the 2015 and 2018 International Residential Code (IRC), International Building Code (IBC), International Plumbing Code (IPC), International Mechanical Code (IMC), 2015 and 2018 Uniform Plumbing Code (UPC), 2015 and 2018 Uniform Mechanical Code (UMC) and the 2014 and 2017 National Electrical Code (NEC).

International Residential Code, International Building Code, International Plumbing Code, International Mechanical Code are registered trademarks of International Code Council, Inc. National Electrical Code is a registered trademark of National Fire Protection Association. The Uniform Plumbing Code is a registered trademark of the International Association of Plumbing and Mechanical Officials.

## Limited Warranty

Simpson Strong-Tie Company Inc. warrants catalog products to be free from defects in material or manufacturing. Simpson Strong-Tie Company Inc. products are further warranted for adequacy of design when used in accordance with design limits in this catalog and when properly specified, installed, and maintained. This warranty does not apply to uses not in compliance with specific applications and installations set forth in this catalog, or to non-catalog or modified products, or to deterioration due to environmental conditions.

Simpson Strong-Tie connectors are designed to enable structures to resist the movement, stress, and loading that results from impact events such as earthquakes and high velocity winds. Other Simpson Strong-Tie products are designed to the load capacities and uses listed in this flier. Properly-installed Simpson Strong-Tie products will perform in accordance with the specifications set forth in the applicable Simpson Strong-Tie catalog. Additional performance limitations for specific products may be listed on the applicable catalog pages.

Due to the particular characteristics of potential impact events, the specific design and location of the structure, the building materials used, the quality of construction,

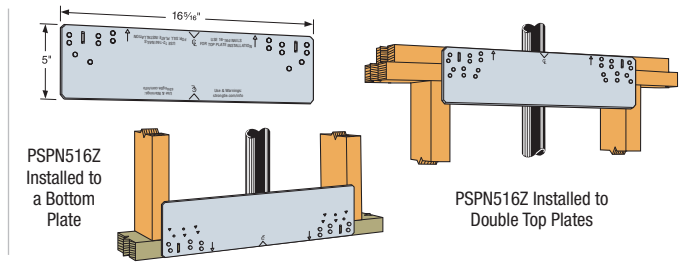
and the condition of the soils involved, damage may nonetheless result to a structure and its contents even if the loads resulting from the impact event do not exceed Simpson Strong-Tie catalog specifications and Simpson Strong-Tie connectors are properly installed in accordance with applicable building codes.

All warranty obligations of Simpson Strong-Tie Company Inc. shall be limited, at the discretion of Simpson Strong-Tie Company Inc., to repair or replacement of the defective part. These remedies shall constitute Simpson Strong-Tie Company Inc.'s sole obligation and sole remedy of purchaser under this warranty. In no event will Simpson Strong-Tie Company Inc. be responsible for incidental, consequential, or special loss or damage, however caused.

**This warranty is expressly in lieu of all other warranties, expressed or implied, including warranties of merchantability or fitness for a particular purpose, all such other warranties being hereby expressly excluded. This warranty may change periodically — consult our website [strongtie.com](http://strongtie.com) for current information.**

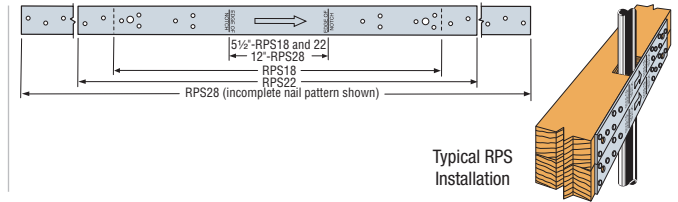
## PSPN516Z Repair and Shield Plate: Reinforcement and Protection

Repair and shield plates reinforce top or bottom plates drilled or cut during construction. They are 16-gauge steel, install with 0.162" x 3 1/2" nails (0.148" x 1 1/2" nails, IRC) and protrude at least 2" above or below single or double plates to meet the requirements of the code for repair and protection. They are available with a ZMAX® galvanized coating for added corrosion resistance for use with some preservative-treated lumber. See p. 11 for complete fastener and load information.



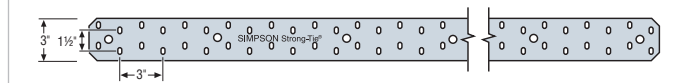
## RPS Repair Strap: Reinforcement

Repair straps reinforce top and bottom plates notched or cut during construction. They are 16-gauge steel and install with 0.162" x 3 1/2" nails (0.148" x 1 1/2" nails, IRC) to meet the requirements of the code for repair. They are available with a standard galvanized coating or a ZMAX galvanized coating for added corrosion resistance for use with some preservative-treated lumber. See p. 11 for complete fastener and load information.



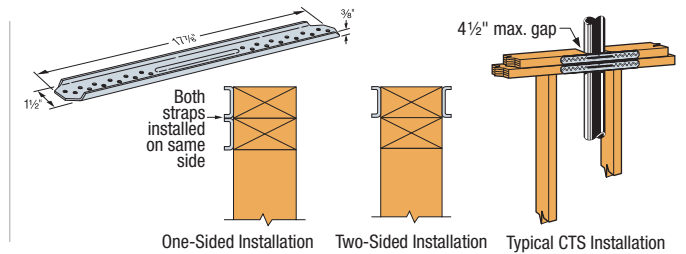
## MSTC Strap: Reinforcement

MSTC straps reinforce top or bottom plates drilled or cut during construction. They are 16-gauge steel and install with 0.162" x 3 1/2" nails to meet the requirements of the code for repair. Recommended for applications where two plate penetrations are too close together for separate RPS straps to be installed (example: HVAC chase). See p. 11 for complete fastener and load information.



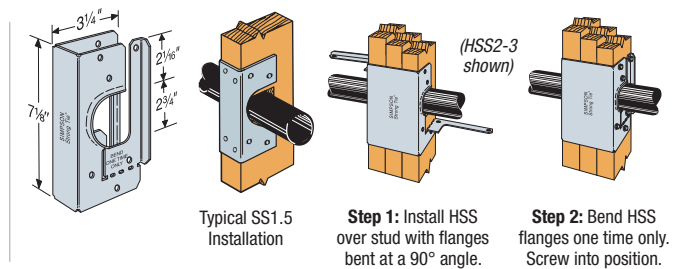
## CTS218 Compression and Tension Straps

The CTS218 compression-tension strap is the only light-gauge steel strap that is rated to handle both tension and compression loads. It is designed to repair excessive cutting of wood members such as top plates, studs and trusses. The strap's unique rolled edges allow gaps as wide as 4 1/2" to be repaired, and its 1 1/2" width facilitates installation on the narrow face of 2x lumber. The CTS218 installs quickly with 0.148" x 1 1/2" nails or, for increased capacity, with #9 x 1 1/2" Simpson Strong-Tie® Strong-Drive® SD screws.



