

**H/TSP** Seismic & Hurricane Ties

The Hurricane Tie series features various configurations of wind and seismic ties for trusses and rafters.

The TSP stud plate tie has now been tested in the top-plate-to-rafter connection.

The H2A features an improved design and higher uplift loads to replace the H2. The H10A has a similar design as the H10 but offers higher uplift capacity. The H10S provides a high capacity connection from truss/rafter to stud.

The H2.5T's truncated design was developed to accommodate trusses with 2x4 bottom chords. The easy to install, five nail pattern is stronger and gets better uplift loads than our popular H2.5 hurricane tie. H1, H10, H10S, H10-2, H11Z and H14 have also been rated for download to provide additional bearing capacity

between the truss and wall.

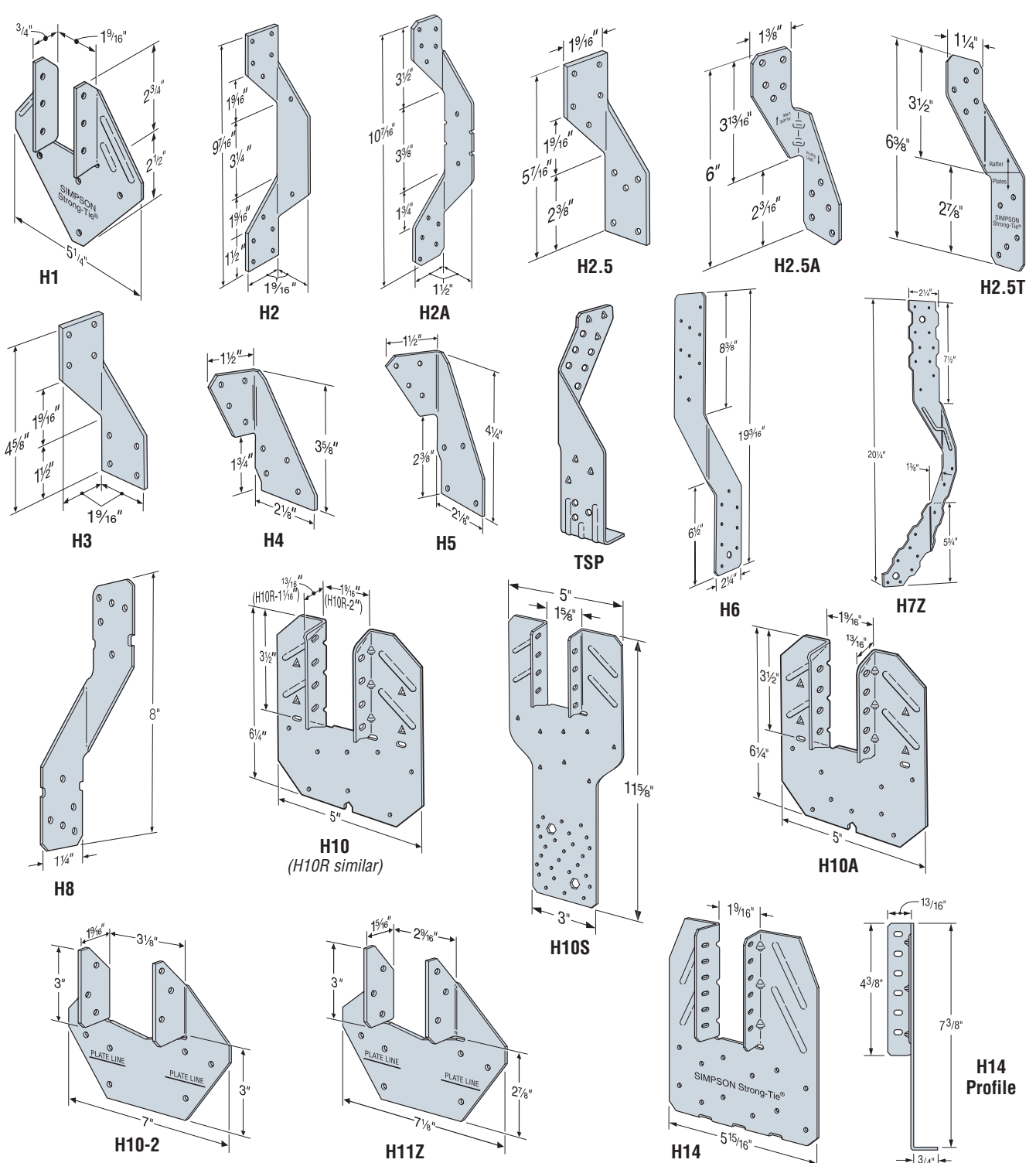
**MATERIAL:** See table.

