Seismic and Hurricane Ties

Simpson Strong-Tie® hurricane ties provide a positive connection between truss/rafter and the wall of the structure to resist wind and seismic forces.

**Material:** See table

**Finish:** Galvanized. H7Z and H11Z — ZMAX® coating. Some models available in stainless steel or ZMAX; see Corrosion Information, pp. 15–18 or visit strongtie.com.

**Installation:**
- Use all specified fasteners; see General Notes.
- H1 can be installed with flanges facing inward (reverse of H1 installation drawing; number 1).
- H2.5T, H3 and H6 ties are shipped in equal quantities of right and left versions (right versions shown).
- Hurricane ties do not replace solid blocking.
- When installing ties on plated trusses (on the side opposite the truss plate) do not fasten through the truss plate from behind. This can force the truss plate off of the truss and compromise truss performance.
- H10A optional nailing to connect shear blocking, use 8d nails. Slots allow maximum field bending up to a pitch of 6:12, use H10A sloped loads for field bent installation.

**Codes:** See p. 14 for Code Reference Key Chart
These products are available with additional corrosion protection. For more information, see p. 18.

These products are approved for installation with the Strong-Drive® SD Connector screw. See pp. 39–40 for more information.

---

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>18</td>
<td>(6) 8d x 1 1/2”</td>
<td>(4) 8d</td>
<td>Uplift Lateral (160)</td>
<td>Uplift Lateral (160)</td>
</tr>
<tr>
<td>H2</td>
<td>18</td>
<td>(5) 8d x 1 1/2”</td>
<td>(2) 8d x 1 1/2”</td>
<td>575</td>
<td>130</td>
</tr>
<tr>
<td>H2ASS</td>
<td>18</td>
<td>(5) SS8D</td>
<td>(2) SS8D</td>
<td>400</td>
<td>130</td>
</tr>
<tr>
<td>H2,5A</td>
<td>18</td>
<td>(5) 8d</td>
<td>(5) 8d</td>
<td>600</td>
<td>110</td>
</tr>
<tr>
<td>H2,5ASS</td>
<td>18</td>
<td>(5) SS8D</td>
<td>(5) SS8D</td>
<td>440</td>
<td>70</td>
</tr>
<tr>
<td>H2,5T</td>
<td>18</td>
<td>(5) 8d</td>
<td>(5) 8d</td>
<td>545</td>
<td>135</td>
</tr>
<tr>
<td>H3</td>
<td>18</td>
<td>(4) 8d</td>
<td>(4) 8d</td>
<td>455</td>
<td>125</td>
</tr>
<tr>
<td>H4</td>
<td>18</td>
<td>(6) 10d x 1</td>
<td>(4) 10d x 1</td>
<td>890</td>
<td>310</td>
</tr>
<tr>
<td>H6</td>
<td>18</td>
<td>(8) 8d</td>
<td>(8) 8d</td>
<td>950</td>
<td>—</td>
</tr>
<tr>
<td>H7Z</td>
<td>18</td>
<td>(4) 8d</td>
<td>(2) 8d x 1 1/2”</td>
<td>985</td>
<td>400</td>
</tr>
<tr>
<td>H8</td>
<td>18</td>
<td>(5) 10d x 1 1/2”</td>
<td>(5) 10d x 1 1/2”</td>
<td>795</td>
<td>95</td>
</tr>
<tr>
<td>H10A Sloped</td>
<td>18</td>
<td>(9) 10d x 1 1/2”</td>
<td>(9) 10d x 1 1/2”</td>
<td>855</td>
<td>590</td>
</tr>
<tr>
<td>H10A</td>
<td>18</td>
<td>(9) 10d x 1 1/2”</td>
<td>(9) 10d x 1 1/2”</td>
<td>1,140</td>
<td>590</td>
</tr>
<tr>
<td>H10ASS</td>
<td>18</td>
<td>(9) SSN10</td>
<td>(9) SSN10</td>
<td>970</td>
<td>565</td>
</tr>
<tr>
<td>H10AR</td>
<td>18</td>
<td>(8) 8d x 1 1/2”</td>
<td>(8) 8d x 1 1/2”</td>
<td>1,010</td>
<td>660</td>
</tr>
<tr>
<td>H10A-2</td>
<td>18</td>
<td>(9) 10d x 1 1/2”</td>
<td>(9) 10d x 1 1/2”</td>
<td>1,245</td>
<td>815</td>
</tr>
<tr>
<td>H11Z</td>
<td>18</td>
<td>(6) 16d x 2 1/4”</td>
<td>(6) 16d x 2 1/4”</td>
<td>830</td>
<td>525</td>
</tr>
<tr>
<td>H14</td>
<td>18</td>
<td>(12) 8d x 1 1/2”</td>
<td>(13) 8d</td>
<td>1,350</td>
<td>725</td>
</tr>
<tr>
<td>TSP</td>
<td>16</td>
<td>(9) 10d x 1 1/2”</td>
<td>(6) 10d x 1 1/2”</td>
<td>740</td>
<td>310</td>
</tr>
</tbody>
</table>