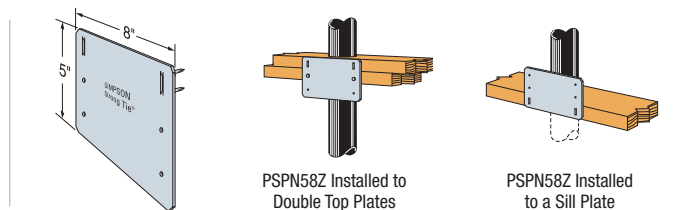
## HSS and SS Stud Shoe: Reinforcement and Protection

Stud shoes (SS) and heavy-duty stud shoes (HSS) reinforce one to three studs bored or notched during construction and protect piping within the wall. Suitable for piping with a maximum outside diameter of 2 3/4", they are available in sizes for single, double and triple 2x studs as well as single 3x (SS only) and 4x (HSS only) studs. Made from 16-gauge steel to meet the protection requirements of the code and feature a galvanized coating. Stud shoes resist compression loads only; heavy-duty stud shoes resist compression and tension loads. See p. 11 for complete fastener and load information.



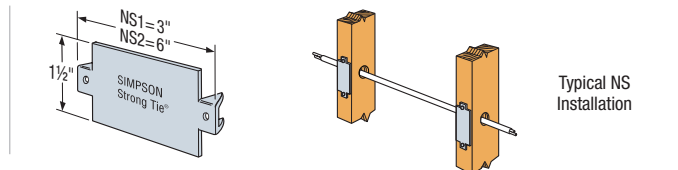
## PSPN58Z Shield Plate: Protection

Shield plates resist penetration of fasteners into wiring or piping at the top and bottom plates of the walls. They are 16-gauge steel and protrude at least 2" above/below single or double plates to meet the protection requirements of the code. They are available with a ZMAX galvanized coating for added corrosion resistance for use with some preservative-treated lumber.



## NS Nail Stop: Protection

Nail stops resist penetration of fasteners into wiring or piping. They are 16-gauge steel to meet the protection requirements of the code and feature a galvanized coating. Install with prongs or 0.131" x 2 1/2" nails.



Some of the products shown are available with a ZMAX galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.



# Top and Bottom Plates

## Building Code Analysis

When installing plumbing throughout a wood structure, the building codes address two requirements regarding top, bottom and sill plates: the reinforcement of members where material has been removed and the protection of piping within walls.

### Structural repair is required when:

- A hole, cut or notch that is more than 50% of the top plate width is removed in an exterior wall, or interior load-bearing wall for piping (*except when the side of the wall with the notch or cut is covered by wood structural panel sheathing*). (IRC)
- The plates in, or partly in, a partition are cut for plumbing, heating or other pipes (IBC).

### Required repairs:

- A galvanized, 16-gauge metal tie that is at least 1½" wide (IRC, IBC).
- Metal tie must be fastened with (8) 0.148" x 1½" nails on each side of the opening (IRC) or (6) 0.162" x 3½" nails on each side of the opening (IBC).

**Note:** 0.135" x 3½" nails satisfy the IBC. See p. 11 for more information on fasteners.

### Protection of piping within the wall is required when:

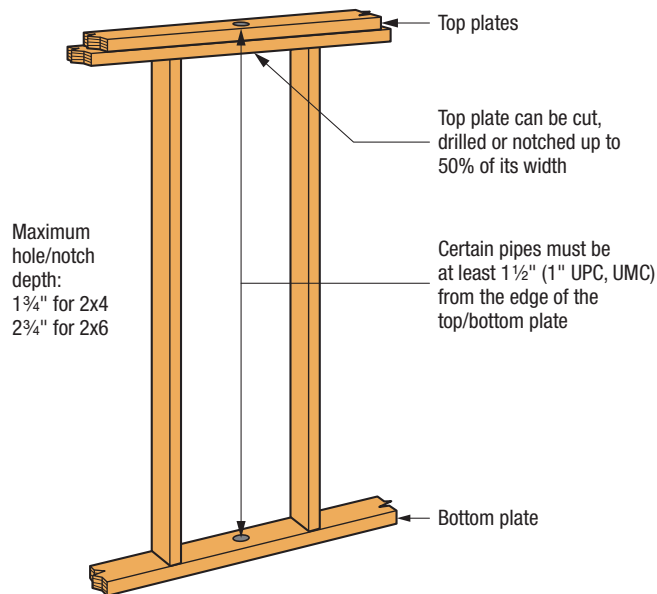
- Piping other than cast iron or galvanized steel (*e.g. PVC or ABS*) is closer than 1½" to the edge of the plate (IRC, IPC, IMC).
- Plastic and copper piping run through framing members is closer than 1" from the edge of the framing member (UPC, UMC).

### Required protection:

- A 16-gauge steel protective plate that covers the side of the plate and extend 2" above/below it (IRC, IPC, IMC).
- A steel protective plate not less than 18 gauge, that extends along the framing member on each side at least 1½" beyond the pipe (UPC, UMC).

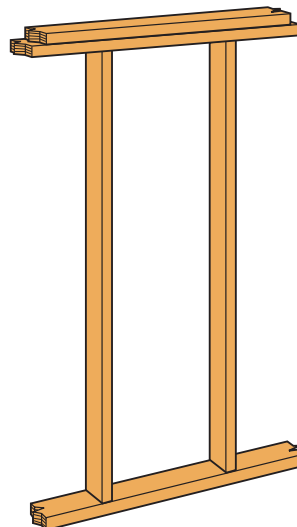
Under the various building codes, the following penetrations are allowed without any type of protection or repair to the wood members.