**FINISH:** Galvanized. H7Z and H11Z—ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, page 18-19.

**INSTALLATION:** • Use all specified fasteners. See General Notes.

- H1 can be installed with flanges facing inwards (reverse of H1 drawing number 1).
- H2.5, H2.5T, H3, H4, H5 and H6 ties are only shipped in equal quantities of rights and lefts. (Rights shown.)
- Hurricane Ties do not replace solid blocking.
- Do not drive nails through the truss plate on the opposite side of single-ply trusses, which could force the plate off the truss.

**CODES:** See page 20 for Code Reference Key Chart.



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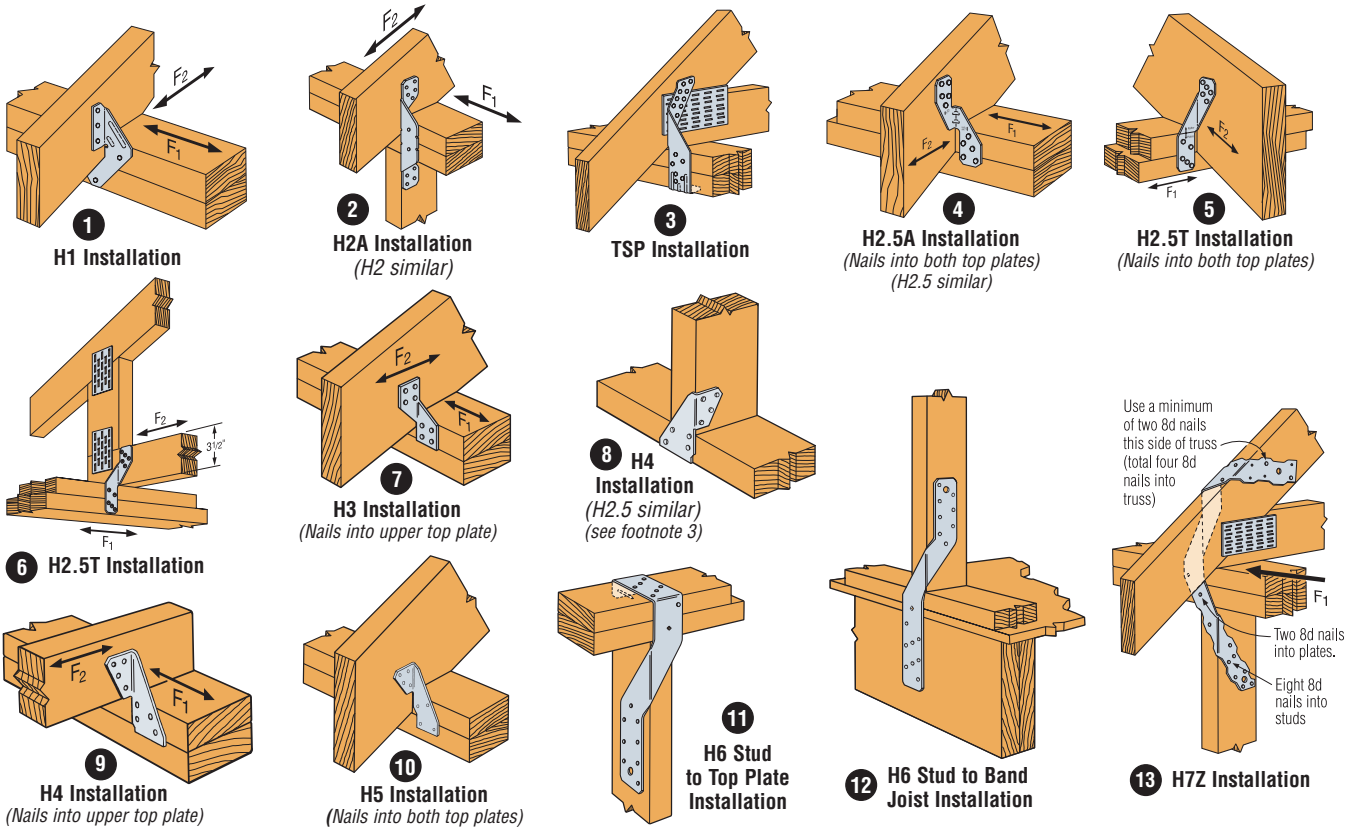
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details.