1. Loads have been increased 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 2 1/2" must be used for the south are of the joist on the same side of the plate (exception: connectors installed such that nails on opposite side don’t interfere).
3. Allowable DF/SP uplift load for study to bottom plate installation (see detail 15) is 250 lb. (H2.5A); 265 lb. (H2.5ASS); and 310 lb. (H2A). For SPF/HF values multiply these values by 0.86.
4. Allowable loads in the F1 direction are not intended to replace diaphragm boundary members or 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 on the outside of the wall for clarity and assume a minimum overhang of 3 1/2". Installation on the outside of the wall is acceptable (see General Instructions for the Installer notes on p. 21). For uplift continuous load path, connections in the same area (i.e. truss to plate connector and plate to stud connector) must be on the same side of the wall. See technical bulletin T-HTIECONPATH at strongtie.com for more information.
7. Southern Pine allowable uplift loads for H10A = 1,340 lb. and for the H14 = 1,465 lb.
8. Refer to Simpson Strong-Tie® technical bulletin T-C-HTIEBEARING at strongtie.com for allowable bearing enhancement loads.
9. H10S can have the stud offset a maximum of 1" from rafter (center to center) for allowable bearing enhancement loads.
10. H10S nails to plates are optional for uplift but required for lateral loads.
11. Some load values for the stainless-steel connectors shown here are lower than those for the carbon-steel versions. Ongoing test programs have shown this to also be the case with other stainless-steel connectors in the product line that are installed with nails. Visit strongtie.com/corrosion for updated information.
12. The allowable loads of stainless-steel connectors match carbon-steel connectors when installed with Simpson Strong-Tie® stainless-steel, SCNR ring-shank nails. For more information, refer to engineering letter L-F-SSNAILS at strongtie.com.
13. Allowable DF/SP/SPF uplift load for the H2.5A fastened to a 2x4 truss bottom chord and double top plates using (5) 8d x 1 1/2" nails into the top plates and (5) 8d x 1 1/2" nails into the bottom chord is 260 lb. (160), 290 lb. (170), (for the models marked with the orange lag only). Full table loads apply.
14. Nails: 16d x 2 1/2" = 0.162" dia. x 2 1/2" long, 10d = 0.148" dia. x 3" long, 8d x 1 1/2" = 0.131" dia. x 1 1/2" long. See pp. 26–27 for other nail sizes and information.
15. Screws: Strong-Drive® SD #9 x 1 1/4" (model SD912) = 0.131" dia. x 1 1/4" long (for the models marked with the orange flag only). Full table loads apply.
Seismic and Hurricane Ties (cont.)

1. H1 Installation
2. H2A Installation
3. TSP Installation
4. H2.5A Installation (Nails into both top plates)
5. H2.5T Installation (Nails into both top plates)
6. H2.5T Installation (Nails into upper top plate)
7. H3 Installation (Nails into both top plates)
8. H6 Stud to Top Plate Installation
9. H6 Stud to Rim Board Installation
10. H7Z Installation
11. H8 Attaching Rafter to Double Top Plates
12. H8 attaching Stud to Sill (4-8d into plate, 5-8d into stud, refer to footnote 3 for loads)
13. H8 attaching I-Joist to Double Top Plates
14. H10A Field-Bent Installation
15. H10S Installation
16. H10A 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.
17. H10A Installation

Avoid a Misinstallation

Do not make new holes or overdrive nails.
Seismic and Hurricane Ties (cont.)

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 option 1 or 2.

**Option 1: Unity Equation**
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.

**Option 2: 75% Rule**
As an alternate, certain roof to wall connectors (embedded truss anchors, pp. 290–291, seismic and hurricane ties, pp. 314–318, and twist straps, pp. 326–327) 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.

Some Hurricane Tie Installations Achieve Twice the Load (Top View)
(H10A, H10A-2, H10S and H14 not included)
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.
Seismic and 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 13⅜" (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. Double-shear nailing allows for higher lateral resistance.

Material: See table

Finish: Galvanized; see Corrosion Information, pp. 15–18

Installation:
- Use all specified fasteners; see General Notes.
- HGA10KT: sold as a kit with (10) HGA10 connectors. Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws are included.
- Additional screws sold separately to install with all SDS25112 screws.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.

Codes: See p. 14 for Code Reference Key Chart

### Material

- See table

### Finish

- Galvanized; see Corrosion Information, pp. 15–18

### Installation

- Use all specified fasteners; see General Notes.
- HGA10KT: sold as a kit with (10) HGA10 connectors. Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws are included.
- Additional screws sold separately to install with all SDS25112 screws.
- HS24 requires slant nailing only when bottom chord of truss or rafter has no slope.

### Codes

- See p. 14 for Code Reference Key Chart