## Allowable Penetrations with No Repair/Protection — IRC/IPC/IMC/UPC/UMC



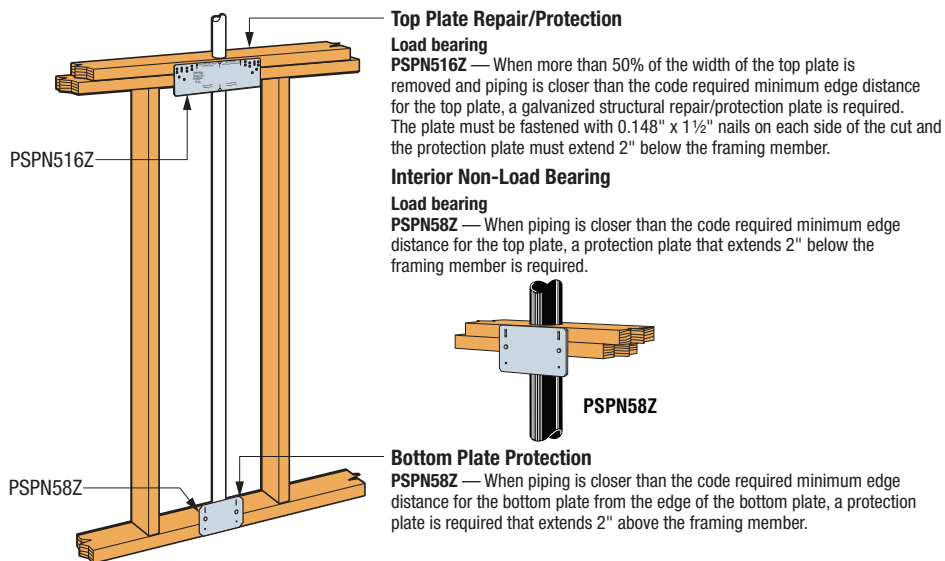
## Allowable Penetrations with No Repair/Protection — IBC

No cuts, notches or holes for plumbing, heating or other pipes are allowed in the top or bottom plates without a structural repair strap.

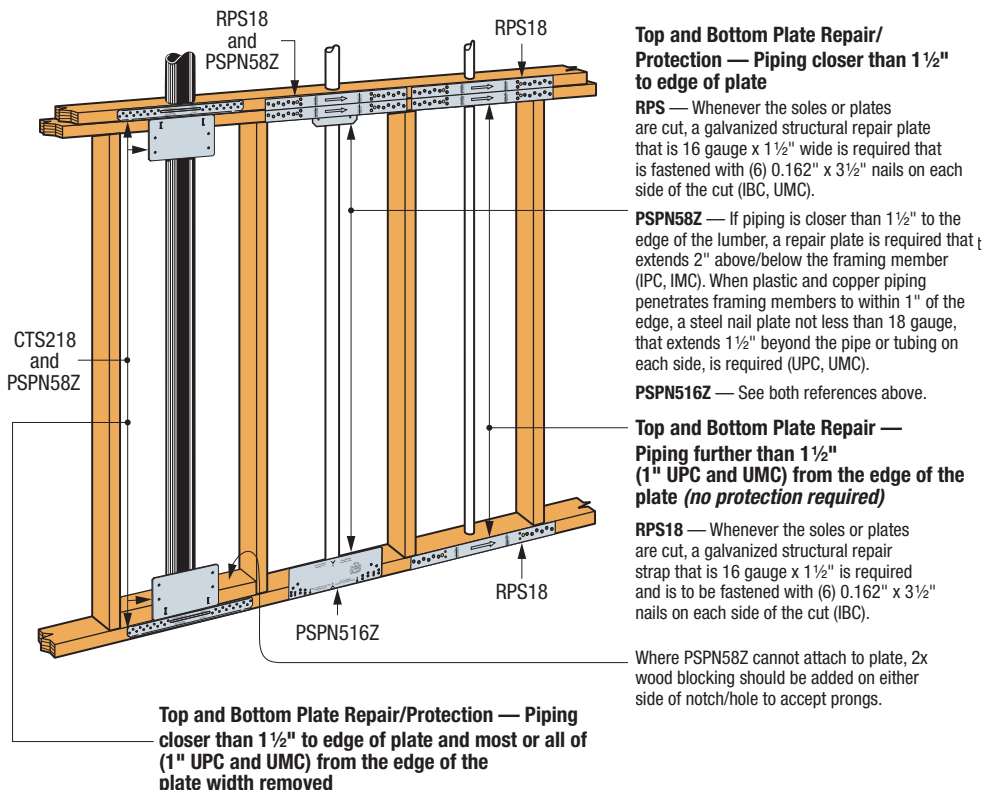


# Top and Bottom Plates

## Repair/Protection — IRC (Piping other than cast iron or galvanized steel)



## Repair/Protection — IBC/IPC/IMC/UPC/UMC



## Building Code References

### International Residential Code (IRC)

#### Repair top plates and protect piping

- Sections: R602.6.1, M1308.2 and P2603.2.1
- Suitable product: PSPN516Z Repair and Shield Plate

#### Protect piping

- M1308.2 and P2603.2.1
- Suitable product: PSPN58Z Shield Plate

#### Repair top and bottom plates

- R602.6.1 (*top plates only*)
- Suitable product: RPS18, RPS22, or RPS28 Repair Strap

### International Building Code (IBC)

#### Repair top and bottom plates

- Section 2308.5.8
- Suitable product: RPS18, RPS22, or RPS28 Repair Strap

### International Plumbing Code (IPC), International Mechanical Code (IMC) and Uniform Plumbing Code (UPC)

#### Protect piping

- IPC section: 305.8
- IMC sections: 305.5
- UPC section: 312.9 (2015, 2018)
- UMC Section 316.6
- Suitable product: PSPN58Z Shield Plate or PSPN516Z Repair and Shield Plate

Product recommendations based upon prescriptive requirements of the codes cited. For technical information on these products, see p. 11.



Some of the products shown are available with a ZMAX® galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.

# Studs

## Building Code Analysis

When installing plumbing throughout a wood structure, the building codes address two requirements regarding studs: the reinforcement of members where material has been removed and the protection of piping within walls.

### Structural repair is required when:

- (IRC, IBC, IMC) A stud is notched to a depth greater than 25% of the width in bearing walls, or 40% in non-bearing partitions.
- (IRC, IBC, IMC) A hole is bored to a diameter exceeding 40% of the stud width in bearing walls, or 60% in non-bearing partitions.
  - In no case shall the edge of the bored hole be closer than  $\frac{5}{8}$ " from the edge of the stud.
  - Bored holes shall not be located at the same section of the stud as a cut or notch.
  - Exception: a hole may be drilled between 40–60% of the stud diameter in bearing walls if the bored stud is doubled and not more than two successive doubled studs are bored.