These products are approved for installation with the Strong-Drive SD Structural-Connector screw. See page 30 for the correct substitution and SD screw size.

Model No.	Ga	Fasteners			DF/SP Allowable Loads			Uplift Load with 8dx1½ Nails (160)	SPF/HF Allowable Loads			Uplift Load with 8dx1½ Nails (160)	Code Ref.
		To Rafter/Truss	To Plates	To Studs	Uplift (160)	Lateral (160)			Uplift (160)	Lateral (160)			
						F <sub>1</sub>	F <sub>2</sub>			F <sub>1</sub>	F <sub>2</sub>		
H1	18	6-8dx1½	4-8d	—	585	485	165	455	400	415	140	370	I17, L6, F16
H2	18	5-8d	—	5-8d	335	—	—	335	230	—	—	230	
H2A	18	5-8dx1½	2-8dx1½	5-8dx1½	575	130	55	—	495	130	55	—	IP1, L18, F25
H2.5	18	5-8d	5-8d	—	415	150	150	415	365	130	130	365	I17, L6, F16
H2.5A	18	5-8d	5-8d	—	600	110	110	480	535	110	110	480	I17, F16
H2.5T	18	5-8d	5-8d	—	545	135	145	425	545	135	145	425	IP1, L18, F25
H3	18	4-8d	4-8d	—	455	125	160	415	320	105	140	290	I17, L6, F16
H4	20	4-8d	4-8d	—	360	165	160	360	235	140	135	235	
H5	18	4-8d	4-8d	—	455	115	200	455	265	100	170	265	I17, F16
H6	16	—	8-8d	8-8d	950	—	—	—	820	—	—	—	
H7Z	16	4-8d	2-8d	8-8d	985	400	—	—	845	345	—	—	I17, F16
H8	18	5-10dx1½	5-10dx1½	—	745	75	—	630	565	75	—	510	F26
H10	18	8-8dx1½	8-8dx1½	—	995	590	275	—	850	505	235	—	I17, F16
H10A	18	9-10dx1½	9-10dx1½	—	1140 <sup>7</sup>	590	285	—	1015	505	285	—	I17, L18, F25
H10S <sup>9,10</sup>	18	8-8dx1½	8-8dx1½ <sup>10</sup>	8-8d	1010	660	215	550	870	570	185	475	IP1, L18, F25
H10-2	18	6-10d	6-10d	—	760	455	395	—	655	390	340	—	I17, F16
H11Z	18	6-16dx2½	6-16dx2½	—	830	525	760	—	715	450	655	—	170
H14	18	1 12-8dx1½	13-8d	—	1350 <sup>7</sup>	515	265	—	1050	480	245	—	IP1, L18, F25
		2 12-8dx1½	15-8d	—	1350 <sup>7</sup>	515	265	—	1050	480	245	—	
TSP	16	9-10dx1½	6-10dx1½	—	740	310	190	—	635	265	160	—	170
		9-10dx1½	6-10d	—	890	310	190	—	765	265	160	—	

1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2½" must be used when framing anchors are installed on each side of the joist and on the same side of the plate (exception: connectors installed such that nails on opposite sides don't interfere).
3. Allowable DF/SP uplift load for stud to bottom plate installation (see detail 15) is 400 lbs. (H2.5); 390 lbs. (H2.5A); 360 lbs. (H4) and 310 lbs. (H8). For SPF/HF values multiply these values by 0.86.
4. Allowable loads in the F<sub>1</sub> direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members.
5. When cross-grain bending or cross-grain tension cannot be avoided in the members, mechanical reinforcement to resist such forces may be considered.