### Required repairs:

- If maximum hole/notch specifications are exceeded:
  - A suitable stud shoe, approved by the building official, must be installed (IRC).
  - It is the responsibility of the designer to provide an engineered solution (IBC). See p. 11 for technical information on stud shoes.

### Protection of piping within the wall is required when:

- Piping other than cast iron or galvanized steel (e.g., PVC or ABS) is closer than  $1\frac{1}{2}$ " to the edge of the stud (IRC, IPC, IMC).
- Plastic and copper piping run through framing members is closer than 1" from the edge of the framing member (UPC, UMC).

### Required protection:

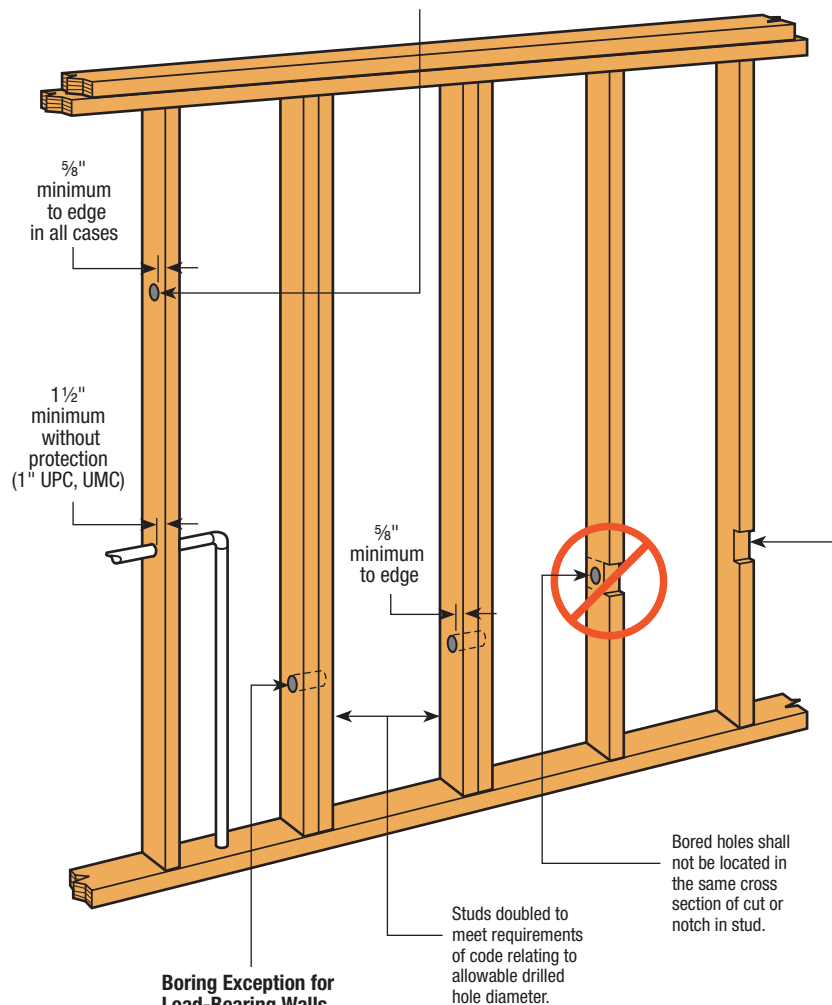
- A steel shield plate with a minimum thickness of 0.0625" that covers the area of pipe where the member is notched or bored (IRC, IPC, IMC).
- A steel protective plate not less than 18 gauge that extends  $1\frac{1}{2}$ " beyond the pipe on each side (UPC, UMC).

Under the various building codes, the following penetrations are allowed without repair of the wood members.

## Allowable Penetrations with No Repair/Protection — IRC/IBC/IPC/IMC/UPC/UMC

Maximum Bored Hole Diameter / Notch Depth

Stud Size (in.)	Application	Maximum Hole Diameter (in.)	Maximum Notch Depth (in.)
2x4	Non-bearing	$2\frac{1}{8}$	$1\frac{1}{8}$
	Exterior / Bearing	$1\frac{3}{8}$	$\frac{7}{8}$
2x6	Non-bearing	$3\frac{1}{4}$	$2\frac{3}{16}$
	Exterior / Bearing	$2\frac{3}{16}$	$1\frac{1}{8}$

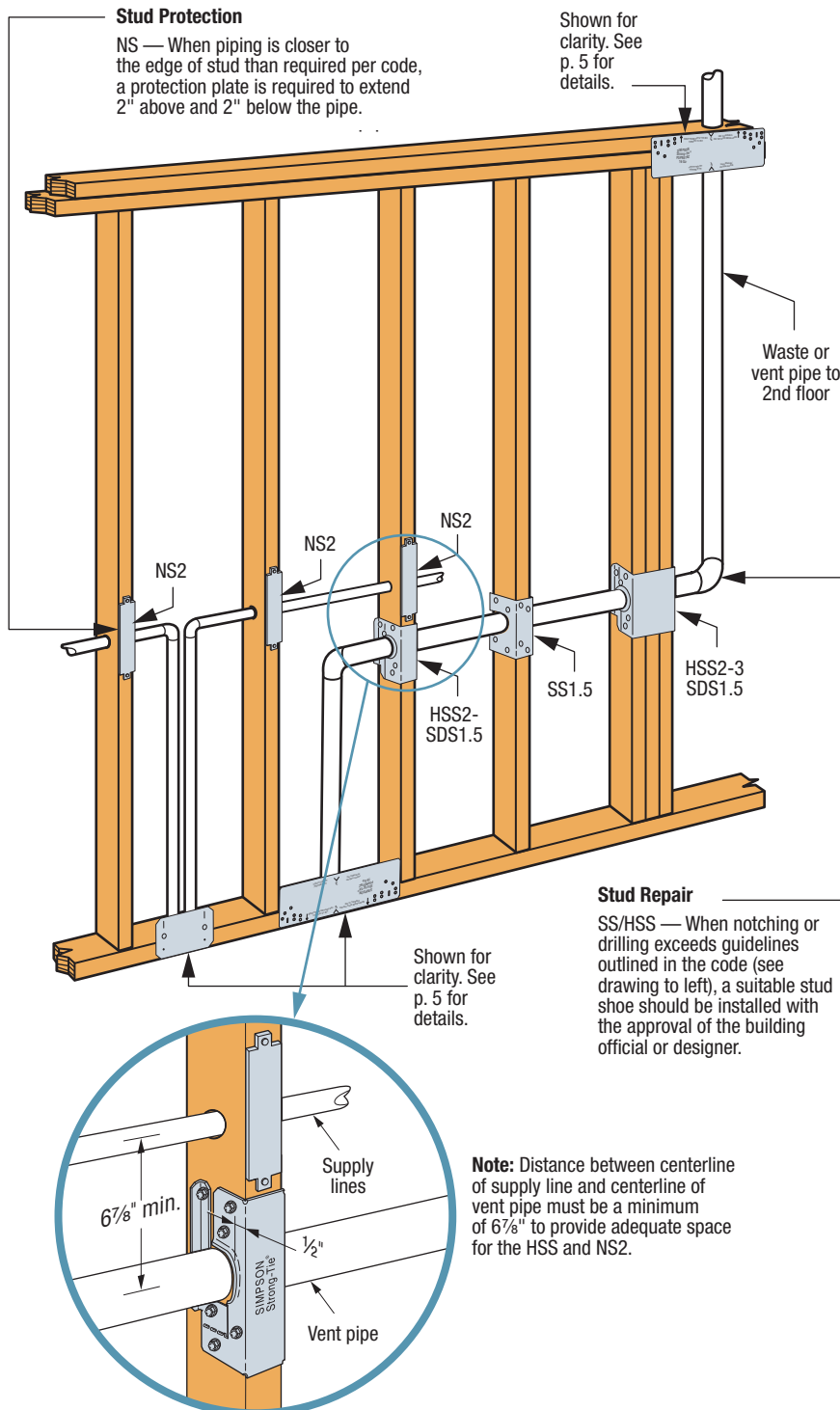


### Boring Exception for Load-Bearing Walls

If hole is between 40% and 60% of stud depth, then stud must be doubled and no more than two successive doubled studs are bored.

# Studs

## Repair/Protection — IRC/IBC/IPC/IMC/UPC/UMC



## Building Code References

### International Residential Code (IRC)

#### Repair stud and protect piping

- Sections: R602.6, M1308.2 and P2603.2.1
- Suitable products:  
SS Stud Shoe  
HSS Heavy Stud Shoe

#### Protect piping

- Sections: M1308.2 and P2603.2.1
- Suitable product: NS2 Nail Stop

### International Building Code (IBC)

#### Repair stud

- Sections: 2308.5.8, 2308.5.9 and 2308.5.10
- Suitable products  
(as determined by designer):  
SS Stud Shoe  
HSS Heavy Stud Shoe

### International Plumbing Code (IPC), International Mechanical Code (IMC), Uniform Plumbing Code (UPC) and Uniform Mechanical Code (UMC)

#### Protect piping

- IPC section: 305.8
- IMC sections: 305.5
- UPC section: 312.9 (2015, 2018)
- UMC section 316.6
- Suitable product: NS2 Nail Stop

Product recommendations based upon prescriptive requirements of the codes cited. For technical information on these products, see p. 11.



Some of the products shown are available with a ZMAX® galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.

## Top and Bottom Plates

### Building Code Analysis

When installing HVAC throughout a wood structure, the building codes address the reinforcement of top and bottom plates where material has been removed to allow the passage of ductwork.

#### Structural repair is required when:

- (IRC) A hole or notch that is more than 50% of the top plate width is removed in an exterior wall, or interior load-bearing wall for piping or ductwork, unless the entire side of the wall with the notch or cut is covered by wood structural-panel sheathing.
- (IBC) The soles or plates in, or partly in, a partition are cut for ductwork.

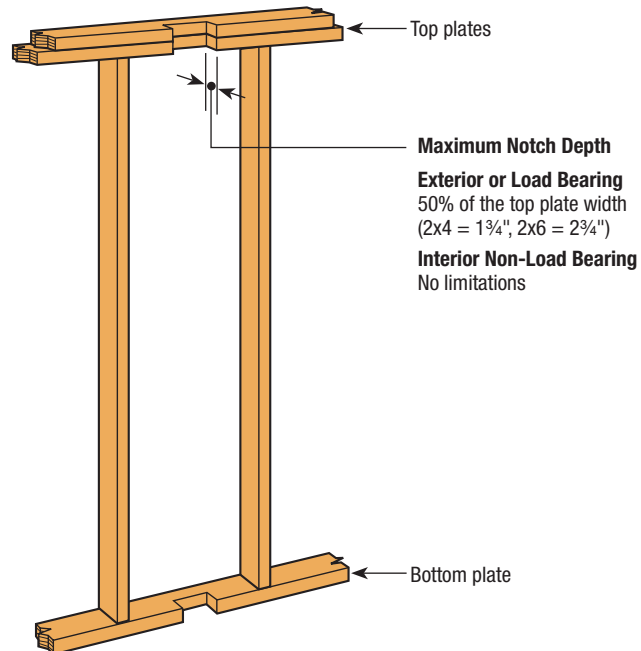
#### Required repair:

- (IRC) A galvanized, 16-gauge metal tie that is at least 1½" wide is required on one or more of the top plate.
- (IBC) A galvanized, 16-gauge metal tie that is at least 1½" wide is required on both top plates and on the bottom plate.
- Where the top plate has been removed from two consecutive bays, a 3" wide strap that spans both bays is one possible method.
- Metal tie must be fastened with (8) 0.148" x 1½" nails on each side of the opening (IRC) or (6) 0.162" x 3½" nails on each side of opening (IBC). In the IRC, the strap is required to extend 6" past the opening.

**Note:** 0.135" x 3½" nails satisfy the IBC. See p. 11 for more information on fasteners.

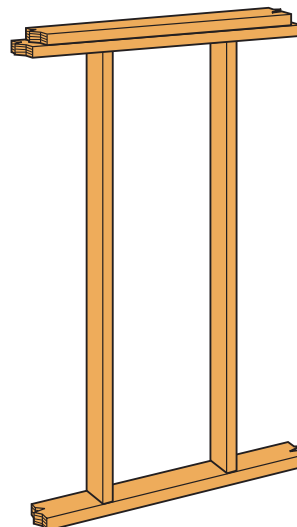
Under the various building codes, the following penetrations are allowed without any type of repair to the wood members.