6. Hurricane Ties are shown installed on the outside of the wall for clarity and assume a minimum overhang of 3½" installation on the inside of the wall is acceptable (see General Instructions for the Installer notes u on page 22). For uplift Continuous Load Path, connections in the same area (i.e. truss to plate connector and plate to stud connector) must be on same side of the wall.
7. Southern Pine allowable uplift loads for H10A = 1340 lbs. and for H14 = 1465 lbs.
8. Refer to technical bulletin T-HTIEBEARING for H1, H10, H10S, H10-2, H11Z, H14 allowable bearing enhancement loads (see page 214 for details).
9. H10S can have the stud offset a maximum of 1" from rafter (center to center) for a reduced uplift of 890 lbs. (DF/SP), and 765 lbs. (SPF).
10. H10S nails to plates are optional for uplift but required for lateral loads.
11. **NAILS:** 16dx2½ = 0.162" dia. x 2½" long, 10d = 0.148" dia. x 3" long, 10dx1½ = 0.148" dia. x 1½" long, 8d = 0.131" dia. x 2½" long, 8dx1½ = 0.131" dia. x 1½" long. See page 24-25 for other nail sizes and information.



**H/TSP** Seismic & Hurricane Ties

**14** H8 attaching rafter to double top plates

**15** H8 attaching stud to sill (4-8d into plate, 5-8d into stud, refer to footnote 3 for loads)

**16** H8 attaching I-joist to double top plates

**17** H10 Installation

**18** H10S Installation  
Plate nails for lateral loads only

**19** H10S Installation with stud offset

**20** H10A Installation

**21** H10-2 Installation (H11Z similar)

**22** H14 Installation to double top plates  
Minimum Edge Distance 3/8"  
8d commons to plates. Fill one of three holes to H14 bottom flange.

**23** H14 Installation to double 2x header  
Minimum Edge Distance 3/8"  
8d commons to header. Fill all three triangle holes to straightened bottom flange.

**AVOID A MISINSTALLATION**  
Do not make new holes or overdrive nails!

H10A and H10 optional nailing connects shear blocking to rafter. Use 8d common nails. Slot allows maximum field-bending up to a pitch of 6/12, use 75% of the table uplift load; bend one time only.

**Considerations for Hurricane Tie Selection**

1. What is the uplift load?
2. What is the parallel-to-plate load?
3. What is the perpendicular-to-plate load?
4. What is the species of wood used for the rafter and the top plates?  
(Select the load table based on the lowest performing species of wood.)
5. Will the hurricane tie be nailed into both top plates or the upper top plate only?
6. What load or loads will the hurricane tie be taking?

When a connector is loaded simultaneously in more than one direction, the allowable load must be evaluated as shown here. For all connectors use the following equation:

$$\frac{\text{Design Uplift/Allowable Uplift} + \text{Design Lateral Parallel to Plate} / \text{Allowable Lateral Parallel to Plate} + \text{Design Lateral Perpendicular to Plate} / \text{Allowable Lateral Perpendicular to Plate}}{1.0} < 1.0$$

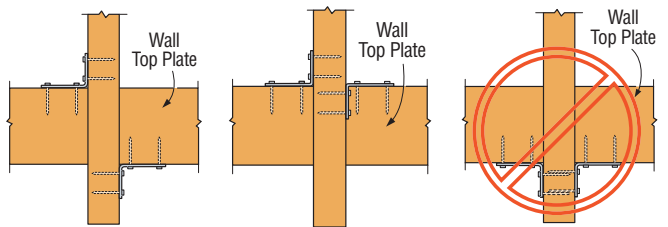
The three terms in the unity equation are due to the possible directions that exist to generate force on a connector. The number of terms that must be considered for simultaneous loading is at the sole discretion of the Designer and is dependent on their method of calculating wind forces and the utilization of the connector within the structural system.

As an alternate, certain roof to wall connectors (embedded truss anchors, pages 161 and 162, seismic and hurricane ties, pages 173-175, and twist straps, page 177) can be evaluated using the following: The design load in each direction shall not exceed the published allowable load in that direction multiplied by 0.75.

7. Select hurricane tie based on performance, application, installed cost and ease of installation.

**Hurricane Tie Installations to Achieve Twice the Load (Top View)**

Both connectors shall be same model.



Install diagonally across from each other for minimum 2x truss.

Products can be on the same side of the wall provided they are configured as shown.

Nailing into both sides of a single ply 2x truss may cause the wood to split.

**VB** Knee Braces

The VB provides lateral resistance force at the bottom of beams when installed approximately 45° or more to the vertical plane.

**MATERIAL:** 12 gauge **FINISH:** Galvanized

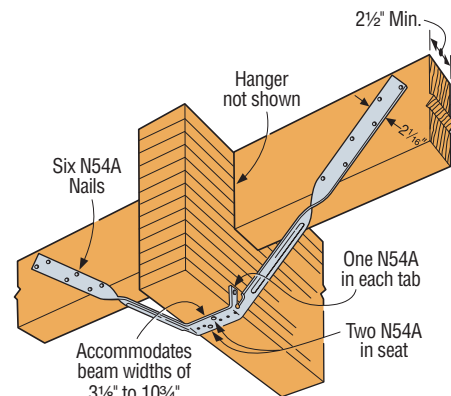
**INSTALLATION:** • Use specified fasteners. See General Notes.

- 16-N54A fasteners are included with the brace.

**CODES:** See page 20 for Code Reference Key Chart.

Model No.	H (Beam Depth)	L	Fasteners (Total)	Allowable Tension Loads <sup>1</sup>		Code Ref.
				Floor (100)	Roof (125)	
VB5	10" - 15"	5'	16-N54A	990	1240	I15, L7
VB7	15" - 22½"	7'	16-N54A	990	1240	
VB8	22½" - 28½"	8'	16-N54A	990	1240	
VB10	28½" - 36"	10'	16-N54A	990	1240	
VB12	36" - 42"	12'	16-N54A	990	1240	

1. Roof loads have been increased 25% with no further increase allowed.



Typical VB Installation

**H Seismic & Hurricane Ties**

The hurricane tie series features various configurations of wind and seismic ties for trusses and rafters.

The H16 series has a presloped seat of 5/12 for double trusses.

The presloped 5/12 seat of the H16 provides for a tight fit and reduced deflection. The strap length provides for various truss height up to a maximum of 13 1/2" (H16 series). Minimum heel height for H16 series is 4".

The HGA10 attaches to gable trusses and provides good lateral wind resistance. The HS24 attaches the bottom chord of a truss or rafter at pitches from 0/12 to 4/12 to double 2x4 top plates.

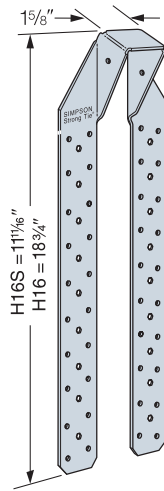
**MATERIAL:** See table

**FINISH:** Galvanized. See Corrosion Information, page 18-19.

**INSTALLATION:** • Use all specified fasteners. See General Notes.

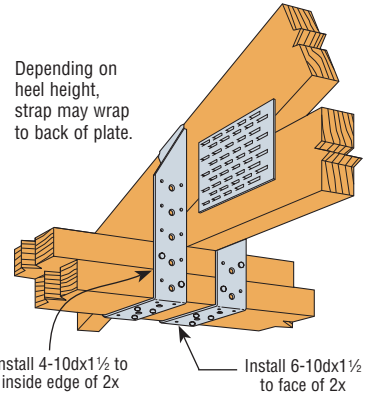
- HGA10KT: sold as a kit with (10) HGA10 connectors. SDS screws are included.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.

**CODES:** See page 20 for Code Reference Key Chart.



**H16 and H16S**

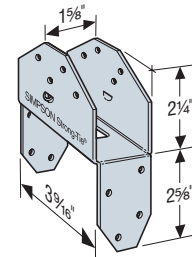
Presloped at 5/12. Truss/Rafter Pitch of 3/12 to 7/12 is acceptable