### Allowable Penetrations with No Repair/Protection — IRC



### Allowable Penetrations with No Repair/Protection — IBC

No cuts, notches or holes for plumbing, heating or other pipes are allowed in the top or bottom plates without a structural repair strap.





# Top and Bottom Plates

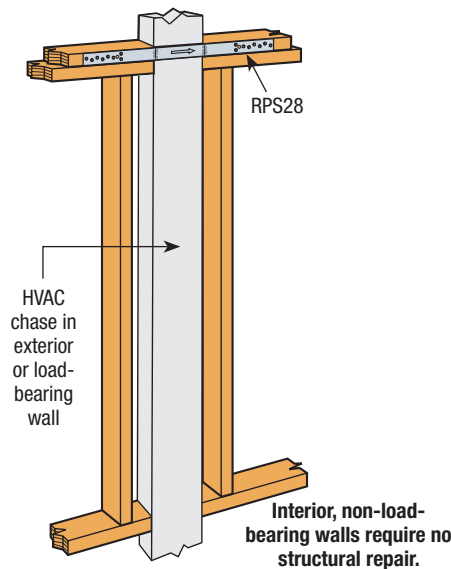
## HVAC Repairs — IRC

### Top Plate Repair

#### Exterior or Load Bearing

**RPS28** — When more than 50% of the width of the top plate is removed, a galvanized structural repair strap that is not less than 16 gauge x 1½" wide is required. The strap must be fastened to at least one plate with with (8) 0.148" x 1½" nails. Straps must extend 6" past the opening.

**Non-Load Bearing** — No repair required.

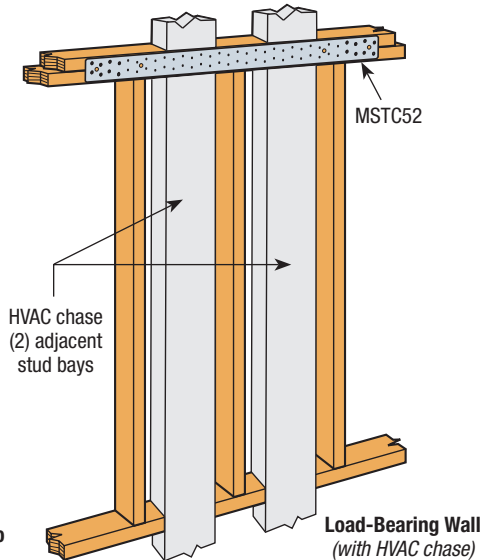


### Top Plate Repair — Side-by-Side Ductwork

#### Load Bearing

**MSTC52** — When more than 50% of the width of the top plate is removed, a galvanized structural repair strap that is not less than 16 gauge x 1½" wide is required. In this application a 3" wide strap provides equivalent tension capacity as long as it is fastened on each side of the cut with (8) 0.148" x 1½" nails. Straps must extend 6" past the opening.

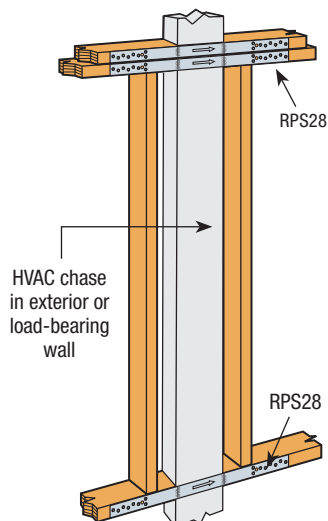
**Non-Load Bearing** — No repair required.



## HVAC Repairs — IBC

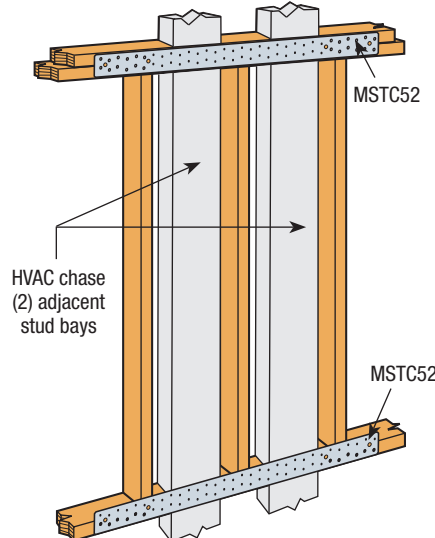
### Top and Bottom Plate Repair

**RPS28** — Whenever the soles or plates are cut, a galvanized structural repair strap that is not less than 16 gauge x 1½" wide is required on each plate and is to be fastened with (6) 0.162" x 3½" nails on each side of the cut.



### Top and Bottom Plate Repair — Two Consecutive Bays

**MSTC52** — Whenever the soles or plates are cut, a galvanized structural repair strap that is not less than 16 gauge x 1½" wide is required on each plate. In this application, a 3" wide strap provides equivalent tension capacity as long as it is fastened on each side of the cut with (6) 0.162" x 3½" nails per plate.



## Building Code References

### International Residential Code (IRC)

#### Repair top plates

- R602.6.1
- Suitable product:  
RPS and MSTC Repair Straps

### International Building Code (IBC)

#### Repair top and bottom plates

- Section 2308.9.8
- Suitable product:  
RPS and MSTC Repair Straps

Product recommendations based upon prescriptive requirements of the codes cited. For technical information on these products, see p. 11.



Some of the products shown are available with a ZMAX® galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.

# Top Plate, Bottom Plate and Studs

## Building Code Analysis

When installing electrical wiring throughout a wood structure, the building codes require protection of the wiring to prevent damage.

## Protection of wiring within the wall is required when:

- A hole is closer than 1¼" to the edge of a wood member (IRC, NEC).

## Required repair:

- A galvanized, metal tie that is at least 1½" wide and 0.0625" thick (IRC, NEC).

While the codes do not specifically address top or bottom plate repair for electrical applications, Simpson Strong-Tie recommends that the guidelines shown on p. 5 be considered. This will help ensure that plates perform as intended after electrical is installed.