**H16 Installation**

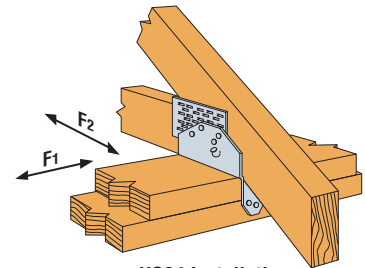
Model No.	Ga	Fasteners			DF/SP Allowable Loads <sup>1</sup>			SPF/HF Allowable Loads <sup>1</sup>			Code Ref.
		To Rafters/Truss	To Plates	To Studs	Uplift (160)	Lateral (160)		Uplift (160)	Lateral (160)		
						F <sub>1</sub>	F <sub>2</sub>		F <sub>1</sub>	F <sub>2</sub>	
HGA10KT	14	4-SDS 1/4"x1 1/2"	4-SDS 1/4"x3"	—	695	1165	940 <sup>6</sup>	500	840	675	F26
HS24	18	8-8dx1 1/2 & 2-8d slant	8-8d	—	605 <sup>3</sup>	645 <sup>3</sup>	1025 <sup>3</sup>	520 <sup>3</sup>	555 <sup>3</sup>	880 <sup>3</sup>	I17, F16
H15	<b>Discontinued – See H10S, H14 or H16</b>										
H15-2	<b>Discontinued – See LGT2 or H16-2</b>										
H16	18	2-10dx1 1/2	10-10dx1 1/2	—	1470	—	—	1265	—	—	F26
H16S	18	2-10dx1 1/2	10-10dx1 1/2	—	1470	—	—	1265	—	—	
H16-2	18	2-10dx1 1/2	10-10dx1 1/2	—	1470	—	—	1265	—	—	
H16-2S	18	2-10dx1 1/2	10-10dx1 1/2	—	1470	—	—	1265	—	—	
H16-2S	18	2-10dx1 1/2	10-10dx1 1/2	—	1470	—	—	1265	—	—	

1. Loads have been increased for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. When cross-grain bending or cross-grain tension cannot be avoided, mechanical reinforcement to resist such forces should be considered.
3. HS24 DF/SP allowable loads without slant nailing are 605 lbs. (uplift), 590 lbs. (F<sub>1</sub>), 640 lbs. (F<sub>2</sub>). For SPF/HF loads multiply these values by 0.86.
4. For H16-2S, S = short.
5. Allowable loads in the F<sub>1</sub> direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members. Additional shear transfer elements shall be considered where there may be effects of cross grain bending or tension.
6. HGA10 F<sub>2</sub> load is for load acting toward the connector. For load away from the connector, allowable load is 780 lbs. DF/SP and 495 lbs. SPF/HF.
7. **NAILS:** 10dx1 1/2 = 0.148" dia. x 1 1/2" long, 8d = 0.131" dia. x 2 1/2" long, 8dx1 1/2 = 0.131" dia. x 1 1/2" long. See page 24-25 for other nail sizes and information.

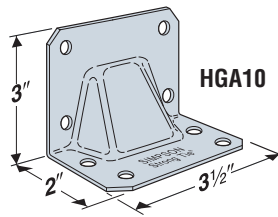


**HS24**

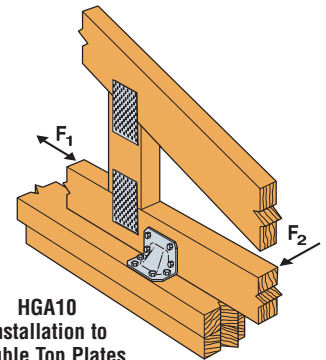
U.S. Patents 5,603,580



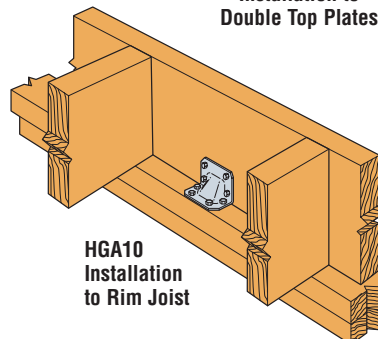
**HS24 Installation**



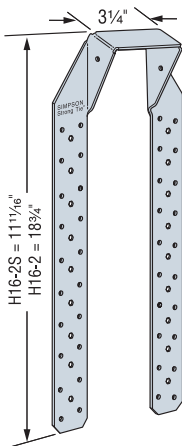
**HGA10**



**HGA10 Installation to Double Top Plates**



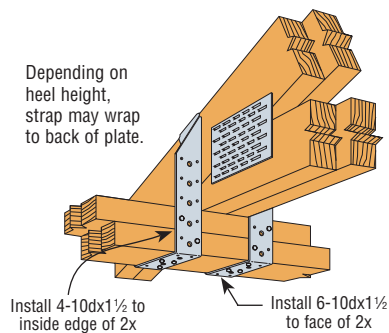
**HGA10 Installation to Rim Joist**



**H16-2 and H16-2S**

Presloped at 5/12. Pitch of 3/12 to 7/12 is acceptable

Depending on heel height, strap may wrap to back of plate.



**H16-2 Installation**