## Building Code References

**International Residential Code (IRC) and National Electric Code (NEC)**

## Protect wiring

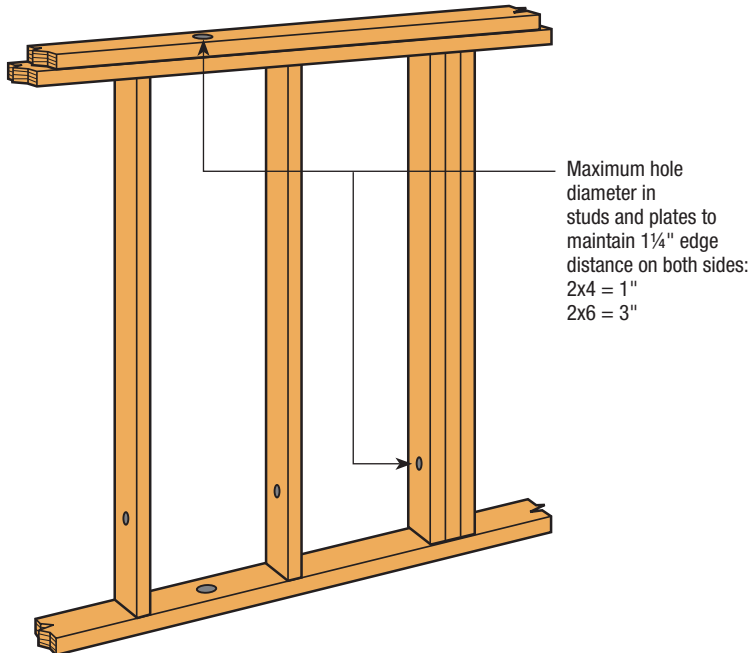
- IRC Table E3802.1
- NEC Section 300.4
- Suitable product: NS Nail Stops

Product recommendations based upon prescriptive requirements of the codes cited. For technical information on these products, see p. 11.

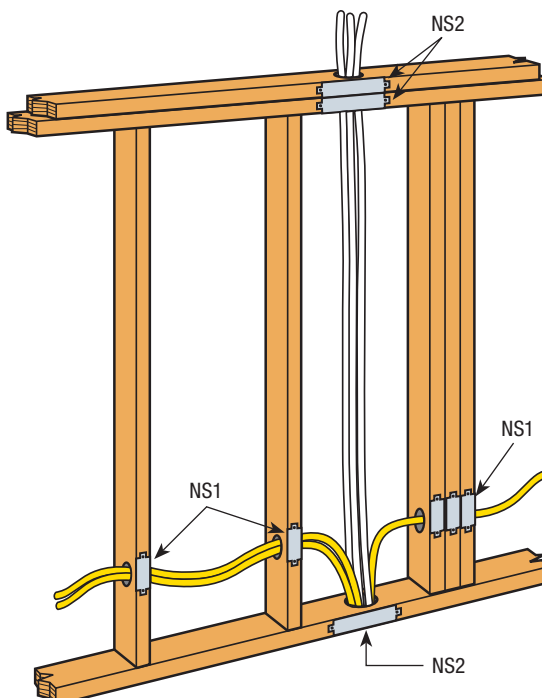


Some of the products shown are available with a ZMAX® galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.

## Allowable Under Code with No Repair/Protection Required



## Electrical Protection



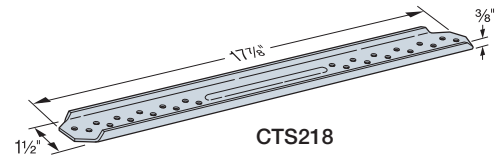
## Stud and Plate Protection

NS — When a hole is closer than 1¼" from the edge of a wood member (due to diameter or placement), a protective steel plate is required.

## CTS218 Compression and Tension Strap

Codes: ICC-ES ESR-2105 with LA Supplement; Florida FL10852

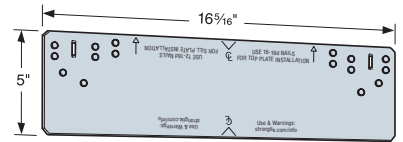
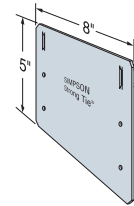
Model No.	Strap Qty.	Installation	Fasteners (per Strap) (in.)	Allowable Loads DF/SP		Allowable Loads SPF/HF	
				Compression (160)	Tension (160)	Compression (160)	Tension (160)
CTS218	1	One sided	(24) 0.148 x 1 1/2"	1,125	2,270	970	1,970
	2	One sided		2,250	4,535	1,935	3,900
	2	Two sided		2,515	4,535	2,165	3,900
	3	Two sided		3,310	6,805	2,845	5,850
	4	Two sided	(24) #9 x 1 1/2" SD	5,035	9,070	4,330	7,800
	1	One sided		1,175	2,510	1,010	2,160
	2	One sided		2,350	5,020	2,020	4,315
	2	Two sided		2,735	5,020	2,350	4,315
	3	Two sided		4,130	7,530	3,550	6,475
	4	Two sided		5,470	10,040	4,700	8,635



1. Allowable loads have been increased for wind or seismic with no further increase allowed. Reduce where other loads govern.
2. Fastener quantities are for a single strap.
3. Maximum gap between wood members is 4 1/2".
4. **Fasteners:** Nail dimensions in the table are diameter by length. SD screws are Simpson Strong-Tie® Strong-Drive® screws.

## PSPN Repair and Shield Plates

Model No.	Ga.	Dimensions (in.)		(12) 0.162" x 3 1/2" Nails		(16) 0.162" x 3 1/2" Nails	
		W	L	Allowable Tension Loads DF/SP (160)	Allowable Tension Loads SPF/HF (160)	Allowable Tension Loads DF/SP (160)	Allowable Tension Loads SPF/HF (160)
PSPN58Z	16	5	8	—	—	—	—
PSPN516Z	16	5	16 5/16"	1,320	1,145	1,760	1,530

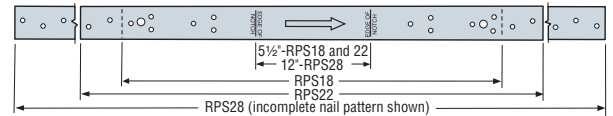


1. To meet the prescriptive IBC requirement, 16d box nails (0.135" dia. x 3 1/2" long) may be used. Allowable tension load is 0.75 of table loads when installed with 16d box nails. To meet the 2012–2018 IRC prescriptive requirement, 0.148" dia. x 1 1/2" long nails may be used.

## RPS Repair Strap

Codes: ICC-ES ESR-2608 with LA Supplement; Florida FL 10864

Model No.	Ga.	Dimensions (in.)		Notch Width	Fasteners (Total)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)
		W	L				
RPS18	16	1 1/2	18 5/16"	≤ 5 1/2"	(12) 0.162 x 3 1/2"	1,345	1,165
RPS22		1 1/2	22 5/16"	≤ 5 1/2"	(12) 0.162 x 3 1/2"	1,345	1,165
RPS28		1 1/2	28 5/16"	≤ 12"	(16) 0.162 x 3 1/2"	1,790	1,550
RPS28		1 1/2	28 5/16"	≤ 12"	(12) 0.162 x 3 1/2"	1,345	1,165
RPS28		1 1/2	28 5/16"	≤ 12"	(16) 0.162 x 3 1/2"	1,600	1,550



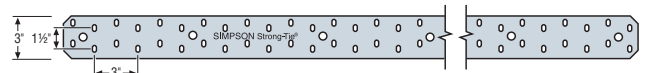
RPS

1. To meet the prescriptive IRC requirement, 16d box nails (0.135" dia. x 3 1/2" long) may be used. Allowable tension load is 0.75 of table loads when installed with 16d box nails. 0.148" dia. x 1 1/2" long nails may be used to meet the 2009–2018 IRC prescriptive requirement.
2. Install with 12 fasteners to meet IBC requirement, and 16 to meet IRC.
3. Refer to Straps and Ties General Notes in C-C-2019 for alternate fasteners.
4. **Fasteners:** Nail dimensions in the table are listed diameter by length.

## MSTC Repair Strap

Codes: ICC-ES ESR-2105 with LA Supplement; Florida FL 10852

Model No.	Ga.	Dimensions (in.)		Fasteners (Total)	Allowable Tension Loads (DF/SP) (160)	Allowable Tension Loads (SPF/HF) (160)
		W	L			
MSTC52	16	3	52 1/4"	(12) 0.162 x 3 1/2"	1,150	995
MSTC52				(16) 0.162 x 3 1/2"	1,535	1,330



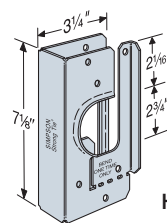
MSTC

1. To meet the prescriptive IRC requirement, 0.162" x 3 1/2" or 16d box nails (0.135" dia. x 3 1/2" long) may be used. Allowable tension load is 0.88 of table loads when installed with 16d box nails.
2. Refer to Straps and Ties General Notes in C-C-2019 for alternate fasteners.
3. **Nails:** Install eight nails at each end of strap.

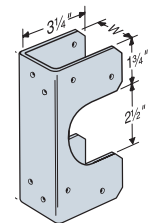
## HSS/SS Stud Shoes

Codes: ICC-ES ESR-2608 with LA supplement; Florida FL 10864

Model No.	Ga.	Stud Size	Fasteners	Allowable Loads <sup>1</sup>		
				DF/SP		Tension (160)
				Compression Floor (100)	Roof (125)	
SS1.5	16	2x	(12) 0.148" x 1 1/2"	500	500	—
SS2.5	16	3x	(12) 0.148" x 1 1/2"	730	740	—
SS3	16	(2) 2x	(12) 0.148" x 3"	730	830	—
SS4.5	16	(3) 2x	(14) 0.148" x 3"	840	840	—
HSS2-SDS1.5	16	2x	(12) SDS 1/4" x 1 1/2"	1,165	1,165	1,025
HSS2-2-SDS3	16	(2) 2x	(12) SDS 1/4" x 3"	1,165	1,165	1,025
HSS2-3-SDS3	16	(3) 2x	(12) SDS 1/4" x 3"	990	990	960
HSS4-SDS3	16	4x	(12) SDS 1/4" x 3"	1,205	1,205	1,025



HSS

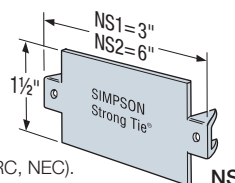


SS

1. Roof loads are 125% of floor loads unless limited by other criteria. Floor loads may be adjusted for load durations according to the code provided they do not exceed those in the roof column.
2. **Fasteners:** Nail dimensions in the table are listed diameter by length.

## NS Nail Stops

Model No.	Min. Thickness <sup>2</sup>	W	L
NS1	0.0625"	1 1/2"	3"
NS2	0.0625"	1 1/2"	6"



1. **Optional Nails:** 8d = 0.131" dia. x 2 1/2" long.
2. Minimum thickness to meet current code requirements (IRC, NEC).



Some of the products shown are available with a ZMAX® galvanized coating for extra corrosion protection. ZMAX coating is sometimes recommended for applications where hardware is being installed onto preservative-treated wood members such as mudsills. See the current *Wood Construction Connectors* catalog or visit [strongtie.com/info](http://strongtie.com/info) for more details.

Need more information on code-compliant solutions?  
We have an extensive library of resources that can help.

### Catalogs



Wood Construction  
Connectors Catalog



Fastening Systems Catalog



Anchoring, Fastening and  
Restoration Systems for  
Concrete and Masonry Catalog

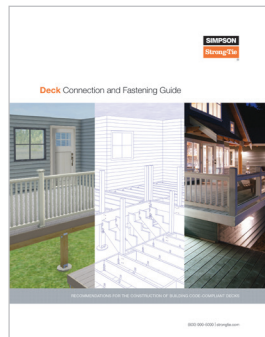
### Application Guides



F-L-PFS19

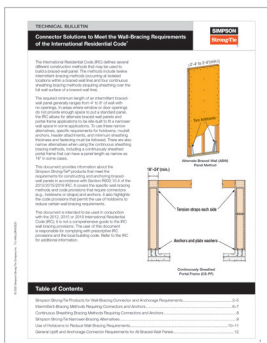


High Wind Framing



Deck Framing Connection

### Fliers and Tech Bulletins



T-C-WALLBRACE20



T-A-SILLPLANCH18

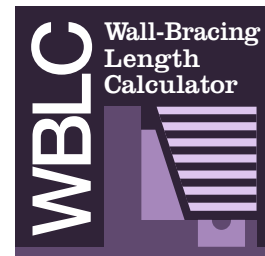
### Web Apps



Code Report Finder



Strong-Wall Bracing Selector



Wall-Bracing Length Calculator